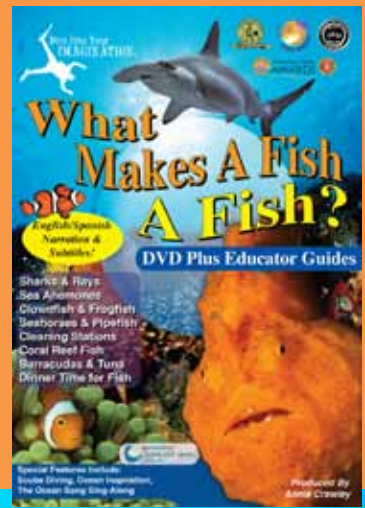
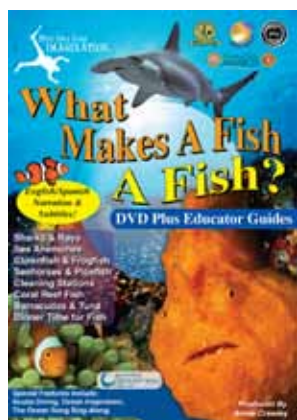


Educator Guide to What Makes A Fish A Fish? Grade Level 1 - 3

ISBN 978-1-939189-02-8

By Michele Hoffman Trotter
and Annie Crawley





Educators Guide to What Makes A Fish, A Fish? Grade Level 1 to 3

By: Michele Hoffman-Trotter
& Annie Crawley, aka Ocean Annie

Find More Here:

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*Dedicated to Mother Ocean,
Harriet Pergande, and Sandra Hoffman*



Annie Crawley
DIVE INTO YOUR IMAGINATION

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Please purchase only authorized electronic editions and do not participate or encourage electronic piracy of copyrighted materials. Please contact Annie Crawley if you are interested in distribution agreements. Your support is appreciated. Thank you for giving the gift of the ocean to all the children in your life. When you reach a child, you change history.



Educators Guide to What Makes A Fish, A Fish

Dive Into Your Imagination is changing the way a new generation views the ocean and themselves. Founder Annie Crawley, born and raised in Chicago, did not see the Ocean until College. Learning to scuba dive changed her life. Scuba diving allows people to explore, study, and experience our ocean. Dive Into Your Imagination was founded and this project was conceived to bring the ocean to children via educators by integrating all content areas, including character education and a behavioral component in which children use their imagination and become scuba divers during lessons. Students learn the golden rule of scuba diving and of life: *"If you get excited remember to: Stop, Think, Breathe slowly and then Act!"* Contact us if you are interested in bringing Annie Crawley, aka Ocean Annie, to your school system for dynamic multi-media programs designed to leave a lasting impression on students, parents, and teachers.

Our ocean is 90% unexplored; yet we are completely interconnected. Our ocean is responsible for our weather, oxygen, water, and 70% of our population relies on the resources from the sea as their main source of protein. Everything we do on land affects our ocean. We want children, educators and parents to love the ocean because we protect what we love. Dive Into Your Imagination wants you to become involved in the Ocean Revolution happening on our planet. Please call, text, email, bing, youtube, facebook, tweet, tumble, and share your experiences with us or follow us on our blogs and through social media. *We are a global society and our ocean is our universal language.*

"Sometimes we need one person to believe in us until we can believe in ourselves." As educators, you are that one person for each of your students.

Award winning Underwater Cinematographer and high definition pioneer, Tom Campbell, was that person for Annie Crawley. She met Tom on a rainy afternoon 14 years ago when Manta Queen Dr. Andrea Marshall was a student at UCSB working for him. Annie needed a member of the National Press Photographers Association to approve her application and she targeted Tom because he was her underwater photography hero. When she told Tom she wanted to specialize in the underwater realm, Tom said, "It's the toughest industry in the photographic world."

He was not kidding; his brutal honesty committed and pushed her to demand excellence. Tom left a lasting impression on Annie, as all great teachers do and his words of encouragement still ring in her head. Tom watched Annie grow and during the past decade he coached, mentored and even hired her to go on expedition. Because of Tom's guidance and willingness to mentor Annie, she too has become the teacher sharing the knowledge through her books, videos and these educator guides. A true Guru is forever the teacher, forever the student. Special thanks go to Tom Campbell for his belief in Annie, the vision of Dive Into Your Imagination, and the desire to help educate our world about our ocean.

Give thanks and gratitude for everyone and everything.

The Dive Into Your Imagination series of DVDS, books and educators guides would not have been possible without the support of grants from the Save Our Seas Foundation (SOSF). SOSF is a non-profit organization that initiates and supports numerous projects focused on conservation, awareness, research and education of the global marine environment. For more information visit www.SaveOurSeas.com

Marine ecosystems around the world have been greatly diminished due to overfishing, pollution and habitat loss. To make a difference, together we need to raise awareness, create educational programs and inspire people to appreciate the intricate nature of how we are all bound to the health of the sea. Through these materials, we hope you can teach and inspire children to become the future custodians of our marine world. As long as there are people who care and take action, we can and we will make a difference.

What Makes A Fish, A Fish?

THANKS TO OUR CONTRIBUTORS

These lessons would not have been possible without the generous and brilliant contributions of exceptional educators, artists, and subject matter experts. We are infinitely grateful for your experience, ideas, editorial support, and unwavering belief in this project. Special thanks to Amy M. Ludwig, extraordinary educator, mother, and thought leader and Mike Braniger for believing in the vision before it was conceived!

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Michele Hoffman-Trotter wishes to personally thank Annie Crawley for her ambition, inspiration, and vision; my beautiful boy Ryan, my primary motivation for wanting to make the world a little better and cleaner; my husband Bob, my rock (and when needed my backbone); my spectacular parents, Sandy and Les who always believed I could achieve; and my Grandpa Dr. Herbert P. Albert; who had the foresight and wisdom to tell me when I was a very small child that "our future is the ocean".

We create our character and our lives. Faith, Courage, Enthusiasm coupled with Patience, Persistence, Perseverance and Passion are the seven words Annie Crawley lives by. There is great power in the words we say to ourselves and the words we give to others. Motivational Speaker Les Brown has become a force in Annie's life as he has mentored her for more than a decade.

"Can you do more than what you are doing today? Whatever goal you have, you first must believe it is possible. Embrace yourself and believe. You can go beyond what you are capable of if you believe in yourself."

Annie Crawley is a member of the Les Brown Platinum Speakers, trained by Les Brown. For more information on bringing Ocean Annie, aka Annie Crawley to your school, group, or for professional development, contact her today.

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HOW TO USE THIS BOOK

Whenever a scuba diver or snorkeler enters the ocean, they experience a world in which the unbelievable is real. Purple staghorn coral, rainbow fish, sharks, dolphins, sea stars and creatures that look like they come from outer space live beneath the surface of our one ocean. Human beings have a direct connection with the sea, just think of how you feel when you see a dolphin. It is our goal that you use the ocean to engage your students to learn English, Science, Geography, Communication Skills, Math and Character Education.

The more we learn about the ocean, the more we understand how it affects our weather, climate and makes earth habitable. Humans are inextricably interconnected to the ocean. New species are being found beneath the sea as the ocean is 90% unexplored. These lesson plans allow you to enter the water with your students as Imagination Explorers and scuba divers, so you can view this underwater world as a brilliant masterpiece. The ocean is an underwater living museum, providing both education and entertainment. Together, you will cultivate many ideas on this journey. Encourage your students to question all they see while guiding them to seek answers. Help them apply scientific inquiry to all aspects of their lives.

On the Dive Into Your Imagination DVDs there are always bonus materials you can view to gain a deeper understanding for what one needs to be a scuba diver and underwater explorer. You can also purchase complimentary books, DVDs and more lesson plans combining photographs, cartoon characters and high definition footage for further discovery and learning. The Adventures of Ocean Annie, Makaio, Fringy the Ichthyologist Fish and Finnagain the Friendly Shark will engage your students for hours. You may even want to visit your local scuba diving shop to discover scuba diving in a swimming pool near you!

Thank you for becoming an ocean classroom. With *The Educators Guide to Explore What Makes A Fish, A Fish*, you are going to cultivate students who want to use their imagination, learn and discover. Thanks for helping change the way a new generation views the ocean and themselves. Our ocean needs to be protected and we protect that which we love. We look forward to your emails with questions, suggestions, comments, or to find out how you can bring the real Ocean Annie to your school! Remember to keep diving into your imagination!

*Hi, I'm OCEAN ANNIE!
WELCOME! We have lots of FUN tips to
share with you and your students in all
the lessons and activities!*



INTRODUCTION

The *Educators Guide to Explore What Makes A Fish, A Fish* brings the award winning Dive Into Your Imagination DVD, *What Makes A Fish, A Fish* alive in your classroom. This guide corresponds with each chapter from the DVD of the same title produced by Annie Crawley about life in the ocean. These cross-curricular lessons are ideal for young learners and bring science together with Art, Language Arts, Geography, Math, Music, Social Studies, Movement, Teamwork, Collaboration, Character Building Skills, Imagination Play and more.

For each chapter of the video there is a lesson plan that includes:

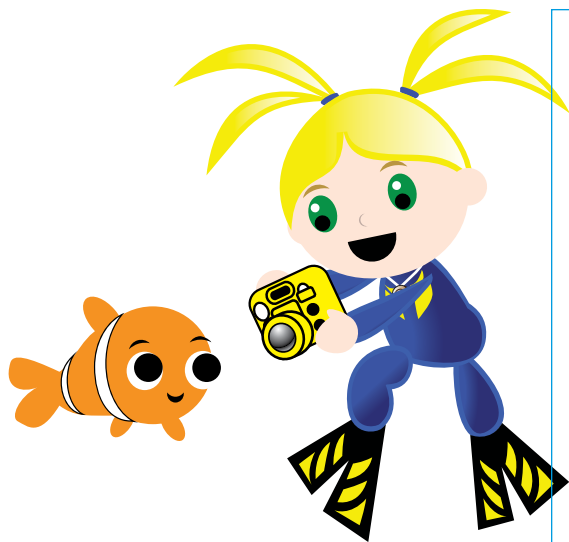
- a. Character education and imagination play for your students.
- b. A set of student questions correlating to the lessons designed to prompt discussion and enhance learning during video and multi-media viewing.
- c. Ideas and support materials you can use to build learning centers in your classroom which combine science with other core subjects.
- d. A glossary of scientific terms, eco-tips and websites for educator content support.
- e. Suggested book lists and extension activities that can be used to bring an ocean of imagination flooding into your class.

WHO IS THIS BOOK FOR?

This book is designed for educators to use in planning ocean based activities for students combining science, literacy, math, geography, and character education. It is important to recognize individual and collective capabilities of the students in your class, and modify activities to address the needs of each student. Though each unit provides several learning station activities, we suggest choosing 2-3 of them for use at any one time. Our goal is to provide you with many tools and options in order for you to customize a program appropriate for your class.

I'm Makaio! Learning about the ocean and SCUBA diving is so FUN for us, we want to share as much as we can! So you will hear from us throughout this book!





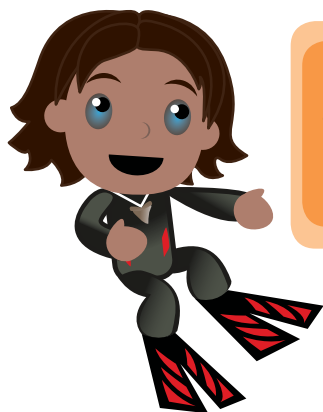
HOW IS THIS BOOK ARRANGED?

Each chapter of the DVD, *What Makes A Fish, A Fish*, is presented starting with an introductory question and answer section giving you the tools necessary to introduce and pre-teach important aspects of the video segment. Following each introduction are activity center concepts with extension ideas. At the end of the book is an appendix aligning each lesson with key educational standards and a master book list for suggested further reading.

Each chapter contains the following:

1. General Concepts/Topics to Teach
2. Objectives
3. Character Education
4. Treasure Chest of Vocabulary Words
5. Required Materials
6. Anticipatory Set: Lead In Questions and Answers
7. Imagination Play Script
8. Classroom Activity Stations
9. Extension Ideas and Journaling
10. CCSS Alignment
11. Book List/Applications/DVDS Specific to tie Activities and Character Education
12. Closure and Follow-Up
13. Plan for Independent Practice
14. Transcript of DVD
15. Go Blue Environmental Section

OCEAN tips share fun and engaging ocean facts from the recommended Ocean Literacy Standards.



SCUBA tips share physical and mental behaviour tips you can use to keep your students engaged in the activities.

Below is an overview of what to expect in each of the sections listed above.

General Concept/Topics To Teach

This part of the book explains the key topic addressed in the lesson plans and the central ideas or take away themes for students. Science is a fundamental part of our lives and the scientific method of inquiry is a cornerstone enabling us to think logically through everyday issues. These lesson plans are underlain with science, math, English, art and imagination concepts, and include a cross curricular approach to science based thinking. In addition, the students will learn how to think, synthesize information and take a global approach to learning about our environment.

Objectives

This section explains the key purpose of the lesson and concepts or ideas that are to be conveyed in greater detail. Also included are the skills students will have an opportunity to exercise as they participate in the learning station activities.

Character Education

Dive Into Your Imagination materials encourage students to imagine they are marine biologists, scuba divers, scientists, artists, boat captains, submarine pilots, underwater filmmakers and much more. Through our specialized behavioral philosophy, we combine a solid foundation in science with imagination to achieve a cross-curricular approach to education. This methodology is designed to make science relevant in daily life and take exploration to a new depth of understanding.

Ocean Annie provides educators with a basic understanding of what it is like to be a scuba diver so you can become a Scuba Instructor

in your class. You can then guide students toward becoming imagination explorers and scuba divers. Most importantly, knowing the fundamental rules of scuba diving will provide you with an opportunity to manage your classroom in a whole new way through our specialized style of communication skills. This section addresses the basics of Scuba diving and provides you with the framework needed to help your students **Stop, Think, Breathe Slowly and then Act**. This tool helps your students center their bodies and minds as they begin to explore the exciting world of science and the ocean. Use your imagination and take your students scuba diving in your classroom each day!

Treasure Chest Of Vocabulary Words

This section introduces vocabulary words unique and specific to the ocean education topics being discussed in the lesson plan. At the end of the book is a complete glossary with definitions you can use to create word lists or an Ocean Dictionary for your classroom.

Required Materials

This is a list of all items and tools needed for each lesson plan, and then within each specific activity station is a required material list for the activity.

Anticipatory Set: Lead In Questions And Answers

Lesson plans include a set of introductory discussion questions designed to assess and build students' background knowledge. There are many effective strategies teachers can use to help begin a lesson. Below are descriptions and icons of popular strategies we suggest to help get you started.



KWL

"KWL" methodology can be very effective with young learners. This strategy addresses what the students already **Know**, what they **Want** to know, and by the end of the lesson what they have **Learned**. KWL is effective even with non-readers. When educators use written lists, it provides a visual point of reference for the learner to measure progress. A discussion comparing and contrasting prior knowledge to knowledge gained is important to help the students further understand achievement and boost self-esteem.

KWL involves dividing a board or large sheet of paper into three columns labeled K, W, and L across the top. Before the activities begin, the educator will screen students for what they think they already know about the subject. Educator will collect students' ideas on the board in the "K" column. Writing a student's name or initials next to his or her fact is very empowering for them.

Next, ask students what kinds of facts they *want* to know "W" and record those in the "W" column. At this point it is time to watch the chapter of the DVD corresponding to the lesson. This is also an ideal opportunity to ask students to become buddy teams as they watch the film, and to "Think, Pair and Share" about what they experienced while watching the film. As scuba divers, working in teams comes naturally. Asking students to work as buddies as they look for information together, and share what was learned with a buddy is an easy way to increase socialization and promote consensus before fact sharing with the larger group. As students complete their activities, continue to add new facts they have learned to the "L" column.

What Makes A Fish DVD can be viewed in English, Spanish, or with *no dialogue at all*. To pick the language selection, visit the main menu of the DVD and make a choice from the tabs English, Spanish or Music Only. You can play chapters more than once to shift student focus and have complete emphasis on the visual content. Be prepared for your students to get very excited because the real ocean animals in the DVDs are professionally filmed in a way that incorporates multi-sensory stimulation. All Dive Into Your Imagination programs are designed to foster a love of the Ocean because we protect what we love.



List – Group – Label

Another effective introduction method is List-Group-Label. Begin to "List" by asking students to brainstorm words they can relate to or reminds them of the topic being discussed. For example if the subject is fish, students might suggest words like swim, fins, or gills. Record student responses, even those that do not accurately reflect the main topic.

Next, provide students with an opportunity to break into small groups or buddy teams and work to group the class list of words into subcategories. Inaccurate words may be ruled out at this time. Challenge students to explain reasoning for placing words together or discarding them.

Finally, ask students to label or title the groups of words they have formed. For example, fins, mouth, and gills could be labeled "body parts". The groupings can be revisited after watching the video to check for inaccuracies, students may also regroup or add to categories to reflect their learning.



Anticipation Guides

Another introduction exercise you can use are anticipation guides. Write several true or false statements about key ideas from the main topic in chart form. Columns can be provided following the statements for the student to check off true or false, yes/no, or agree/disagree, etc. Read each of the statements and ask students if they agree or disagree with the statement. Have the students watch the film clip paying close attention and listening for the statements they want to verify. They may take notes during this time or make changes to their anticipation guide. Bring closure to the session by rereading each of the statements and determining the correct answer. Challenge students to make changes to the false statements to make them true.



Word Maps

One final introductory exercise idea is to build word maps. Begin by selecting a key vocabulary word from the unit and placing it in the center of the map. Help students define the word by placing boxes around the key word including: definition, synonyms, and antonyms. Students can also use the word in a sentence, or draw a picture. Ask students to suggest words or phrases to put in the other boxes, which describe the key vocabulary word. The class can review the word map following the video to make changes and or additions to reflect their learning.

Imagination Play Script

Each lesson includes elements of imagination play. Everything we use in our lives from the pencils we write with, the chairs we sit in, to the mask and fins we use to snorkel began with an idea in someone's mind. Through experimentation, knowledge, education, and creativity our ideas turn into reality. Dive Into Your Imagination wants children to be able to actively use their imagination as a fundamental component of every lesson.

Science is the foundation of logical thought, directed by inquiry, curiosity, and the quest for knowledge. Science is how we figure things out. It is a systematic way of thinking. We are all scientists in our exploration of life. By encouraging

the use of imagination in children, we enhance their learning and their lives. It is important for children and adults to know they do not have to aspire to be a scientist in order to communicate ideas that are scientific. Science is important in art, entertainment, medicine, law, and every discipline in which we engage. This section will give you ideas to stimulate your students' imagination before the activity begins.

I'm Finnagain the Shark. I want to help you learn the truth about sharks in our ocean there are many myths!



Classroom Activity Stations

A complete “materials” list provides you with items required for each activity set up. The “Objective” section describes the purpose of the activity, the skills and the abilities the activity helps your students build. A “Lesson Procedure” section details the steps of the lesson together with discussion ideas.

Extension Ideas And Journaling

This section provides you with ideas to further learning by including extra activities you can have your students do individually, as buddies, at home, or as a class. We also recommend each student creates a journal. Asking students to collect their work in a journal is an integral part of helping them to see in a concrete way how much knowledge has been gained on a subject. Compiling art work, activity sheets, vocabulary, sentences, and stories into a central point of reference, such as their own *What Makes A Fish A Fish Book*, provides students with a reflection of what they have learned.

Common Core State Standards CCSS Alignment

This section shows you how each lesson aligns directly with Common Core State Standards (CCSS). We will be building this area to demonstrate how our lesson elements align with Math, Literacy, and Science standards. As you use this guide and create other connections, please share these with us. We will be continuing to update as more and more educators use the ocean to teach math, science, and literacy! Thanks for your help in continuing to advance this guide.

Book Stalls and Master Book List

Suggested topic specific books are recommended at the end of each lesson so you can build a book stall for students to explore and further their knowledge on the subject being taught. All book suggestions have been reviewed and approved by educators and team members of Dive Into Your Imagination. They are the highest quality, accuracy, and content available for each subject on the market. The book stall list also incorporates a bonus activity, incorporating the character education topic related to the lesson. At the end of this Educators Guide, a master book list contains all of our book suggestions, including appropriate age range and a brief summary of the book.

Closure and Follow Up

Here we provide you with ways to discuss and review what the class has learned, assess learning, detail plans for independent practice, and underscore the connectivity between this activity and other academic subject areas.

The reflection discussion time can also be used to talk with students about relationships in nature and our important role in keeping the planet healthy. Tie ins can include things your students already understand, such as the way we depend on doctors and dentists to keep our own body healthy. It is essential to have respect and concern for our planet and all living things because human beings rely on nature and our ocean for a healthy planet. This relationship with nature can be similar to the relationship we have with our parents, ourselves, and loved ones. Emphasize there is no animal in the ocean or anywhere that lives completely alone or independent of other living things, we are all interconnected. Pick out elements from the lesson that demonstrates our interconnection.

Encourage students to think of ways humans rely on the ocean to illustrate the important connection that all living things have with a healthy ocean. The phytoplankton mass in our ocean is responsible for 70% of the oxygen our planet needs. Everything we do on land affects our ocean. If our Ocean is unhealthy, our planet is unhealthy.

Plan For Independent Practice

Ideas for expanding your lesson are provided here. The concepts and ideas provided here can be used to perpetuate study beyond the classroom, foster a student's independent abilities, and even create a class or school project reaching families and your community.

Transcript of DVD

The text from the DVD is provided so you can select words or review content as needed for use with your class. You can also have students practice reading the script and create their own story based on the script. Please note that a script for a DVD is not necessarily grammatically correct if reviewing from a language/literacy point of view. Scripts are created so they sound correct to the listener.

Go Blue! Environmental Section

Go Blue is information for you, and for your students to share with their families. These can be reproduced, posted, or sent home as a way for families to stay in touch with what their children are learning. They raise awareness of issues impacting ocean health and give tips and ideas about how we can all change our daily lives to help restore health to the planet. Using these concepts, families take an active role in

protecting our environment. This tip section provides educators with ideas for extension activities and additional lesson plans.


Ocean Literacy

Within each activity a direct connection is drawn to principles called Ocean Literacy Standards endorsed by the National Marine Educators Association. The Ocean Literacy Campaign is a wide-ranging, collaborative and de-centralized effort by scientists and educators to create a more ocean literate society.

Standards

All of the Dive Into Your Imagination lesson plans are designed to achieve benchmarks set out under Common Core State Standards (CCSS), Mid-continent Research for Education and Learning (McRel), and Ocean Literacy Standards (OLS). Teachers can make informed decisions and modifications as needed to align with the needs mandated by individual state or district standards. Please share with us any additional CCSS alignments you create.

Now, slip into your wetsuit, get your mask on, grab your fins. Let's get ready to Dive Into Your Imagination and explore our Underwater World! On the count of three, you know the magic words! 1, 2, 3...imagination!



*We want you to love
our ocean because we
protect what we love.*

NOTES

The ocean allows
us to live on earth.

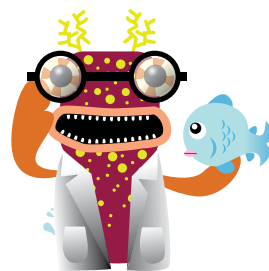


What Makes A Fish, A Fish?



A

What Makes A Fish, A Fish?



CONCEPT / TOPICS TO TEACH

Fish come in many forms, shapes, sizes, and colors, yet they share common characteristics that make them “fish”. In order to be a fish, an animal must *live* primarily in water, be a vertebrate with a skeleton, use gills to breathe, have fins for propulsion, and a mouth. Fish are called ectotherms because they get heat from the outside of their body. Scientists who study fish are called ichthyologists.

Objectives:

- » Students will learn the biological definition of a fish and the specific body parts that define them by using visual and verbal descriptions so that students can independently identify and describe key features of fish biology.
- » Students will learn how various body parts and organs of a fish work so that students can recount how different body parts function and why they are important to fish.
- » Students will be introduced to different forms of fish life in the ocean and how scientists, known as ichthyologists, study fish. Students will then give examples to illustrate biodiversity.
- » Students will apply concepts learned from “What Makes a Fish, a Fish” DVD to various cross-curricular exercises. Stations are designed to support the concept that there are many kinds of fish but all fish must have specific body parts.

Character Education: CREATE

We want children to grow up realizing that with every action they take, they get to choose their actions and reactions. As students grow up, you can often hear them say, “Do I have to do that?” and we want to replace the “have” with “choose” and hear them say, “*I choose to do this!*” When we grow up understanding every action is a choice, we come to realize we **CREATE** our lives. **CREATE** your life! Children state many dreams, whether it is to be a mother one day or President the next, they can achieve their dreams as long as they know the steps and goals they need to set for themselves. Children hear the word “no” thousands of times before they meet their first teacher. We want you to help them use their imagination, dream, and understand they have the ability to **CREATE** their life experience starting in your classroom! During this lesson, introduce the word **CREATE** to your students and use this concept during your lessons. Just for fun, see how many times you can incorporate the word *choose* instead of *have* into your interactions with your students!

Ocean Annie and Scuba Divers choose and CREATE!

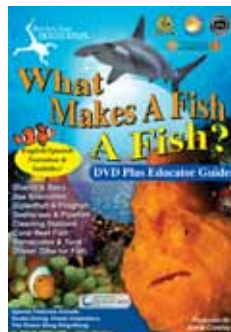
Before every trip, divers get to choose the location to travel to for scuba diving or snorkeling. Scuba Divers research and study special locations or animals they might see. The more scuba divers study and educate themselves, the more dreams they have about where they will go. Scuba diving is so much fun when you get to share experiences with a buddy. Remind your buddy teams they get to **CREATE** their experience

in your class through their imagination. Take a moment and go over the hand signals they need to use underwater to communicate. Have them signal, it is OK to go down with their buddy. Also remind them of the hand signals to use if they get excited: Stop, Think and Breathe Slowly. Have them think about what experience they will **CREATE** when using their imagination and scuba diving. On the count of 3 have them say the magic word and imagine they are scuba divers! 1, 2, 3....Imagination!

Getting Started

Required Materials

- DVD "What Makes A Fish, A Fish?" by Dive Into Your Imagination
- Large Dry Erase Board/Easel and Markers



TREASURE CHEST

- Bone
- Cartilage
- Ectotherm
- Fins
- Fishes
- Gills
- Hover
- Hydrodynamic
- Ichthyology
- Ichthyologist
- Organ
- Scales
- Scientist
- SCUBA
- Skeleton
- Species
- Swim bladder
- Vertebrate
- Water

Anticipatory Set Lead-In

- ✧ Watch and become familiar with chapter one called "What Makes A Fish, A Fish" on the DVD with same title "What Makes A Fish, A Fish?" before playing for students.
- ✧ Review questions for students and build a brainstorming session.
- ✧ Have students use their imagination and become an ichthyologist, meaning they are scientists who specialize in the study of fish. Ask students to work with their team or a buddy to collect information during the run of the video clip. Play the clip and review what they learned before moving on to activities.

Here are some questions and answers you can use to build a brainstorming session:

KWL

LGL

AG

WP

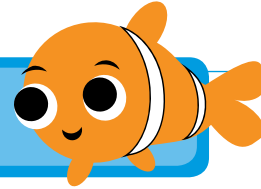
Questions for Students	Answers for Educators
Do fish breathe?	Yes! They use gills to extract oxygen and other life supporting gases from the water in their environment.
Do <i>all</i> fish swim?	No! Some fish like frogfish have fins that are modified so that they can walk or crawl on them.
What kinds of body parts must an animal have to be a fish?	Gills for gas exchange. A backbone which is why they are vertebrates. Scales or skin. Fins to move.
What do fish have instead of lungs?	Gills. Gills are an organ that allows life supporting gases from the water (oxygen) to enter the body and support life function.
What part of the body do fish use to move around and/or swim?	Fins. Fins can be used as a rudder for steering, for propulsion, or even as modified legs for crawling.

Video Review

- ✧ After watching the chapter about “What Makes A Fish, A Fish” once, or even a few times, discuss and write down additional facts, questions, and information students gained from the video for further research and discussion.
- ✧ Ask students to write a reflection in their journal about what makes a fish, a fish.
- ✧ We have the ability to create our life through our thoughts, words and actions. What we say to ourselves matters. Have students create themselves in your class. On a board, create a list of 10 positive characteristics your students can identify with.

Imagination Value

Scuba divers
act responsibly.



Before the activities begin, use this as an imagination exercise with your students. You can use this as a movement activity and have them act out what you are saying, or have them be silent and use their minds only. Ask children to imagine they are scuba divers or ichthyologists. By having them focus and gain a connection to the animals, they will attain critical elements of imagination play. You can read this script or use your imagination and create your own!

Imagine you are a scuba diver, underwater photographer or scientist! On the count of three, pick one and say the magic word: Imagination! 1, 2, 3...IMAGINATION!

“Imagine you are a great swimmer. You have learned how to scuba dive and enjoy watching and studying fish. You can even swim like a fish with your fins and breathe underwater because of your scuba tank of air. You get to watch fish swim all around you. You can see their beautiful scales and watch them breathe through their gills. You are diving on a coral reef and see parrotfish, clownfish, butterflyfish or maybe even a shark! Now get with your buddy and take turns using hand signals to describe your experience. By first using your imagination to be a scientist and scuba diver to study the fish, you connect with the animals. Go on, open your mind, think and use your imagination to CREATE before you start the activities. What do fish look like? What do fish eat? Where will you travel as you discover, What Makes A Fish, A Fish?”

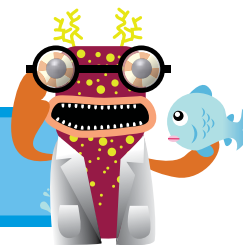
Alternative: Imagine you are a fish living in the sea! On the count of three, say the magic word: Imagination! 1, 2, 3...Imagination!

“Imagine you are a great swimmer. You can even swim like a fish with your fins. Come on! Let’s use our imagination and imagine how you would swim like a fish! Your arms and legs become fins, you have rainbow scales or skin and you breathe with your gills. You can be a parrotfish, clownfish, butterflyfish or even a shark! How do you see? What do you eat? Where do you live? Are you a tropical reef fish or do you live in a kelp forest? By first using your imagination to become the fish you will connect with the animals. Go on, open your mind, think and use your imagination to dream before you start the activities. What do you look like? What do you eat? Where will you live under the sea as you discover, What Makes A Fish, A Fish?”

CLASSROOM ACTIVITY STATION A1

SCHOOL WITH ME

*All pollution becomes water pollution.
Reduce, reuse and recycle.*



Overview

Each student will decorate their own custom fish for the “School with Me” bulletin board and write a list of words, sentences, or a short story incorporating new vocabulary from the DVD. More advanced students can write about where in the ocean their fish might live: cold or warm water; a coral reef or kelp forest; deep water or shallow; etc. This project will help students build *vocabulary, literacy, creativity, artistic ability*, and practice *creative writing skills*.

Materials: Fish Outline, Crayons, Markers, Glitter, Paint and other things students can use to design their fish, Scissors, Glue sticks, Paper or note cards for recording, Pencils

Talking Points

- ✧ Where in the ocean do fish live?
- ✧ *Fish are found throughout the entire world ocean. A globe or map can be used to demonstrate how it is possible to travel the entire ocean without crossing land. Also we teach students five names for the ocean: Pacific, Atlantic, Arctic, Indian and Southern; yet with this exercise you can show them there is only one ocean with several ocean basins we have named.*
- ✧ Do fish live in warm water and in cold water?
- ✧ *Fish are found in warm waters and even freezing water. Use a map to help students get a feel for the warm waters concentrated around the equator and the extreme cold at the poles.*
- ✧ Where do fish live and describe what those places might look like.
- ✧ Fish live in undersea forests, on coral reefs, in caves, around undersea volcanoes, etc. The more diverse the list, the more it will help students be creative when they think about how they want to design their fish. It is important for students to understand that environments in the ocean are very much like environments on land. There are mountains, forests, hot springs, etc.

Lesson Procedure

1. As a class or in buddy teams, brainstorm and record a list of vocabulary words that relate to fish biology, how fish move, and different environments where fish are found. This list can later be used as a reference tool. You can use the treasure chest of words to get started.
2. Provide each student with a fish shape to decorate and/or allow students to craft their own. Remind them about their ability to “create.”
3. Once each child has finished designing their fish, post them up in the classroom.
4. Ask students to write words, sentences, or stories describing their fish and the environment where it lives in their journals. Have students pair and share, or read their writing aloud as a class.

CLASSROOM ACTIVITY STATION A1 (Continued)

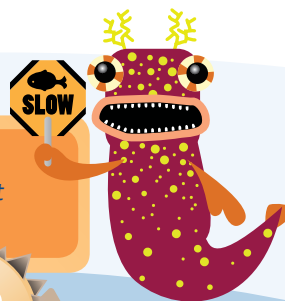
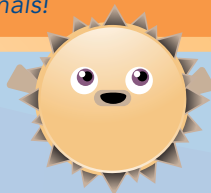
SCHOOL WITH ME

Extension Ideas

- » Have each student bring in a shoebox and create a diorama environment for their fish. Students can use books from the suggested reading list to learn about different kinds of ocean environments.
- » Challenge small groups of buddy teams to see if they can weave their stories together into a poem or play to perform in class.
- » Explain that fish are prehistoric and lived in the ocean, seas and lakes before the dinosaurs. Bring a fish fossil to your class. Help students create a story or make an additional illustration of what their fish would have been like in prehistoric times. Compare and contrast the modern with the prehistoric version. There are many interesting prehistoric sharks. You could source some images of prehistoric and modern day sharks from the internet and make a comparison chart describing how modern and prehistoric sharks are the same and/or different.
- » Use class vocabulary words for review or include them on spelling tests.

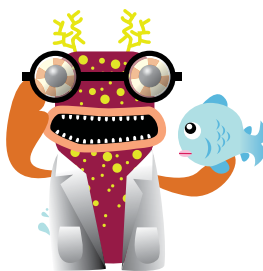
Notes

*When you breathe slowly,
you move slowly. You can get
close to the animals!*



CLASSROOM ACTIVITY STATION A2

SCRAMBLED FISH



Overview

Students will review what makes a fish as they work to relate vocabulary from the lesson in the form of a word scramble. In buddy teams, or individually, students will work on vocabulary and spelling as they read through clues and solve each anagram. Participation in this activity will provide students with an opportunity to practice *analytical skills, deductive reasoning, logic, reading comprehension, spelling, vocabulary enhancement, and literacy.*

Materials: “Scrambled Fish” activity sheet.

Talking Points

- ✧ Ask students whether they can remember what kind of body parts fish have; make a list where students can see them. Replay the film chapter as needed.
- ✧ Review that fish have eyes to see, a mouth to eat, fins to help them move or swim, gills to help them breathe and scales or skin for protection.
- ✧ Ask students whether they think fish fins are always shaped exactly the same?
- ✧ Affirm that the answer is no. In fact different kinds of fish have unique fins and body shapes. Often their body shapes and colors relate to the environment in which they live. This variety reinforces and shows students how fish are diverse.

Lesson Procedure

1. Provide each student with a copy of “Scrambled Fish”.
2. In buddy teams or individually students will read and unscramble the clues.
3. Add completed work to their “What Makes a Fish” journal.

Before scuba diving we always research what we are going to see. Learning is fun!



CLASSROOM ACTIVITY STATION A2 (Continued)

SCRAMBLED FISH

Extension Ideas

- » Have students put the solution words in alphabetical order.
- » Define the parts of speech in each sentence.
- » Have students create their own word searches using lesson vocabulary.
- » Challenge students to construct sentences using scramble words or for another Ocean Annie Super Scuba Challenge weave words from the scramble into a story.
- » As a class, see how many fish related vocabulary words students can list that were not part of the word scramble. Use these words to create their own scrambles.
- » See if students can come up with synonyms for any of the solution words.

Notes



When you use a snorkel you can breathe easier and relax while watching the animals.

CLASSROOM ACTIVITY STATION A3 FIND A FISH HOME



Scuba divers and scientists want to protect our ocean because they know it's importance.

Overview

Using the scientific method of inquiry, students will observe images of fish, then make and record predictions about where and how they live. Students will use their observations to place different animals into pockets that they think depict where that animal lives in the ocean. Participation in this activity will help students become acquainted with the *scientific method of inquiry*, build *observation skills*, exercise *logic and deductive reasoning*.

Materials: Bulletin Board, Butcher paper, Aquatic themed décor to add to bulletin board, Pocket chart – or paper folders, Fish Images, Fish Habitat, Adhesive Velcro squares

Talking Points

- ✧ Point out to students that just by making simple observations about an animal's body shape, color, and mouth type they can make meaningful predictions about that animal's lifestyle. Explain that this is how scientists work in the field, by making observations and then following up by collecting data to support their observations.
- ✧ Show students an image of a leafy seadragon.
- ✧ Does this animal have a large or small mouth? Does this animal eat large things or small things? (Small)
- ✧ This animal has many green appendages, what do you think they look like? (Plants)
- ✧ Is it important this animal has a body shape and appendages that look like plants? Why?
- ✧ Where do you think this animal might live by examining the shape and color of this creature? (They live among kelp or seaweed, and the body shape and coloration helps the seadragon hide. Camouflage is natural protection for the animal.)

Lesson Procedure

1. Prepare a bulletin board with the title "Find a Fish Home" and folders stapled on the board with images of environments glued to the outside of them.
2. Ask students to examine images of different kinds of fish, and predict what kind of environment they think each might live in.
3. Encourage students to make and record predictions about which fish is best suited to each environment.
4. When students think they know where each fish belongs, they can place fish pictures into the folder or pocket chart depicting the environment to which they belong. Alternatively, you might use adhesive Velcro strips so that students can literally place the fish in the environment.
5. Once every student has had a chance to make and record predictions, review together as a class what the correct animal/environment matches were. Encourage students to share what clues they saw helped them to match the animals to their homes.

CLASSROOM ACTIVITY STATION A3 (Continued)

FIND A FISH HOME

Extension Ideas

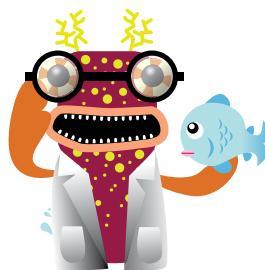
- » Ask students to identify (as a class) what each body part on each fish is responsible for in terms of helping the fish function (such as gills are to breathe, fins are to swim). For independent study you can photocopy the illustrations and let students label the anatomy.
- » Work with students to make a word or picture list of the things that fish need to be healthy and live in their ocean home (*sunlight, water, nutrients, salts, oxygen, waves and currents to mix the water, and different kinds of habitat like kelp forest and coral reef in which to make a home and find food*).
- » Break the class into small buddy teams or pairs, photocopy and provide each group with an environment page from the lesson and ask them to create a list of adjectives that describe their environment. Challenge them further by asking them to write a descriptive story.
- » Ask students to research what kinds of products might come from fish? Examples may include food we eat, pet foods, animal feed, vitamins, leather, and even glue! Encourage students to look at products in their home with family members to see if they can identify words such as "fishmeal" or "sea salt" anything that might indicate a product contains resources from the ocean. Ocean resources are critical to supplying humans with many vital products.

Notes

*Always scuba dive with a buddy,
it is safer and you have more fun.*



CLASSROOM ACTIVITY STATION A4 FISHING FOR CONTEXT



Overview

Students will read *Fringy the Fish and the Birthday Surprise*, then respond to both literal and interpretive comprehension questions about the story. Participation in this activity will provide students with a chance to build *literacy* and *reading comprehension*. They will learn about characters, settings, themes, and morals within the *context* of the story.

Materials: “Fringy the Fish and the Birthday Surprise”

Talking Points

- ✧ Discuss the difference between fiction and non-fiction stories. Although we are discussing real ocean facts, artists, writers, photographers, cartoons and many other media can take non-fiction stories about real animals and create entertaining stories out of them that are non-fiction. Have students brainstorm and come up with a list of other stories they know that may have non-fiction characters with fictional story lines.
- ✧ Talk with students about the different habitats and ecosystems that exist in the ocean. Examples include: the Arctic, a mangrove, deep sea vent, estuary, kelp forest, fresh water lake, coral or rocky reef. Have students use their imagination and create a story about their fish living in different ecosystems. The stories can be fiction or non-fiction, they just need to decide which they are creating.

Lesson Procedure

1. Photocopy and provide each student with a copy of “Fringy the Fish and the Birthday Surprise.”
2. Preview the comprehension questions to help focus students on important story concepts.
3. As a class, in buddy teams, or working individually, have students read the story and complete the associated worksheet questions.
4. Assist students as needed with reading comprehension and forming written responses.



The golden rule of scuba diving and life is to Stop, Think, Breathe Slowly, then Act!

CLASSROOM ACTIVITY STATION A4 (Continued)

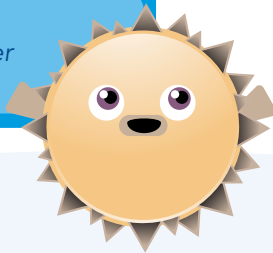
FISHING FOR CONTEXT

Extension Ideas

- » Choose one of the books from the suggested reading list and challenge students to answer as many questions as they can from the "Fringy the Fish and the Birthday Surprise" worksheet about the selected book.
- » Ask students to compare and contrast the main characters of "Fringy the Fish and the Birthday Surprise" and a book chosen from the suggested reading list.
- » Challenge students to imagine they are Fringy and write a journal entry about their day. When doing this, ask students to write/speak in the voice of the character.
- » Talk with students about ways they can make connections to Fringy. Have the children make text to *self* connections. What kinds of things do they do to show loved ones they care about them?

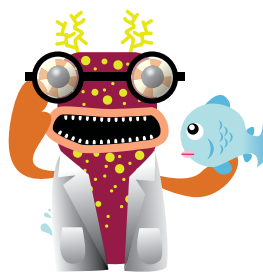
Notes

Scuba divers breathe continuously and never hold their breath.



CLASSROOM ACTIVITY STATION A5

SPLISH-SPLASH FISH MATH



Overview

Students will utilize basic math skills to solve story problems about life in the sea.

As a class or in groups, students will think about and discuss what kinds of steps are required and the order of the steps to work through the problem before attempting to solve it. Students will show their thinking using numbers or words. This activity set contains multiple worksheet options. Help students learn to look for word cue indicators to solve a problem. Participation in this activity will provide students with an opportunity to practice *analytical skills, deductive reasoning, logic, reading comprehension, addition, and subtraction*.

Materials: “Splish-Splash Fish Math”, Manipulatives: counters, number lines, hundreds chart, etc.

Talking Points

- ✧ We can explore math in the same way we go scuba diving underwater, by preparing ourselves. The first step in math is to make sense of the problems and persevere in solving them.
- ✧ During the math exercises, encourage students to make notes about what they are reading and ask, “Does this make sense.” Students tackle math in a variety of ways, it is important to recognize the importance of making sense of problems and even looking for alternative ways to reach the same conclusion.
- ✧ Remind students that scuba divers never rush through anything. They always stop, think, breathe slowly and then act. Encourage your students to attend to precision in their activities.

Lesson Procedure

1. Provide each student with a copy of “Splish-Splash Fish Math.”
2. As a class or in smaller buddy teams, help students read through the questions and analyze what steps are necessary to solve each problem.
3. Encourage students to problem solve in a way that is meaningful to them. Manipulatives may be used for some students while others may be solved with just pencil and paper.
4. Encourage students to come up with more than one approach if they can. Highlight the differences during a discussion.
5. Repeat the process for each question until the worksheet is complete.

If we breathe fast, we move fast and become bubble blowing monsters.



CLASSROOM ACTIVITY STATION A5 (Continued)

SPLISH-SPLASH FISH MATH

Extension Ideas

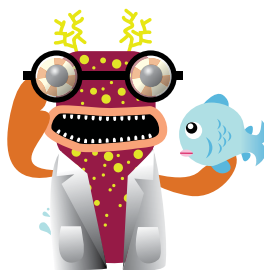
- » Challenge students to make up their own story problems about the ocean.
- » Ask students to choose their favorite word problem and add more descriptive detail to it.
- » Help students visualize the concepts by using marbles, photocopying fish, or similar objects to represent the physical fish. Have students stand up and act out the parts in the problems.
- » Use the bonus activity page at the end of this lesson titled "I Go Crackers for Fish" to engage students in a counting and sorting activity that incorporates goldfish crackers as manipulatives. Distribute one cup of multi-colored Goldfish crackers to students. Each student will have slightly different answers. As a class activity you can make a bar graph or pie chart with results.

Notes

When diving in different temperatures, we wear different suits. How do you dress appropriately?



CLASSROOM ACTIVITY STATION A6 BOOK STALL



Overview

Students will build independent reading strategies and improve literacy by examining supplemental materials. Providing a reading or computer area where students can research and expand on the subject of the unit will also help develop vocabulary and increase language skills.

Materials: Books suggested reading list provided

Human activities on land
changes the shape of
beaches and shores.



Lesson Procedure: Character Education CREATE

1. Challenge students to CREATE a fiction fish. Examine books about the kinds of places fish live in the ocean, and then make a picture and/or write sentences or a story that describes a fictitious animal of their own imagination specially adapted to live in their selected environment.
2. You can help students get started by working through a brainstorming session by using a kelp forest. Show them a photo, then brainstorm what physical qualities might be useful to help an animal live there. If kelp is green, it might help an animal hide if it was also green. If kelp has long, leaf-like fronds, it might help an animal hide if it had a long, ribbon-like body and so on.
3. Provide students a chance to share and discuss what they created. If needed, provide them with a list of possible environments: coral reef, kelp forest, tide pool, mangrove, sea grass bed, or deep sea vent.
4. Explain to students that everything we use in our lives are creations that people first imagined and then created. The chairs we sit in, the computers we use, the internet we explore. Challenge them to think of inventions that could enhance our lives and write about it in their journals.

Poster: CREATE

"The future holds endless possibilities."

Fine Art Prints, posters, greeting cards and other products are available to decorate your classroom or school while inspiring your students with real ocean animals and environmental scenes. Contact us to learn more.

Coral reefs throughout our ocean are threatened because of ocean acidification. Research this topic with students and create solutions to reverse this effect.

*Anemonefish in purple magnificent sea anemone,
Indonesia*



Book Suggestions

- » Berkes, Marianne Collins. *Over in the Ocean in a Coral Reef*. Illus. Jeanette Canyon. Nevada City, California: Dawn Publications, 2004. Print.
- » Collard, Sneed B. III. *The Deep-Sea Floor*. Illus. Gregory Wenzel. Watertown, Massachusetts: Charlesbridge Publishers, 2003. Print.
- » Coupe, Robert. *Coral Reefs: Top Readers. Stage 3, Reading by Myself*. Sydney, New South Wales: Weldon Owen, 2008.
- » Gambrell, Linda B. *Fishy Tales*. New York: DK Readers, 2009. Print.
- » Jenkins, Steve. *Down, Down, Down: A Journey to the Bottom of the Sea*. Tulsa: Usborne Books, 2009. Print.
- » Nyquist, Kate Boehm. *Maggie's Coral Reef Adventure*. Illus. Kathleen Garry-McCord. Monterey, California: Monterey Bay Aquarium, 2000. Print.
- » Parker, Steve. *Fish. DK Eyewitness Books*. Illus. Dave King, et al. New York: DK Children, 2005. Print.

Closure and Follow Up

- ❖ Spend time reviewing facts students knew, wanted to know, or learned. Address any incorrect facts previously stated.
- ❖ Have students write a reflection about the importance of what they learned in this unit. Spend a moment talking with students about why they think it is important that fish stay healthy and abundant in the ocean.
- ❖ To reinforce learning, review vocabulary from the treasure chest of words.
- ❖ Have students discuss the different choices they made with the activities and discuss what it felt like to create and use their imagination.

Plan for Independent Practice

- » Ask students to research a favorite fish from the video to learn more about the fish and create a report. This can be written or oral, and will be an excellent tool to help the class gain more knowledge about different types of fish. This exercise will also be helpful framework for some of the other units that focus on specific fish or fish families.
- » Ask students to use the words from the lesson glossary to construct a story.
- » Select stories from the suggested reading list to read as a class or for self-study.
- » Ask students to clip pictures of fish from the internet or magazines that can be used to build a class collage.
- » Students can perform a movement study and simulate the different ways they saw fish move in the video. Read the transcript aloud while students act out what they hear.
- » Review the word "CREATE" with students and discuss how it relates to their character. Encourage them to use their imagination, dream and CREATE their perfect day through illustrations or a story in their journals. What would they do? What would they learn? Who would they share it with?

DVD TRANSCRIPT

What Makes A Fish, A Fish?

Fish you say, well what is a fish?

They swim. They hover. They crawl. They stand like statues.

But they are all fish...so what is a fish?

For a creature to be called a fish, it must live in water and have a backbone.

For a creature to be called a fish, they must have "gills." Gills are what the fish use to breathe underwater. Gills are fish's lungs and they use them to breathe. Pumping water over their gills, they get oxygen from the sea.

For a creature to be called a fish, they must have scales or skin!!!

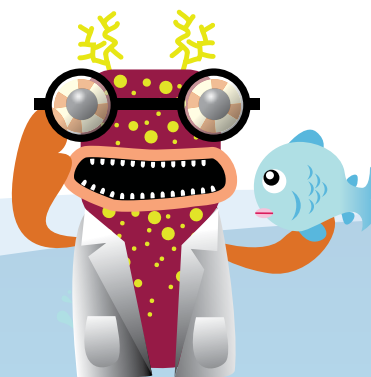
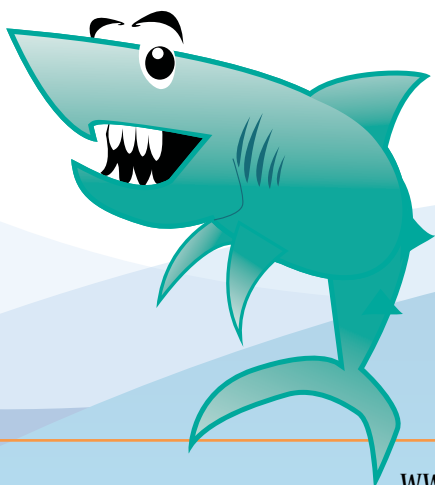
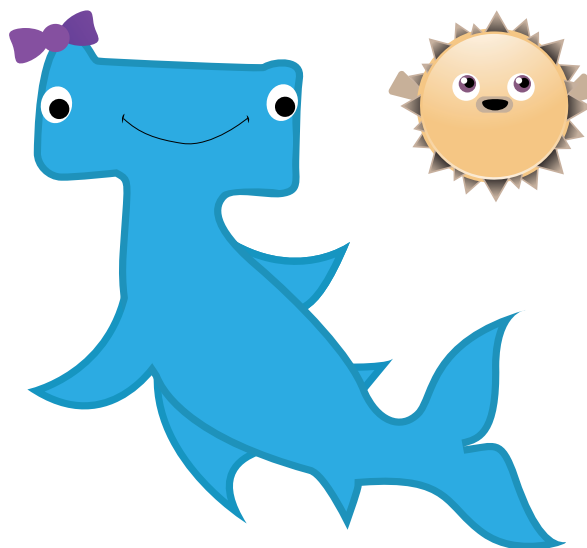
But most of all for a creature to be called a fish, a fish must have FINS.

Small ones or large ones, their fins make them unique. Some fish have few fins, some fish have many fins. One fin, two fins, three fins or more.

WOW...check out the huge tail fin!

Sharks are fish. And rays are fish too.

Fish, Fish, Now you know What Is a Fish.



Go Blue! Ocean Annie's Tips to Help Our Environment

We should be called Planet Ocean instead of Earth because more than 70% of Earth is covered by our ocean! Although we have 5 names for our ocean based on ocean basins, we really only have one ocean. The ocean controls our weather and our climate. It is responsible for our food, oxygen, and water, yet it is salty and humans cannot drink or use salt water to live. Only about 3% of the water on our Blue Planet is fresh water. As our population grows, we need to think of ways to conserve water because human beings need fresh water to live.

Have you ever thought about how much water we use each day? Try to imagine what your day might be like if you only had one gallon of water to use a day. Could you live like that? Life as we know it cannot exist without fresh water or a healthy ocean.

The United Nations predicts the next World War is not going to be about oil, it is going to be about water.

GO BLUE and challenge students to come up with ways they can reduce the amount of water used every day. Write a blog encouraging parents to get involved with conserving water in their homes. Here are a few examples to get you started:

Turn off the water while brushing your teeth or washing your hands.

Turn off the water when washing dishes. Make a sink for cleaning with soapy water and another for rinsing.

Only run your dishwasher with a full load on the energy and water saving cycles.

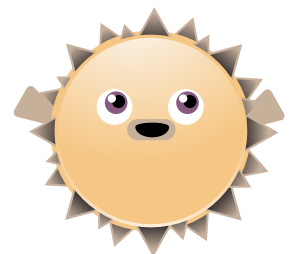
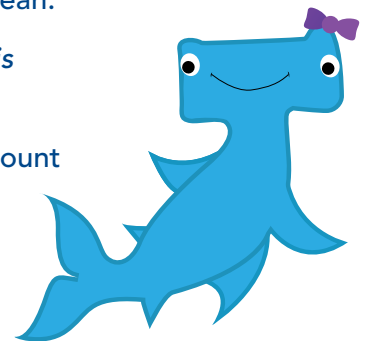
Wash clothes with a full load.

Install a water reducing showerhead.

Fix your toilet if it runs and your sinks if they drip! One drip uses hundreds of gallons of water a year.

Install a toilet that uses less water.

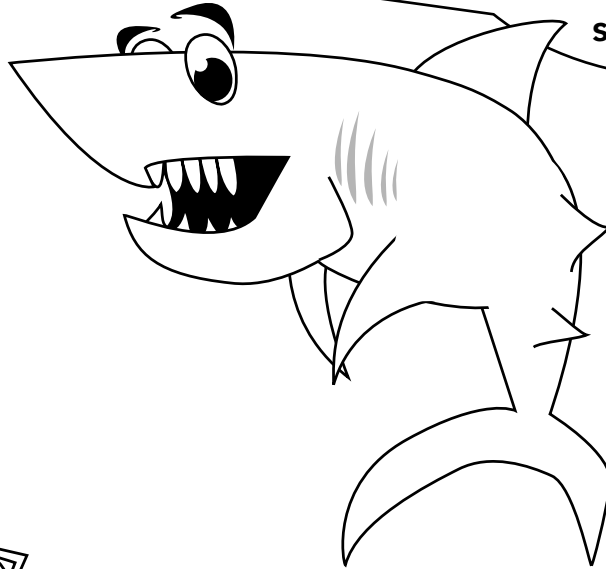
What else can you do to save water?



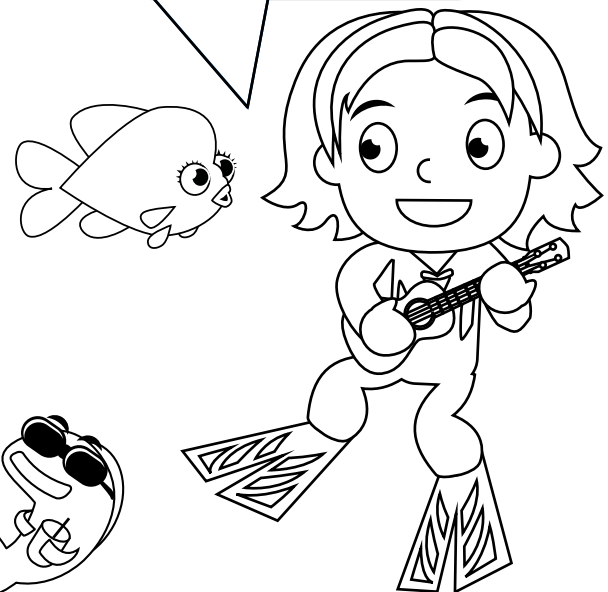
My name is Ocean Annie. I love the Ocean and everything about it. I take photographs and make films to share with what I learn and discover!



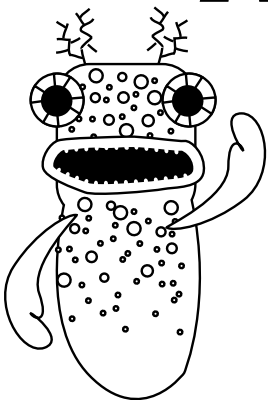
I am Finnagain the friendly shark who was protected and saved!



My name is Makaio. I love to scuba dive and explore with Ocean Annie. Learning is FUN!



What Makes A Fish, A Fish ACTIVITIES



My name is Fringy, the sarcastic ichthyologist fish, and your guide!



Name _____ Date _____

A



Chest

Treasure

bone

cartilage

ectotherm

fins

fishes

gills

hover

hydrodynamic

ichthyology

ichthyologist

organ

scales

scientist

scuba

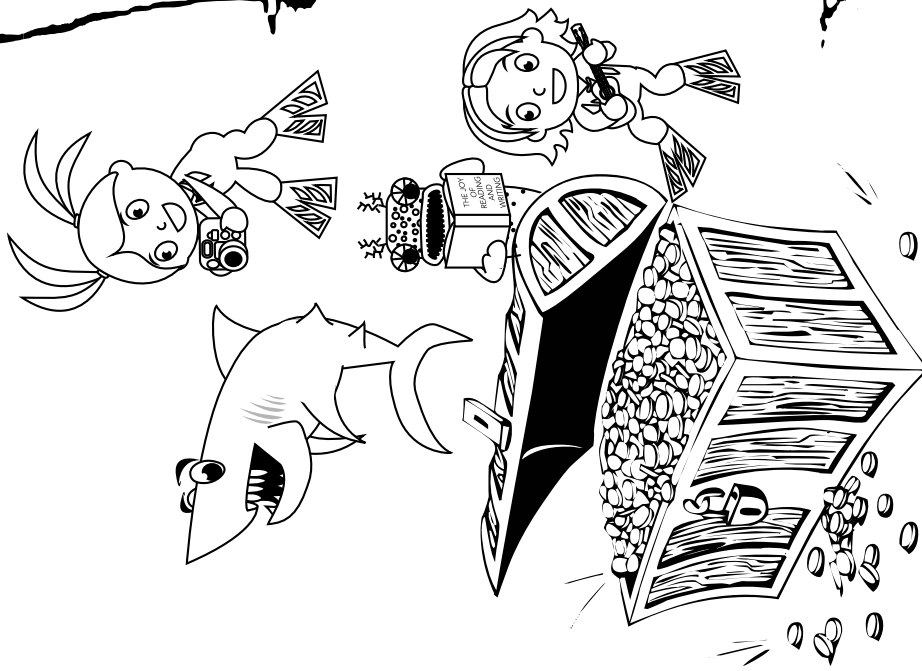
skeleton

species

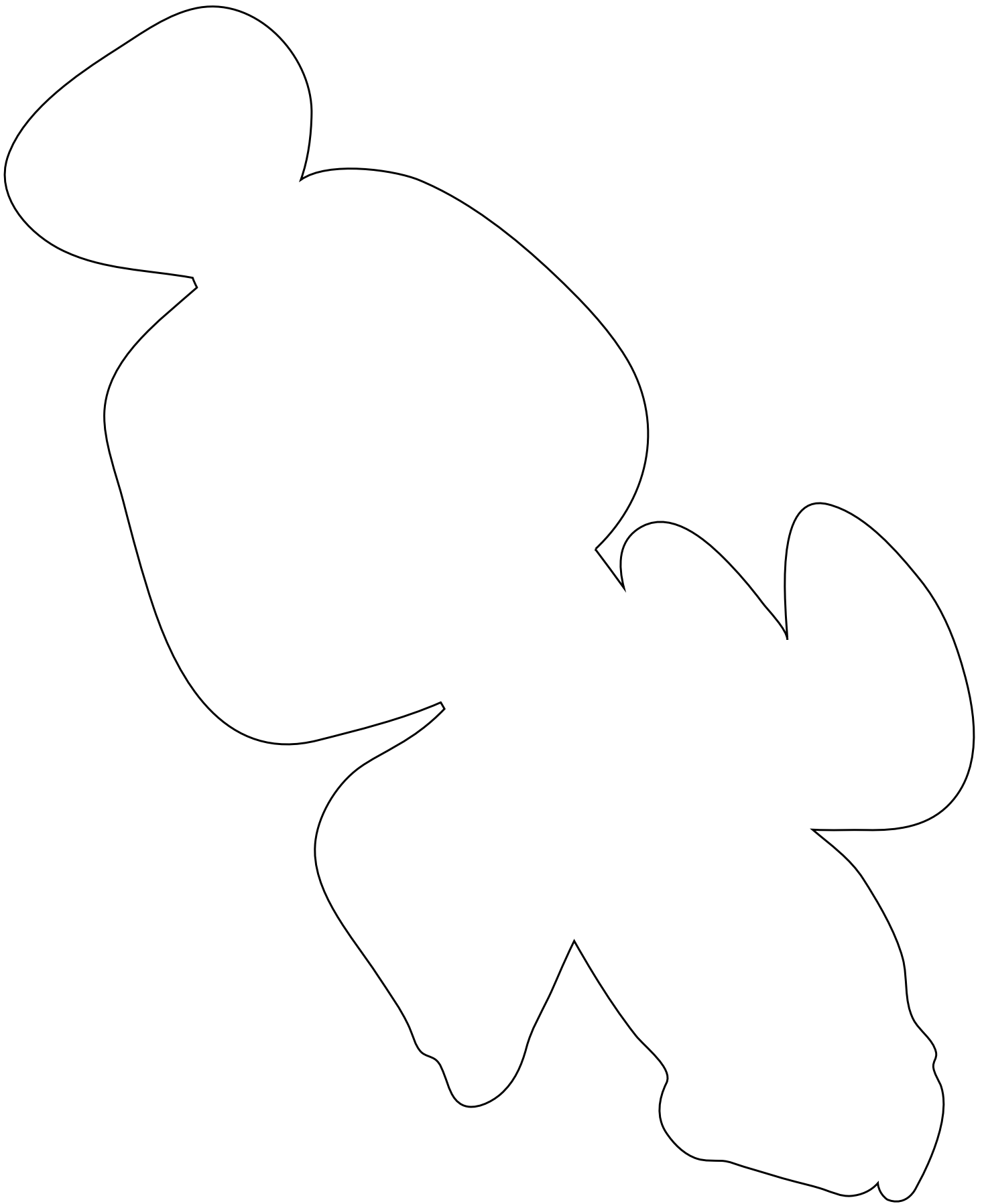
swim bladder

vertebrate

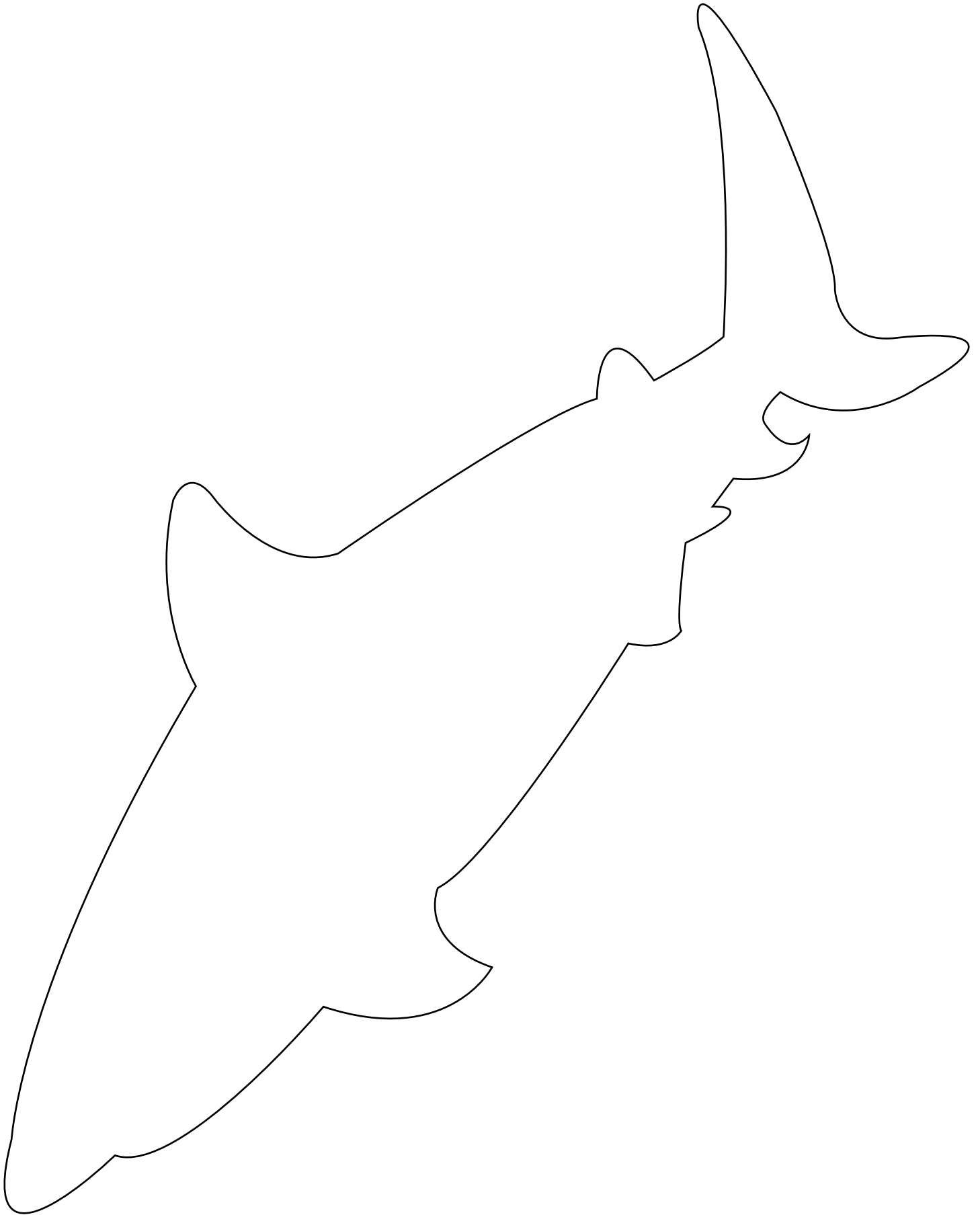
water



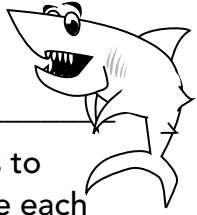








Scrambled Fish Word Puzzle



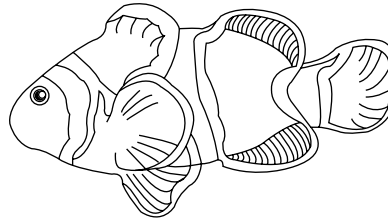
Name _____ Date _____

Directions: Read each clue and think about "What Makes A Fish, A Fish". Use the clues to unscramble the letters building a word that matches the description. As you unscramble each word, use the letters from each numbered box to solve the riddle below.

1. How a fish moves. **wsims**

--	--	--	--	--

1



2. Most fish have a skeleton that is made from this. **nbeo**

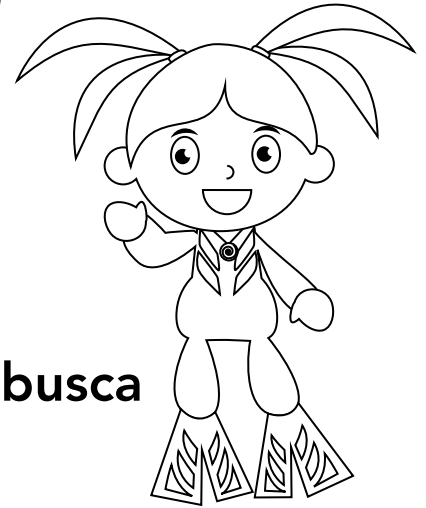
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2

3. The reason scuba divers can stay under water for so long. **busca**

--	--	--	--	--

3



4. People who have specialized knowledge in the field of science. **ncstsieit**

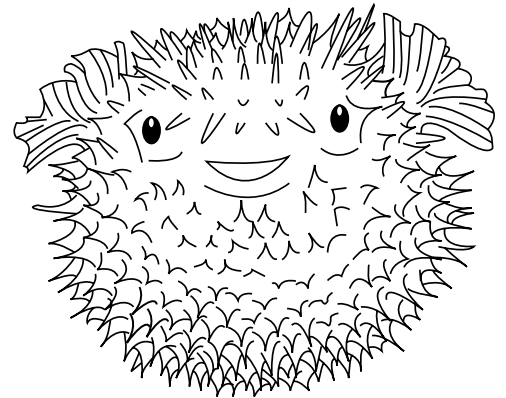
--	--	--	--	--	--	--	--	--

4

5. Limbs that help a fish move. **sifn**

--	--	--	--

5



6. The organ that a fish uses to breathe. **lslgi**

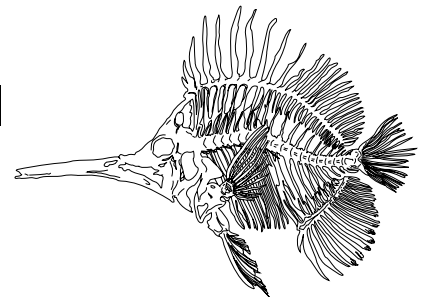
--	--	--	--	--

6

7. A structure that helps support body shape. **etsnkoel**

--	--	--	--	--	--	--	--

7



8. The ability a fish has to remain still without floating or sinking. **rhvoe**

--	--	--	--	--

8

9. A special kind of covering on the skin of a fish. **aslces**

--	--	--	--	--	--

9

10. The gas filled organ that helps a fish hover. **msiw drbelad**

--	--	--	--	--	--	--	--	--	--	--	--

10

11. Some fish are disappearing because we do too much of this. **fignish**

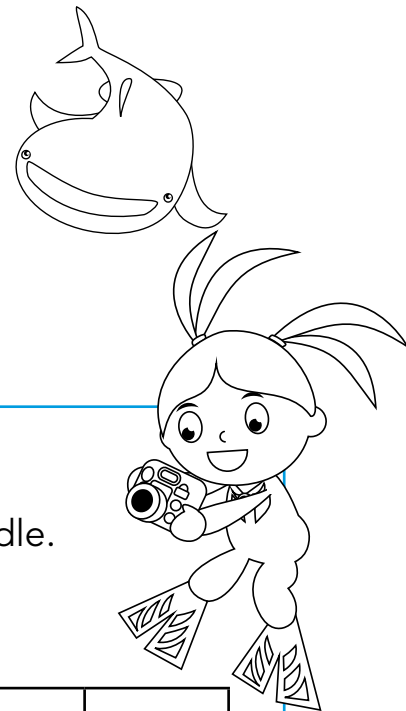
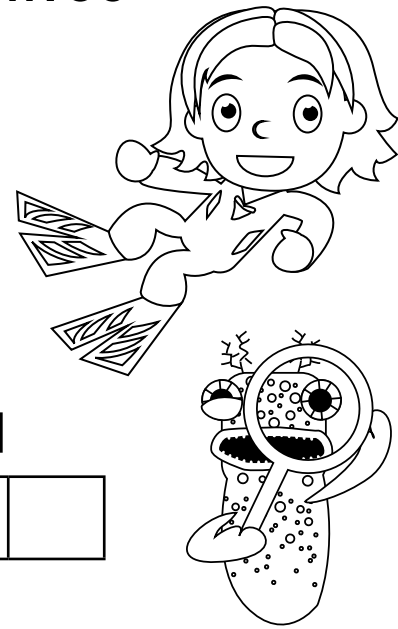
--	--	--	--	--	--	--

11

12. Even though not all fish swim, they can all do this. **vmoe**

--	--	--	--

12



OCEAN ANNIE'S SUPER SCUBA CHALLENGE

Use the letters from the numbered boxes above to solve this riddle.

If most birds fly, then...

--	--	--	--

1

2

3

4

--	--	--	--

5

6

7

8

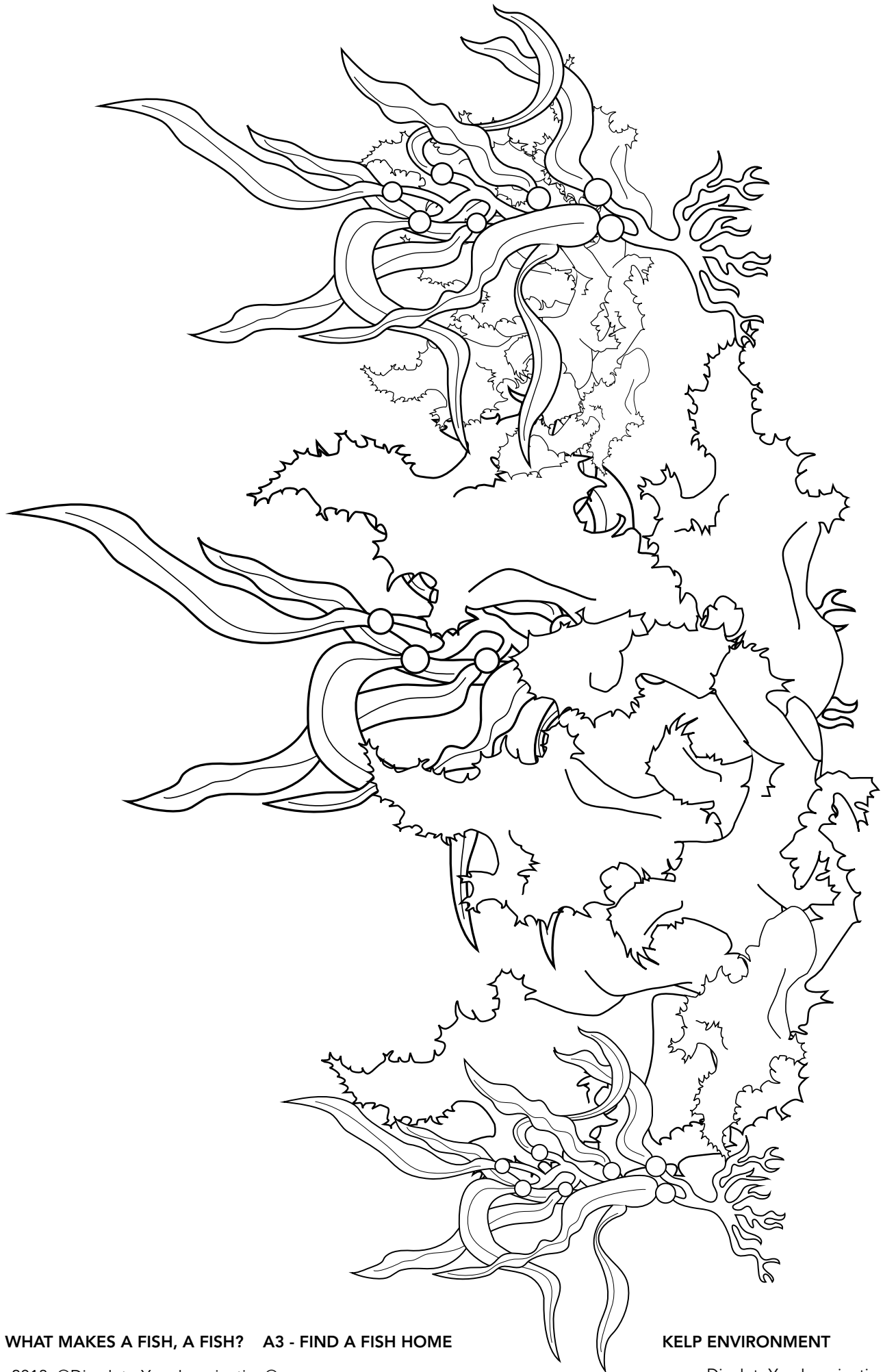
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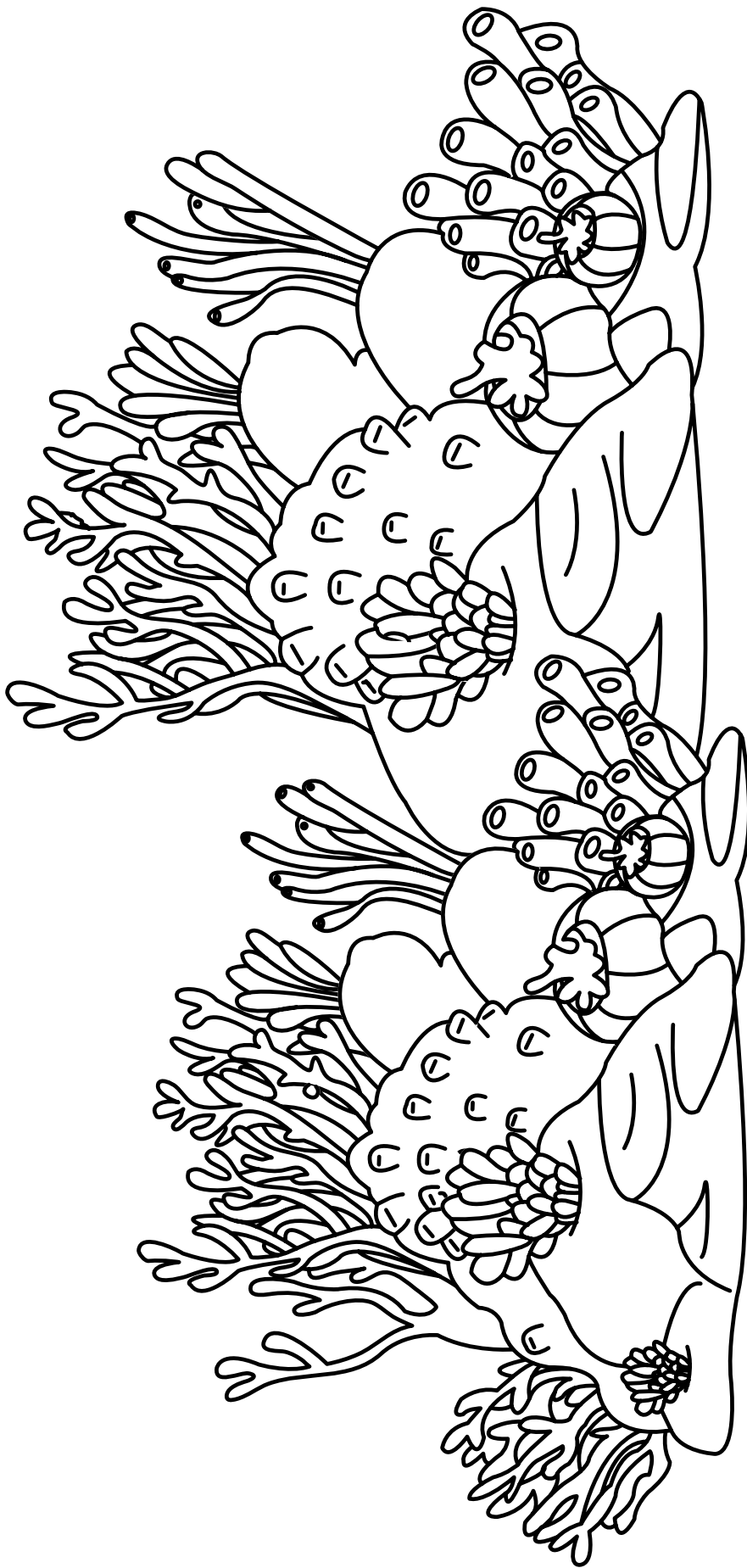
9

10

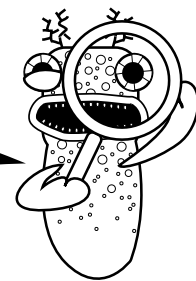
11

12





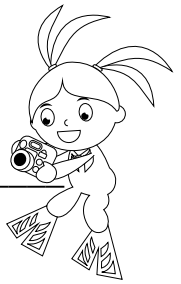
Find Fringy



Fringy is playing Hide-And-Seek!
Can you find him? How many other "fish" can you find?



Fringy the Fish and the Birthday Surprise

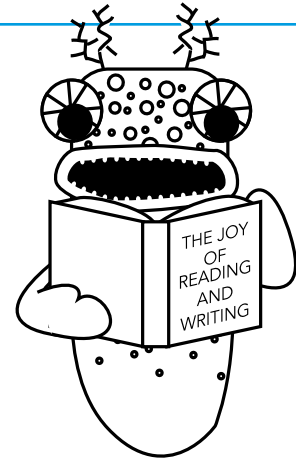


Name _____ Date _____

Directions: Read the story and answer the questions on the worksheet.



FRINGY THE FISH and the Birthday Surprise



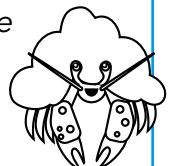
Fringy the fish wanted to play with his friends on the reef. The day was warm and sunny and the sea surface was calm near his home on the deep end of the reef. Fringy's friends were already frolicking on the upper reef, but Fringy's mother said, "you must first stop by Gramma's coral head to wish her a happy birthday." Fringy looked sad and said, "but my friends are waiting. Visiting Gramma will take a long time."

His mother frowned and said, "Okay, but you must stop at Gramma's on the way to the reef and let her know that you are too busy for a visit."

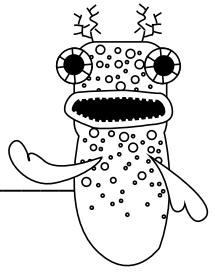
Fringy darted from his home and swam as fast as he could to his Gramma's coral head on middle reef. Before he even entered, he smelled fresh kelp cake and he got very excited. Kelp cake was Fringy's favorite! Fringy thought about all of the nice things his Gramma always did for him, and he decided that it was very important to celebrate her birthday with her.

Gramma saw Fringy, smiled, and waved a fin. Fringy shouted, "Happy Birthday Gramma!" Fringy was happy that he decided to celebrate Gramma's birthday because loved ones are very important.

** A gramma is a kind of fish, and in this story it is also a pun (play on words) because gramma sounds like Grandma.*



Fringy the Fish and the Birthday Surprise



Name _____ Date _____

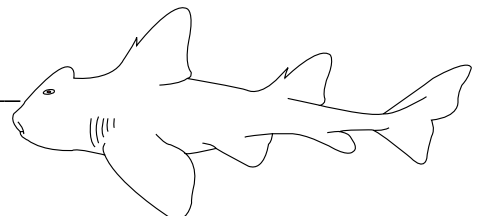
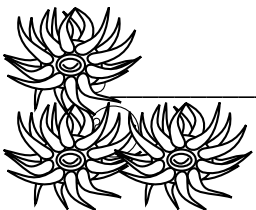
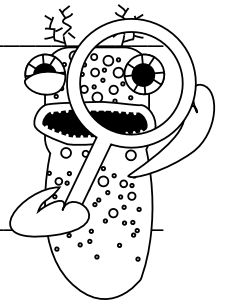
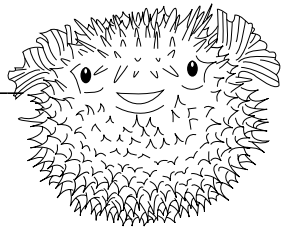
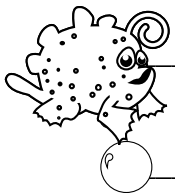
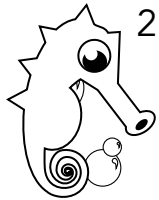
Directions: Answer the questions below based on the story.

1. What is the title of the story?

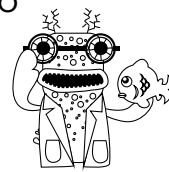
2. What is the setting or where does the story take place? Use good details from the story to describe this place.

Who is the main character of the story?

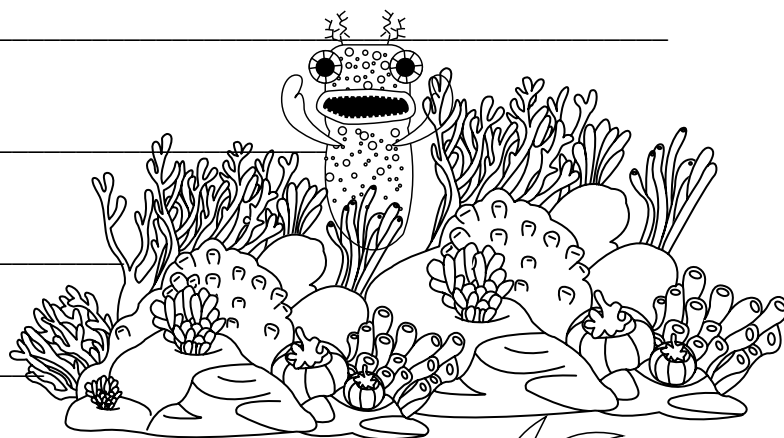
3. Who are the supporting characters in the story?



4. Why do you think the author wrote this story? Use details from the story to support your thinking.

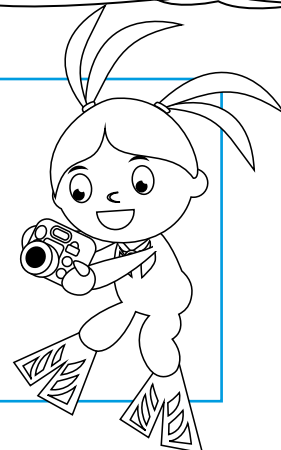


5. Describe how Fringy changed from the beginning to the end of the story.



OCEAN ANNIE'S SUPER SCUBA CHALLENGE

Now it is your turn to complete the story. What happens between Fringy and Gramma at her birthday celebration? What would the dialogue be between them? Use a separate piece of paper.



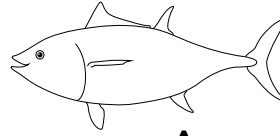


Splish-Splash Fish Math

Name _____ Date _____

Directions: Read each question carefully and solve the problem by showing your thinking in a meaningful way. Use pictures, numbers, or words to prove your answer is correct.

1. One fish swam along the reef and was joined by two friends. **How many fish were together on the reef?**



Answer _____

2. Four fish were playing tag in the tide pool, but two swam away. **How many fish were left in the tide pool?**

Answer _____

3. Six fish were riding a wave and were joined by three friends. **How many fish were there riding waves?**



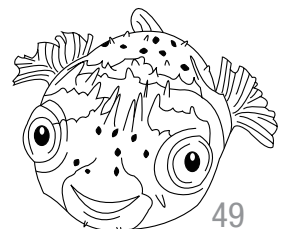
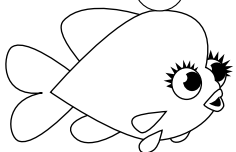
Answer _____

4. One fish got lost in the dark. Two of her friends came and found her. **How many fish were together in the dark?**

Answer _____

5. Five fish were schooling in the shallows. Three more joined them. **How many fish were schooling together?**

Answer _____



6. Six fish were looking for pearls along the shore, but three lagged behind and got lost.

How many fish were left looking for pearls? Answer _____



7. Four fish were playing hide and seek in the seaweed. Four more fish joined them.

How many fish were left in the seaweed? Answer _____



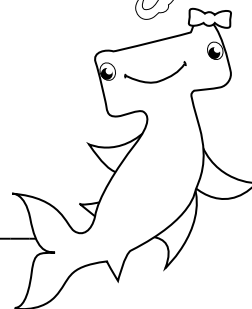
8. Six fish were hiding in a shipwreck. Four fish got scared and swam away. **How many fish were left inside the shipwreck?**

Answer _____



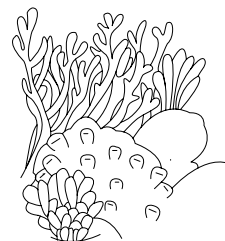
9. Ten fish were resting in a cave, but four left to find some sunshine.

How many were left resting in the cave? Answer _____



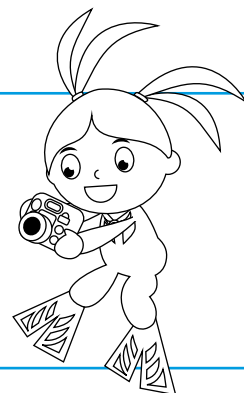
10. Eight fish were on their way to explore a new coral colony and two more fish joined them. **How many fish were swimming along together?**

Answer _____

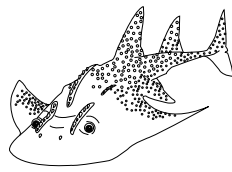


OCEAN ANNIE'S SUPER SCUBA CHALLENGE

A school of one hundred tiny fish swam by Ocean Annie while she was scuba diving on the coral reef. Can you count to 100 in your head? How about by 10's, 5's, or even 2?



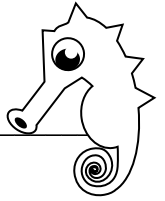
Splish-Splash Fish Math



Name _____ Date _____

Directions: Read each question carefully and solve the problem by showing your thinking in a meaningful way. Use pictures, numbers, or words to prove your answer is correct.

1. One fish swam along the reef and was joined by two friends. Soon three more fish joined the group. Then one fish had to leave for lunch. **How many fish were left together on the reef?**

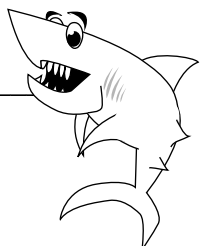
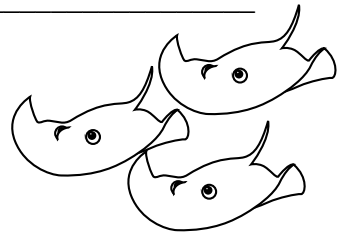
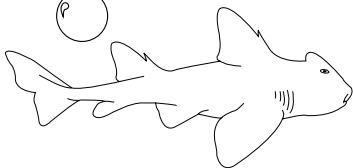


2. Eight fish were playing tag in the tide pool, but four darted away when the tide went out. Three more fish arrived on the next wave to join the group. **How many fish were left playing tag?**

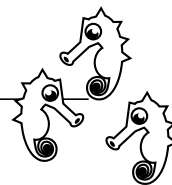
3. Six fish were riding a wave and were joined by one friend. Two fish had to go home for dinner, but then five more fish joined the group. **How many fish were left?**

4. One fish got lost in the dark, and two of her friends went out to find her. They needed the help of some flashlight fish. The search party found five of them to join the group. **Once the group found her, how many fish were together in the dark?**

5. Five fish were schooling in the shallows. Three more joined them, but one needed to leave and go to a cleaning station. Three more fish joined them on the next wave that rolled in. **How many were left schooling in the shallows.**

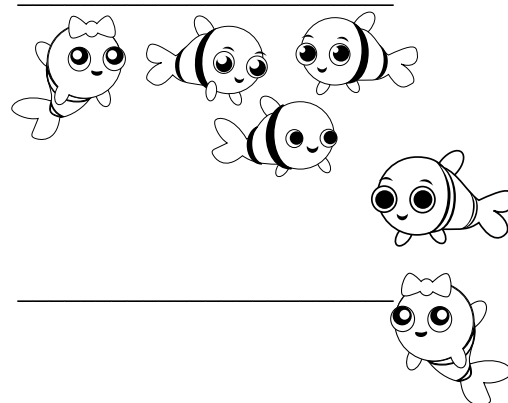


6. Six fish were looking for pearls along the sand. Two friends joined them, but three lagged behind and got lost along the way. **How many fish were left looking for pearls?**



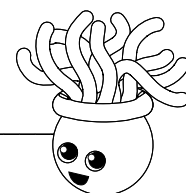
7. Four fish were playing hide and seek in the seaweed. Four fish joined the game, but two left to go home to take a nap. Three more fish came to join in the fun too. **How many fish were left playing hide and seek?**

8. Three fish were exploring a shipwreck. Two fish swam away to look for treasure. Three more fish joined the ones exploring the shipwreck. **How many animals were inside the shipwreck?**



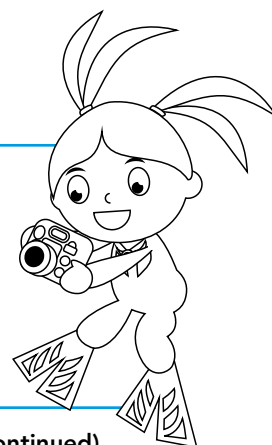
9. Ten fish were resting in a cave, but four left to find some sunshine. Three more swam away to look for lunch. **How many fish were left resting in the cave?**

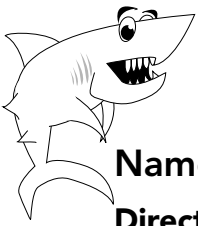
10. Three fish were on their way to a new coral colony and two more fish joined them. When they were half way there, three more joined them. **How many fish were swimming along together?**



OCEAN ANNIE'S SUPER SCUBA CHALLENGE

A school of one hundred tiny fish swam by Ocean Annie while she was swimming near the coral reef. On a separate sheet of paper, list all the ways you can think of to get to 100! Try counting, adding, subtracting, or even multiplication and division.





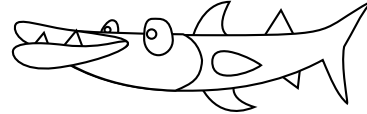
Splish-Splash Fish Math



Name _____ Date _____

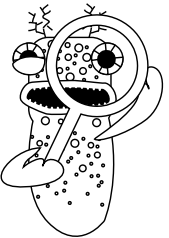
Directions: Read each question carefully and solve the problem by showing your thinking in a meaningful way. Use pictures, numbers, or words to prove your answer is correct.

1. Twelve fish swam along the reef and they were joined by two friends. Soon three more joined the group. Then two fish had to leave for lunch. **How many fish were left together on the reef?** _____



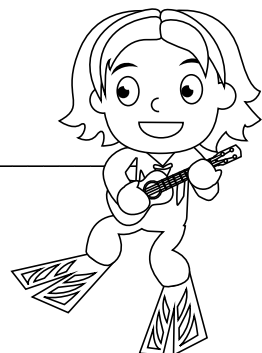
2. Eight fish were playing tag in the tide pool, but four darted away when the tide went out. Nine more fish arrived on the next wave to join the group. **How many fish were left playing tag?** _____

3. Seven fish were riding a wave and were joined by some friends. Now there are fifteen fish riding the waves. **How many fish joined the group?** _____

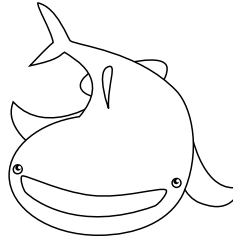


4. One fish got lost in the dark, and ten of her friends went out to find her. They needed the help of some flashlight fish. The search party found twelve of them to join the group. **Once the group found her, how many fish were together in the dark?** _____

5. Five fish were schooling in the shallows. Seven more joined them, but two needed to leave and go to a cleaning station. Four more fish joined them on the next wave that rolled in. **How many were left schooling in the shallows?** _____

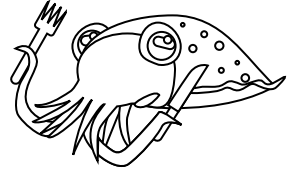


6. Nine fish were looking for pearls in the oyster beds. Four friends joined them, but some lagged behind and got lost along the way. Now there are 11 fish looking for pearls. **How many fish got lost along the way?**

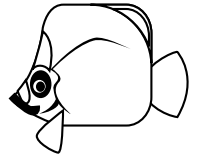


7. Twelve fish were playing hide and seek in the seaweed. Four fish joined the game, but two left to go home to take a nap. Six more fish came to join in the fun too. **How many fish were left playing hide and seek?**

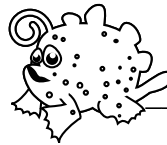




8. A large group of fish were exploring a shipwreck. Two fish swam away to look for treasure. Three more fish left to go eat dinner. Now there are eleven fish exploring the shipwreck. **How many fish were exploring to begin with?**



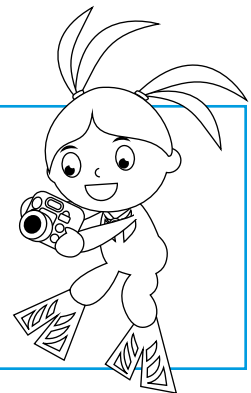
9. Twenty fish were resting in a cave, but six left to find some sunshine. Eight more swam away to look for lunch. **How many fish were left resting in the cave?**



10. Nine fish were on their way to a new coral colony and four more fish joined them. When they were half way there, seven more joined them. **How many fish were swimming along together?**

OCEAN ANNIE'S SUPER SCUBA CHALLENGE

A school of one hundred tiny fish swam by Ocean Annie while she was swimming near the coral reef. List all the ways you can think of to get to 100! Try counting, adding, subtracting, or even multiplication and division.



I Go CRACKERS for Fish

Name _____ Date _____

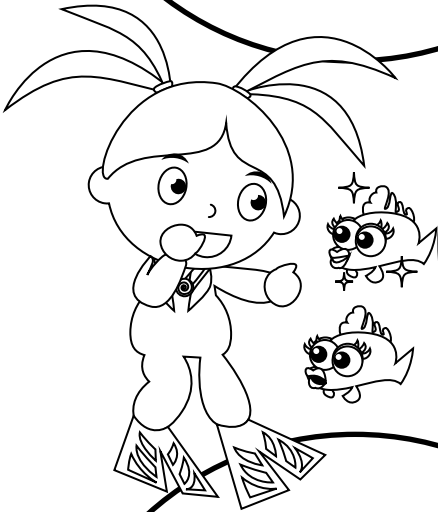
Directions: Arrange your assortment of fish crackers by color on the circles below. Once all of your crackers have been placed, answer the follow up questions on the worksheet.



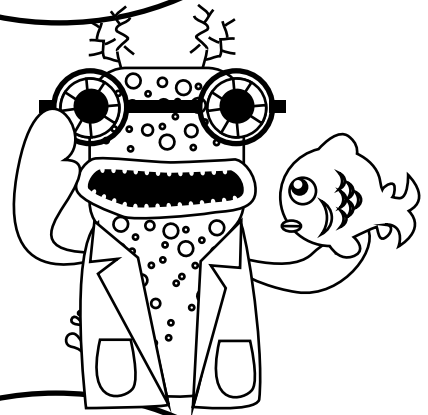
Red



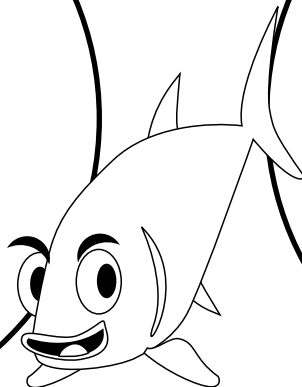
Yellow



Purple

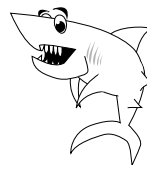


Orange



Green

I Go CRACKERS for Fish



Name _____ Date _____

Directions: After the activity, answer these questions about your results.



1. How many red?

6. How many red + yellow?

Answer _____

Answer _____

2. How many yellow?

7. How many green + orange?

Answer _____

Answer _____

3. How many purple?

8. How many purple + red?

Answer _____

Answer _____

4. How many orange?

9. What color has most?

Answer _____

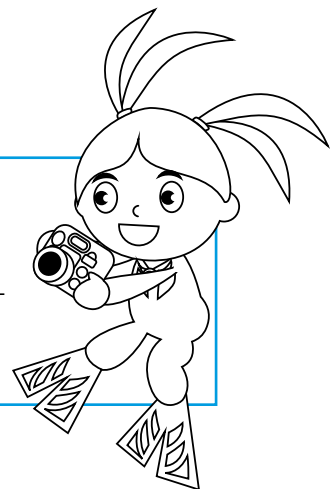
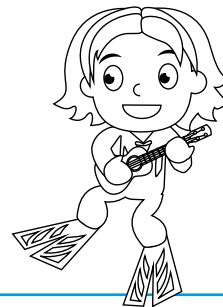
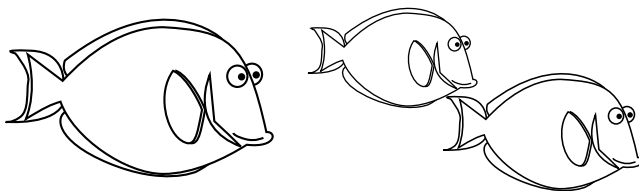
Answer _____

5. How many green?

10. What color has least?

Answer _____

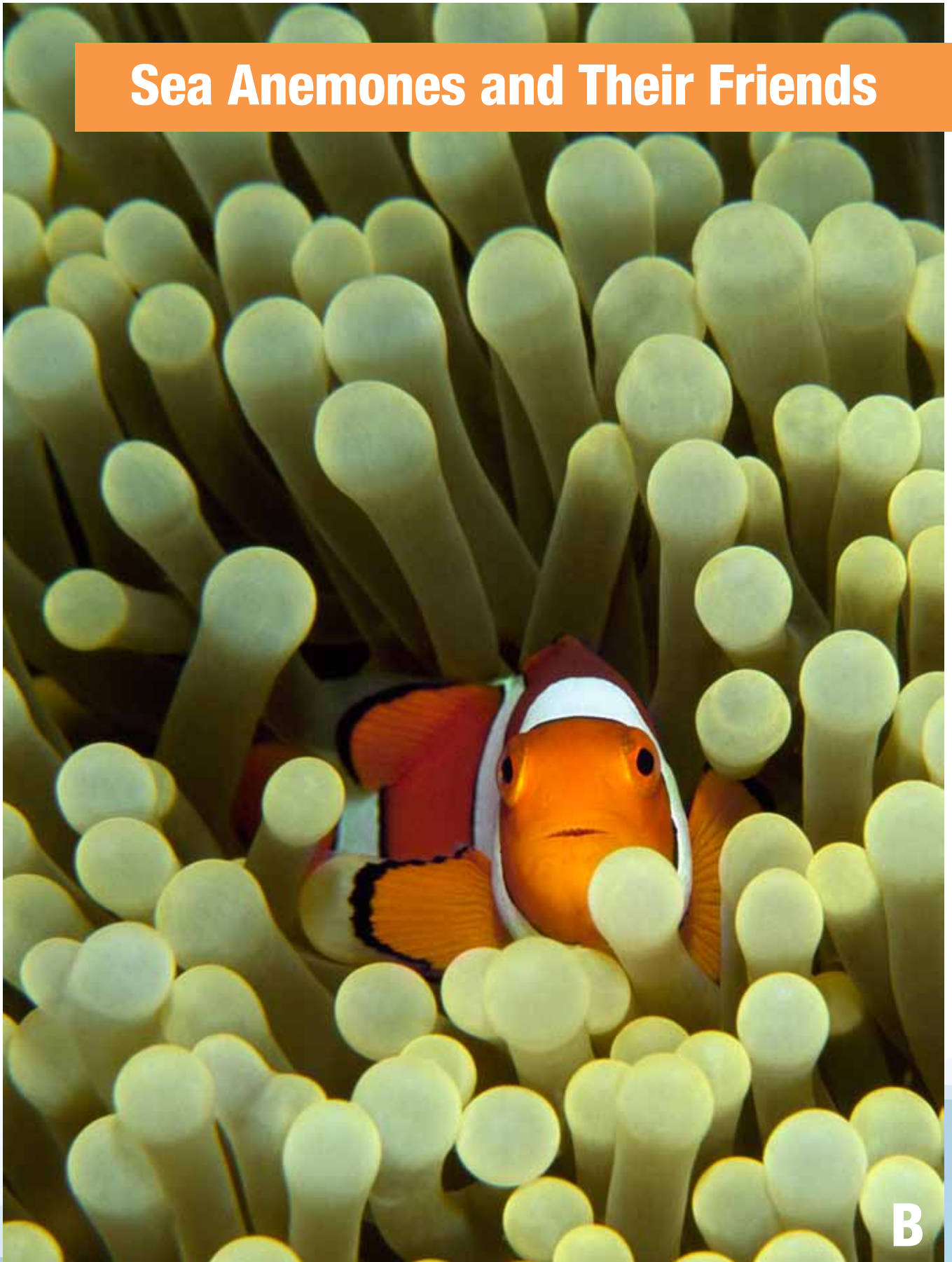
Answer _____



OCEAN ANNIE'S SUPER SCUBA CHALLENGE

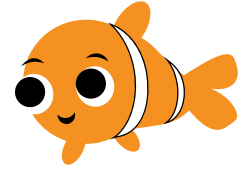
How many fish were there all together? Answer _____

Sea Anemones and Their Friends



B

Sea Anemones and Their Friends



CONCEPT / TOPICS TO TEACH

Survival in the ocean sometimes requires species to adapt a close working relationship with one another. Science calls this relationship “symbiosis.” Symbiotic partnerships can be found throughout all parts of the ocean. The partnership between anemonefish and sea anemones is one remarkable example of this complex relationship in nature.

Objectives:

- » Students will practice identifying the “Cc” sound and then identify animals that begin with the “Cc” sound in a coral reef scene.
- » Students will exercise basic math skills then partner in order to find solutions and solve math problems.
- » Students will build their knowledge of the scientific method of inquiry and use observation skills through an activity involving data collection about how people within their school environment work together demonstrating symbiosis.
- » Students will become familiar with basic measurement and associated descriptions by comparing, contrasting, and measuring anemone tentacles of differing lengths.
- » Students will enhance literacy and reasoning skills by completing sentences by selecting correct words.

Character Education: ADAPT

In life, everything is constantly changing and in motion. Teaching children how to ADAPT by helping them learn to adjust to change is a vital life lesson. Teaching children to look at all the different kinds of fish that have ADAPTED to their surroundings, and then showing how we have to ADAPT every day to our surroundings helps children understand the concept of a constantly changing world. We ADAPT in simple ways such as making choices with what we wear with changing weather. Children experience other changes which require greater ADAPTIONS such as family changes, new homes, schools or siblings. You can ask students about ways they ADAPT in the classroom or at home, reinforcing the idea that things change daily and that change is not something to fear but something that happens throughout every day.

Ocean Annie and Scuba Divers ADAPT!

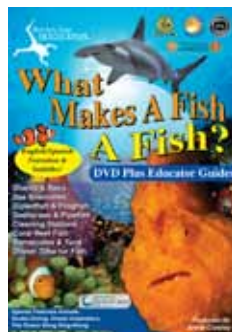
Because the ocean is always changing due to weather, tides, currents, and more, scuba divers must learn to ADAPT to every ocean situation. Scuba divers use different equipment for cold water than they do when scuba diving in warm tropical water. Scuba divers do not always scuba dive with the same person. Likewise, in school your students do not always get to work with the same buddy. Students have to ADAPT. An important aspect of ADAPTING is communication. As we

come into contact with new people it is important to communicate before we participate in activities. Before scuba divers go underwater, buddies review hand signals so they can communicate. Take a few minutes and have your students buddy up with someone different and see how they learn to ADAPT to one another. This reinforces the connection between using good communication skills and ADAPTING to changes in our lives. Review important hand signals with your class and see if anyone needs to ADAPT a signal for scuba diving with their new buddy!

Getting Started

Required Materials

- DVD "What Makes A Fish, A Fish?" by Dive Into Your Imagination
- Large Dry Erase Board/Easel and Markers



TREASURE CHEST

- Algae
- Clownfish
- Endemic
- Invasive Species
- Invertebrate
- Naturalist
- Scientist
- Sea Anemone
- Skeleton
- Symbiosis
- Tentacles
- Vertebrate

Anticipatory Set Lead-In

- ✧ Watch and become familiar with chapter two about "Anemones and Their Friends" on the "What Makes A Fish, A Fish?" DVD.
- ✧ Explain to students that in nature, when two organisms work as a team, it is called *symbiosis*. Animals in the ocean form partnerships requiring *symbiosis*.
- ✧ Tell students in the next few minutes they will watch a short clip about symbiotic partners in the sea, sea anemones and anemonefish commonly known as clownfish.
- ✧ Before starting the film clip, have students use their imagination to become a naturalist, meaning they will be scientists who study animals in their natural surroundings or environment. Ask students to work with their team or a buddy to collect information during the run of the video clip. Play the clip and review what they learned before moving on to activities.

Here are some questions and answers you can use to build a brainstorming session:

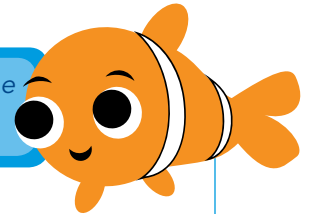


Questions for Students	Answers for Educators
Why is a sea anemone important to the anemonefish?	<i>It provides the anemonefish with a protected place to live and hide. Other fish do not bother the sea anemone because the tentacles can sting.</i>
Is a sea anemone a plant or an animal?	<i>Animal. Unlike plants sea anemones cannot make their own food. Rather a sea anemone must consume food to live.</i>
What kinds of animals besides anemonefish can live in a sea anemone?	<i>Crabs and shrimp.</i>
Why do most animals leave the sea anemone alone?	<i>Sea anemone tentacles sting.</i>

Video Review

- ✧ After viewing the clip about “Anemones and Their Friends” once or even a few times, discuss and write down additional facts, questions, and information students gained from the video for further research and discussion.
- ✧ Ask students to write a reflection in their journal about clownfish.
- ✧ Life changes continually and we need to learn how to ADAPT. Discuss with students all the different ways they have had to ADAPT in your class, at school, at home, or playing with friends. What does it feel like to experience changes? Create a mantra, I can ADAPT to anything! Change happens everyday!

Use your imagination and come visit me in the sea! 1, 2, 3...



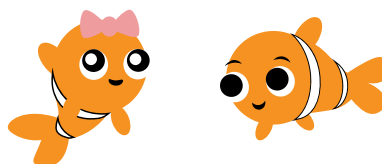
Imagination Value

When children see clownfish, many times the first word out of their mouth is “Nemo” after the famous cartoon character. Many cartoons are based on a combination of fact and fiction. The movies you see in the **Dive Into Your Imagination** series are real ocean animals. The movies are based on science and created to introduce children to real ocean animals. You can use this as a movement activity and have them act out what you are saying, or have them be silent and use their minds only. Have children use their imagination to become a scuba diver. You can read this script to them or use your imagination and create your own! On the count of three have them say the magic word...1, 2, 3 IMAGINATION!

“Clownfish live in sea anemones. Imagine you are living in the squishy, wiggly tentacles of a sea anemone. What does it feel like? Although sea anemones might look like plants growing on the rocks, sea anemones are animals. Sea anemones look like big flowers with wavy petals but the tentacles can sting animals for food or protection. A sea anemone is like a giant stomach with no eyes, ears, or nose, but it has a mouth for feeding. The sea anemone attaches to rocks with a foot. If you use your imagination and you lived in the sea anemone, you could be a clownfish, anemonefish, crab or shrimp because all of these animals make their home in the sea anemone. The sea anemone has stinging tentacles, yet clownfish are not affected by the sting of the sea anemone. The sea anemone protects the clownfish and in return the clownfish keeps the sea anemone clean. Get together with your buddy. One of you will be the sea anemone and the other an animal living in the sea anemone. When animals live together and benefit one another, these relationships are called symbiotic relationships. Our buddy teams in our class should be friendly symbiotic relationships. Your friends are really important in your life, just like the clownfish and sea anemone! Let’s discover more about sea anemones and their friends! On the count of three let’s say the magic word, imagination and become clownfish living in the sea when we do our activities. 1, 2, 3...IMAGINATION!”

CLASSROOM ACTIVITY STATION B1

"C" IS FOR CLOWNFISH!



Overview

Each student will work to identify items from the ocean that begin with the "Cc" sound. This activity will help students *build vocabulary, practice writing letters, enhance literacy, creativity, artistic ability, and foster creative writing skills.*

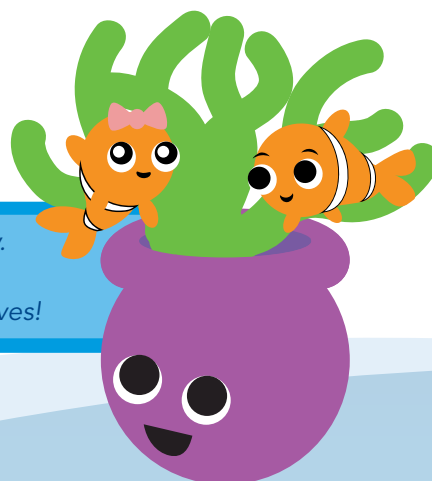
Materials: "C" is for Clownfish activity sheet

Talking Points

- ✧ Sea anemones and clownfish are examples of animals living in the ocean and adapted to help one another through a symbiotic relationship.
- ✧ When animals rely on one another to live in the ocean it is called symbiosis. Just like in the ocean, it is important people find ways to help one another when appropriate. Ask students who they have symbiotic relationships with. How do they communicate with one another?
- ✧ Written and verbal communication is an important part of our lives.
- ✧ Spend a moment talking with students about what the hard "Cc" sound is like using examples.

Lesson Procedure

1. Photocopy and provide each student with "C" is for Clownfish.
2. Ask students to look carefully at all of the images on the worksheet and to print "Cc" and the name of the object under any picture that begins with a "Cc" sound. Color in activity.
3. Add activity to their "What Makes a Fish" journal.



Scuba divers act responsibly.
They take only photos and
keep their hands to themselves!

CLASSROOM ACTIVITY STATION B1 (Continued)

“C” IS FOR CLOWNFISH!

Extension Ideas

- » Repeat the activity as a class and see how many ocean animals and plants can be named that start with the C sound. What about other letter sounds like S, Sh, etc.
- » As a class, brainstorm lists of other things in the ocean that have short and long vowel sounds. Walk through the vowels as a class and make lists of words for each vowel. Challenge students to use the words and create a story about a Fish School.
- » Have a discussion with the students about whether they would rather be a sea anemone or one of the animals that lives among the tentacles and why. How would they need to ADAPT for each?
- » During recess or a gym period play a game of sea anemone tag where half the class will be stationary anemones. The other half of the class will be fish swimming as fast as they can among the sea anemones trying not to get stung or tagged. Once the “sea anemones” tag all fish, then students change roles.

Notes



The reef has living creatures. You want to look at them but not touch.

CLASSROOM ACTIVITY STATION B2 WORKING TOGETHER



Overview

Students will practice utilizing cooperation and group skills as they match addition and subtraction facts. Each buddy team will receive cards with either math problems or solutions, and they need to work together to complete the math problems. Participation in this activity will provide students an opportunity to practice *cooperation, deductive reasoning, logic*, the basic math skills of *addition, subtraction, multiplication*, and the basic concept behind symbiosis.

Materials: “Working Together” flash cards

Talking Points

- ✧ Encourage your students to look closely at the patterns and structures of the problems.
- ✧ Can students look for and express regularity in reasoning? Can they find shortcuts or general methods of problem solving?
- ✧ Before beginning, encourage students to apply the golden rule of scuba diving: stop, think, breathe slowly, then act.

Set Up Procedure

1. Photocopy “Working Together” flash cards.
2. Divide students into buddy teams, one will get problems and the other will have solutions.
3. Review that symbiosis is a way that living things work together. Give students an opportunity to practice working together to solve math fact problems.
4. Instruct students to work together symbiotically to match the math problems with their correct solutions.
5. When students have found the answers, have them take the answers and create different ways to come to the conclusion. Have them exchange with others, constructing viable arguments and critiquing their reasoning.



There is pressure underwater. Scuba divers wear masks enclosing their noses so they can equalize.

CLASSROOM ACTIVITY STATION B2 (Continued)

WORKING TOGETHER

Extension Ideas

- » Ask students to participate in a relay race that requires interdependence such as a three-legged race.
- » Have students work in their buddy teams and create a set of math story problems using fact families. Example: If they had $4 + 2 = 6$, then they would write a story for $6 - 2 = 4$ or $6 - 4 = 2$. Or if they have the answer 6, what are all the different ways to come to this? $5+1$, 2×3 , $10-4$. etc.
- » Make a second set of cards that has pairs of synonyms. You can use ocean terms such as boat and ship; ocean and sea; seaweed and kelp; dolphin and porpoise; swimsuit and bikini and so on. Divide the class into teams again and this time, ask them to find the matching synonyms or create their own lists.

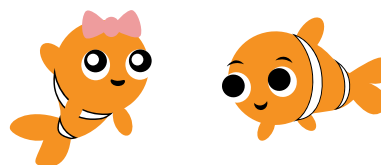
Notes



Always observe your environment. Scuba divers always stop, think, breathe slowly then act.

CLASSROOM ACTIVITY STATION B3

SYMBIOTIC THINK, PAIR, SHARE



Overview

Students will expand their understanding of symbiosis by thinking about ways that people work together in school and in their own lives. They will observe, record, and share examples of people interacting and depending on one another. Participation in this activity will provide students with opportunities to explore the *scientific method of inquiry* engage in *group learning*, *observation*, and reinforce the biological concept of *symbiosis*.

Materials: Paper, Pencils, Colored Pencils, “Symbiotic Inquiry”

Talking Points

- ✧ Animals in the ocean such as sea anemones and anemonefish have a mutually dependent relationship called symbiosis.
- ✧ The sea anemone provides protection and a place to live for the anemonefish, and the anemonefish keeps the sea anemone clean. They have adapted to help one another survive.
- ✧ The word symbiosis means “living together” and there are many ways that people exhibit this behavior. Ask students to brainstorm ways that they depend on others everyday. How do other people depend on them?

Lesson Procedure

1. Arrange students into buddy teams. Ask them to imagine they are scientists. Tell them they will be observing how people interact around their school or classroom and record what they find on their “Symbiotic Inquiry” worksheets.
2. Depending on skill level of the group try the following:
 - Students can spend ten or twenty minutes observing/listing others interacting in the room.
 - You can send them to different posts around the school to observe people interacting such as the library, gym, cafeteria, etc.
3. Before asking students to collect data, assign each team member a role depending on the skill level of your class. For example, one can be a verbal reporter, one can illustrate the interactions, one can take notes, etc.
4. Before releasing students to make and record observations, ask students to create a hypothesis about what kinds of mutually dependent human activity they might witness in assigned locations.
5. At the end of the activity ask students to share their observations and drawings as a class. Open a discussion about why interactions between people are important.

Astronauts learn how to scuba dive so they can understand zero gravity.



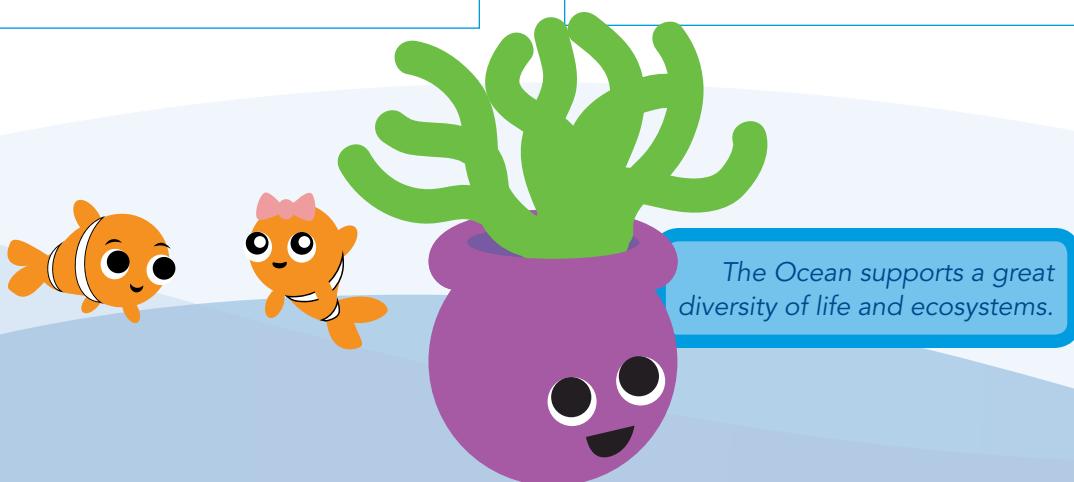
CLASSROOM ACTIVITY STATION B3 (Continued)

SYMBIOTIC THINK, PAIR, SHARE

Extension Ideas

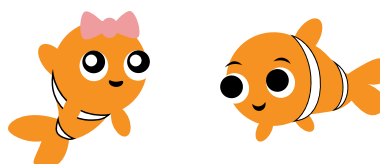
- » Have students work in buddy teams and come up with ways people in a community rely on and help one another. Encourage students to think of community helpers such as the policemen and women, firemen and women, teachers, etc. We are now a global society, so challenge your students to think of our global community and how we help one another. You might use the example of a natural disaster such as the earthquake in Haiti or the Tsunami in Japan and chart how many countries assisted relief efforts.
- » Ask students to keep a journal of symbiotic interactions they witness in their homes or community throughout the course of a week.
- » Break class into teams and set up a relay race. Once they have mastered the technique, have teams race one another. Emphasize how the teamwork or symbiosis is needed to advance forward. How can they ADAPT or change the game to make it into a different game? Can they create their own?
- » Write the word "symbiosis" vertically on a board and ask students to create an acrostic, thinking of words for each letter of the word to describe what symbiosis is.

Notes



CLASSROOM ACTIVITY STATION B4

MEASURE ME ANEMONE!



Overview

Students will become acquainted with measurements and the comparative terms associated with them as they examine a magnificent sea anemone. Participation in this activity will provide students with opportunities to become familiar with the principal of *measurement*, using *prediction*, *comparative terms*, *reasoning*, and *logic*.

Materials: Bulletin Board, Butcher Paper, Index Cards, Markers, Streamers, Construction Paper or Poster Board, Rulers or Yard Sticks, Scissors, Various objects that can be used as measuring tools such as erasers, pencils, books, fingers, etc.

Talking Points

- ✧ While students are participating in this activity, encourage them to use the appropriate tools strategically. Can they make sound decisions about when each of the tools might be helpful, recognizing both the insight to be gained and their limitations?
- ✧ Have students attend to precision during the activities while communicating with one another. Challenge them to calculate accurately and efficiently, expressing their numerical answers with precision based on the context.
- ✧ Encourage students to give carefully calculated explanations to one another. When scuba diving, communication is extremely important, just as it is when working in mathematics.
- ✧ Brainstorm with students about how and when strategy, precision and structure are important in our lives.

Lesson Procedure

1. Create "Measure Me Anemone" bulletin board.
2. Cut a circle from construction paper or poster board to serve as the center of the sea anemone and affix it to the middle of the bulletin board.
3. Attach numbered streamers radiating out from the center of the circle representing tentacles of varying lengths for students to measure.
4. Ask students to make predictions about which tentacles are longest, shortest, or of similar length.
5. Ask students to observe and use words like big, bigger, biggest; long, longer, longest; short, tall, small, same, and so on to describe the lengths of the streamer tentacles.
6. Record the descriptive words on index cards and add them to the bulletin board.
7. Break students into buddy teams. Assign them to measure the tentacles with a ruler, yard stick, or ordinary classroom objects to see how long various objects are. Write down their answers.

CLASSROOM ACTIVITY STATION B4 (Continued)

MEASURE ME ANEMONE!

Extension Ideas

- » Have students work together in buddy teams and measure their arm lengths from fingertip to fingertip with arms spread wide. Using string, have students cut a length to represent their arm length. Now have them compare their arm width to their height. Is it the same? Is it different? When a student knows their arm width they can start to understand the concept of depth. If they know their arm is two feet long, then they can guess how many arm lengths objects are away from them. Have student's measure one arm and the length of both arms including space across body. The measurement of both arms from finger to finger should be very similar to their height. This will be a great tool for them to use for comparing distances.
- » Arrange class in buddy teams and instruct them to use string to measure their height. Have students arrange the strings side by side on the floor tallest to smallest or take the strings and arrange them into a giant anemone!
- » Challenge students to use a ruler to measure their fingers and the digits on their fingers. Are they all the same length? Ask them to come up with predictions about why they think that fingers might need to be different lengths.
- » Use the list of comparative terms that the class developed for a spelling test, or ask students to work them into sentences describing ocean animals.

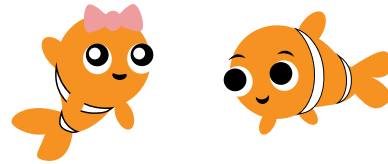
Notes

As we dive deeper, it gets darker because water absorbs light. We carry lights with us to see.



CLASSROOM ACTIVITY STATION B5

SYMBIOSIS IS LIVING TOGETHER



Overview

Students will use new vocabulary words they have learned about symbiosis, working together, and the relationship between sea anemones and their allies, or friends, to complete sentences about life in the sea. Participation in this activity will provide students with the opportunity to practice with new vocabulary, literacy building, and reading comprehension.

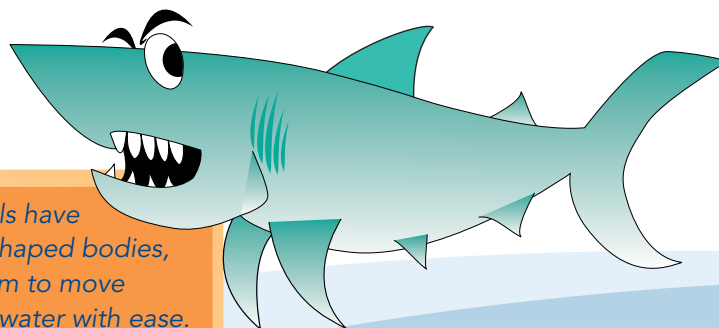
Materials: "Symbiosis is Living Together"

Talking Points

- ✧ Some animals build special relationships with other ocean animals in order to help each other survive better in the ocean. These relationships are called symbiotic relationships.
- ✧ Cooperation between animals may have to do with receiving a service like when one animal cleans another; or with building a home; or it might be an animal helping another find food.
- ✧ Explain to students there are many reasons why animals would want to form partnerships in the ocean. Ask if they can think of more reasons for symbiotic relationships in the ocean or on land.

Lesson Procedure

1. Provide each student with a copy of "Symbiosis is Living Together."
2. Instruct students to use the treasure chest of words at the bottom to fill in each blank.
3. Students can add their completed activity to their "What Makes a Fish" journals.



Many animals have torpedoe shaped bodies, allowing them to move through the water with ease.

CLASSROOM ACTIVITY STATION B5 (Continued)

SYMBIOSIS IS LIVING TOGETHER

Extension Ideas

- » Challenge students to make up their own sentences in their journals using words from the treasure chest. As a class or in buddy teams, share the sentences to create a story.
- » Have students write a story about ways they have to ADAPT to their class in school compared with on the playground. How do they change their behavior? What is different about how they act in the classroom versus when they are playing? How do they feel? What do they do differently? What do they do the same?
- » Have students divide a sheet of paper in their journals into quarters. Ask them to write the four seasons, one per square, on the page. Next, ask students to write ways they adapt to the weather for each season.

Notes



If you swim fast or work hard in the water, you will tire. Relax and breathe slowly.

CLASSROOM ACTIVITY STATION B6 BOOK STALL



Overview

Students will practice and build independent reading strategies. Providing a reading or computer area where students can look through supplemental materials and books will help to promote literacy.

Materials: VENN diagram

Lesson Procedure: Character Education ADAPT

1. Using the VENN diagram included in this lesson ask students to compare the qualities of clownfish and sea anemones.
2. Once students have filled in their diagrams, ask them to write sentences or a story about how clownfish and anemones have adapted to live together incorporating their diagram ideas.
3. Use the bonus activity pages of the clownfish and have students write a poem or a story about ways they have had to “adapt” in their lives.

Poster: ADAPT

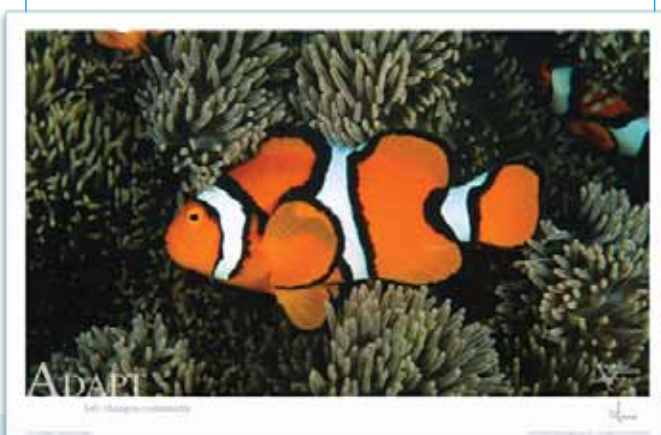
“Life changes continually.”

Fine Art Prints, posters, greeting cards and other products are available to decorate your classroom or school while inspiring your students with real ocean animals and environmental scenes. Contact us to learn more.

Clownfish are only found in the coral triangle. They never crossed the Marianas Trench, the deepest part of our ocean. Help students find this area on the map and research why it is important.

True Clownfish, Papua New Guinea

Oxygen sustains our life
and we get it from water,
you get it from air!



Book Suggestions

- » Coldiron, Deborah. *Clownfish (Underwater World)*. Pinehurst, North Carolina: Buddy Books Publishing Inc., 2008.
- » Crawley, Annie and Cynthia Stierle. *Ocean Life from A to Z*. New York, New York: Reader's Digest, 2007
- » Johnson, Jinny. *Children's Guide to Sea Creatures*. New York: Simon and Schuster, 1998
- » Lindeen, Carol. *Clown Fish. Under the Sea*. Mankato, Minnesota: Capstone Press, 2005
- » Maddern, Eric. *Curious Clownfish*. Abingdon, London: Frances Lincoln, 2009
- » Mcdowell, Pamela. *Clownfish (Ocean Life)*. Calgary, Alberta: Weigl Publications Inc., 2011.
- » Rustad, Martha. *Sea Anemones. Blastoff! Readers: Oceans Alive*. Minneapolis: Bellwether Media, 2008
- » Schaefer, Lola. *Sea Anemones. Ocean Life*. Chicago: Heinemann, 2002. Print.
- » Tate, Suzanne. *Charlie Clownfish & Annie A. Manteo*, North Carolina: Nags Head Art, Inc., 2010

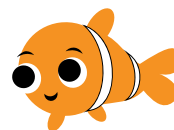
Closure and Follow Up

- ❖ Spend time reviewing facts students knew and wanted to know, and be sure to revisit early responses that were incorrect so they can be replaced with facts.
- ❖ Ask students to spend 1-2 minutes writing a reflection applying what they learned in this lesson to their lives.
- ❖ Ask students to think of ways that humans can be symbiotic in a helpful way toward the ocean.
- ❖ Ask students to research and report on other places in the animal kingdom that there is symbiosis.
- ❖ Reinforce learning by reviewing the treasure chest of vocabulary together as a class.
- ❖ Discuss the importance of friendships in our lives and how we must forge mutually beneficial relationships with our friends and family.
- ❖ Review the word "ADAPT" with students and discuss how it relates to their character. Encourage them to use their imagination and how they need to ADAPT when they work with different people. How do they act differently or change to work with one another?

Plan for Independent Practice

- » Students can make a list of all the things they do at home that require help or "symbiosis."
- » Select stories from the suggested reading list to read aloud as a class or for self-study.
- » Students can take turns being clownfish and sea anemones. Have them play a modified version of tag where the sea anemones tag the clownfish out, stung! Challenge students to ADAPT this game into another.
- » Have students buddy up while sitting on the floor. Have them find ways to help each other into standing position such as back to back, sideways, holding hands, etc.
- » Review the importance of developing character. Discuss various ways students ADAPT to different places, events, seasons etc., and how it relates to their lives. Do a journal writing exercise and have students list all the ways they experience changes everyday and how they adapt to the changes. To help get them started, brainstorm with them what changes they experience daily.

DVD TRANSCRIPT

Anemones And Their Friends

A-Nem-O-NEE...Go on try and say it...A-Nem-O-NEE...Anemone. Anemone. Anemone. Sea anemones and anemonefish. They live together. There are many types of anemonefish, but the one you may know the best are the clownfish!

The sea anemone is the home of the fish and the fish may hover above the sea anemone but they do not leave their home. The sea anemone is the territory of these fish, and it's their home. When the clownfish feel scared they will retreat into the tentacles of the sea anemone.

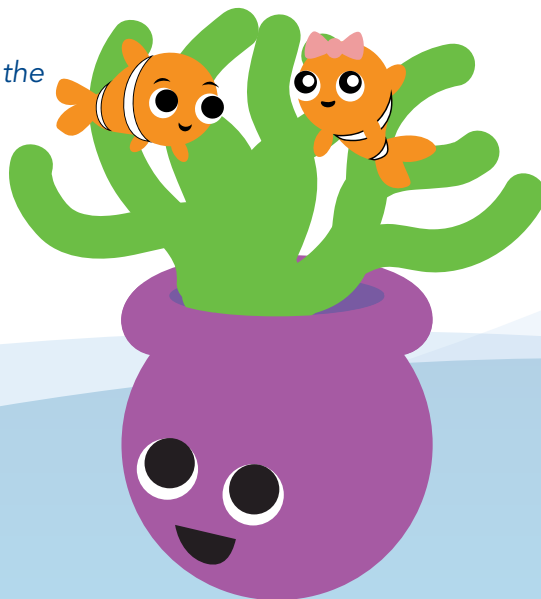
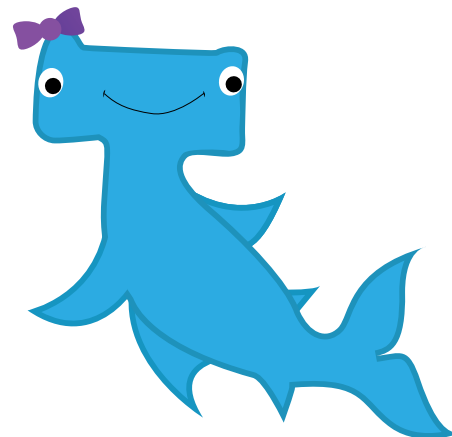
Sea anemones may look like plants, but they are animals without a backbone. In their center, that small round hole is their mouth into which all food and water passes. They attach themselves to the sea floor. Most animals leave them alone because they have the ability to sting. But there are some animals not affected by their sting!

What animals can you see living in the sea anemone?

Crabs. Shrimp. And yes, clownfish too.

Clownfish lay their eggs in an algae nest on the rocks often right next to the sea anemone. Here are newly laid eggs. All the clownfish work together to protect the eggs. As the eggs grow they change into baby fish and all of the gold you see are the baby fishes eyes! Once they hatch they leave their home anemone and float in the sea until they can find their own anemone.

There are many different kinds of anemonefish. If you were one, which would you be? I would be the clownfish living in the magnificent sea anemone.



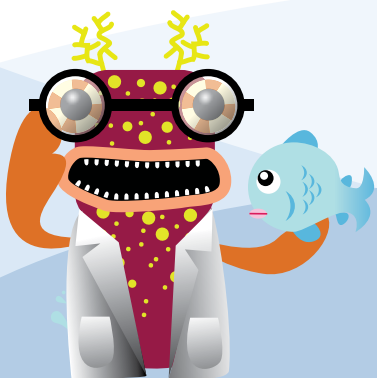
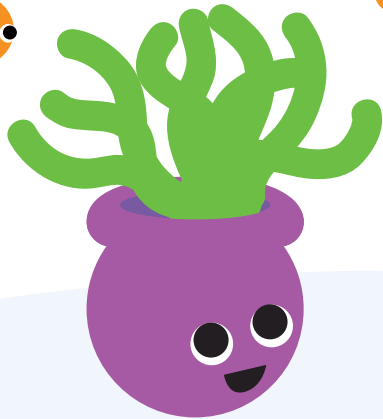
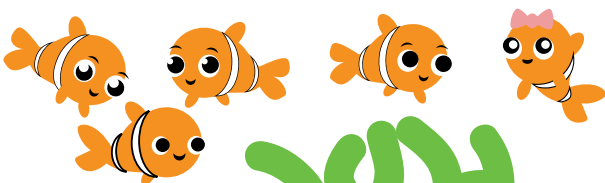
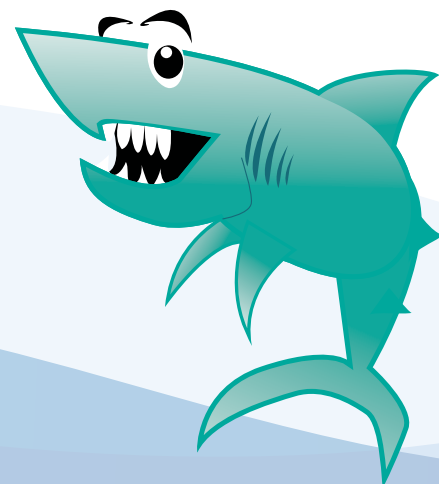
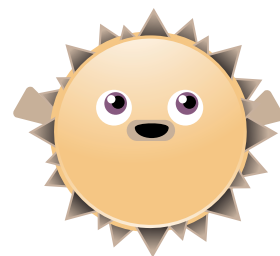
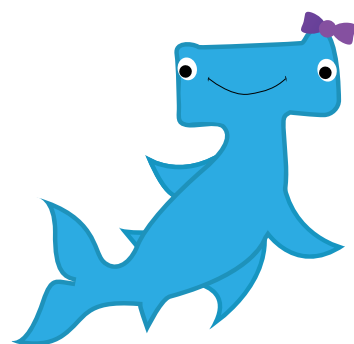
Go Blue! Ocean Annie's Tips to Help Our Environment

Anemonefishes and clownfish are very popular in home aquariums. As a result, they are starting to appear in parts of the ocean where they don't belong due to accidental escape or deliberate dumping when pets become unwanted. When animals from another ecosystem are introduced to a new one in this way, we call them invasive species.

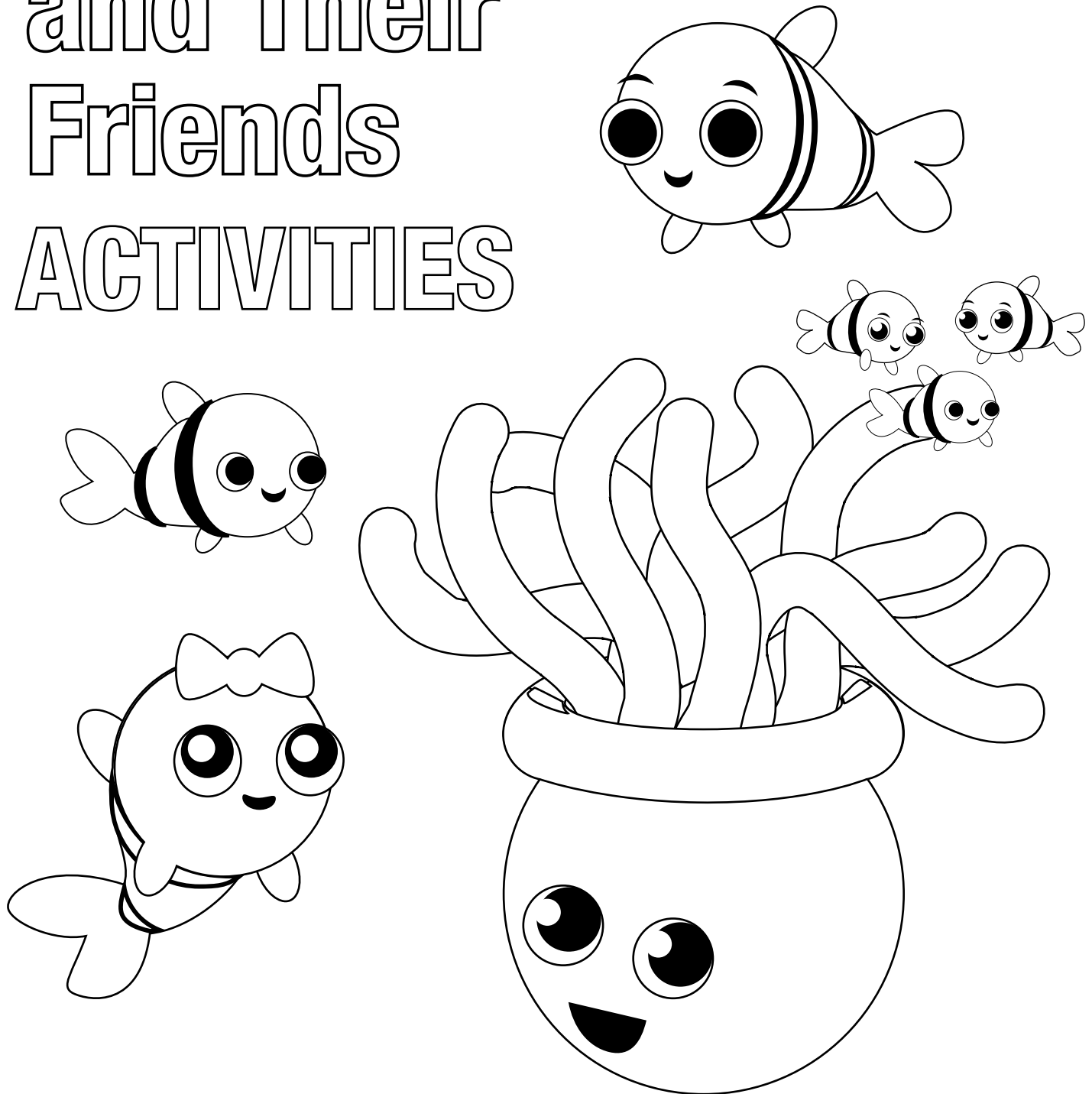
Invasive species are a problem because they start to compete with animals that are native (endemic) to the area for their food, hiding places, nesting sites, and they may not have any predators at all to keep their numbers in balance.

Discover with your students invasive species in your local environment or choose a location to explore. The Great Lakes have experienced a zebra mussel invasion, the Caribbean Sea has a problem with lionfish, and the Mississippi has been invaded by Asian Carp.

WHAT YOU CAN DO – Make sure that if you have a pet, you never purposely release it into a wild environment without consulting wildlife authorities. It might seem like you are doing a favor in giving your pet freedom, but it may be causing terrible damage to the delicate balance in an ecosystem where your pet does not belong. As good citizens of the world, we want to live at one with nature and always support the health of our Ocean. By doing this, we **GO BLUE** and **LIVE BLUE!**

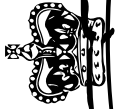


Sea Anemones and Their Friends ACTIVITIES



Name _____ Date _____

B



Chest

Treasure

of Words

algae

clownfish

endemic

invasive species

invertebrate

naturalist

scientist

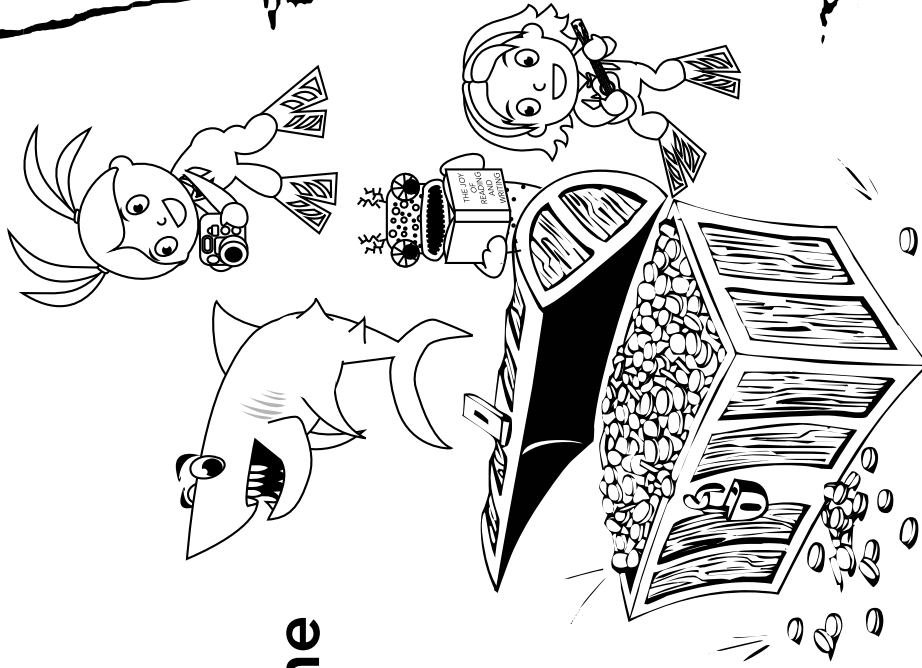
sea anemone

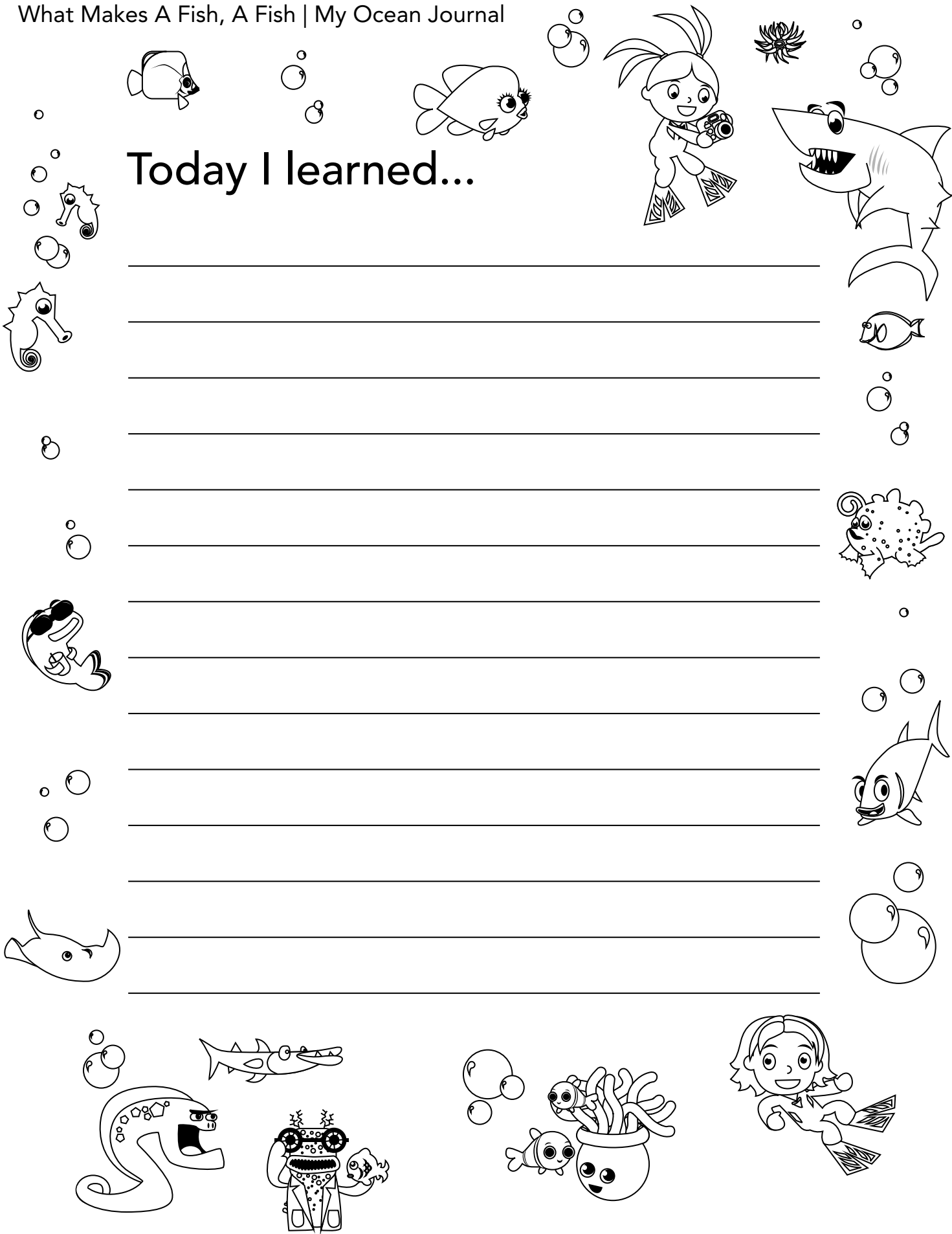
skeleton

symbiosis

tentacles

vertebrate

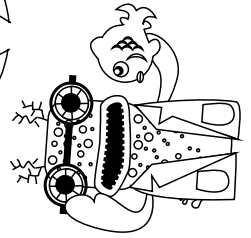




Today I learned...

Date

Directions: The picture below contains eight animals or things that start with a hard “Cc” sound. Find all eight and color them in. Use the clues at the bottom of the page to help you with the tricky ones!



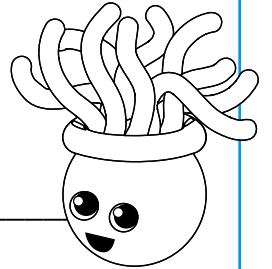
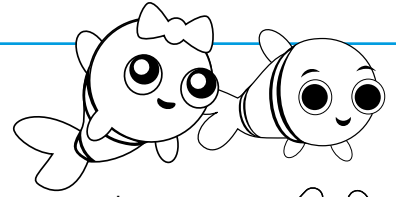
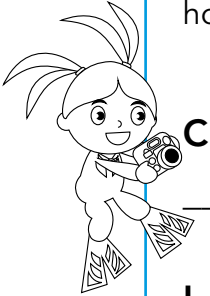
1. Look for the cuddly fish that has 8 arms, 2. Look for the shell that rhymes with "bonk".

"C" Is For Clownfish!

Name _____ Date _____

OCEAN ANNIE'S SUPER SCUBA CHALLENGE

Directions: For each letter in the word clownfish below, see how many other ocean words you can think of that start with the same letter.



C

L

O

W

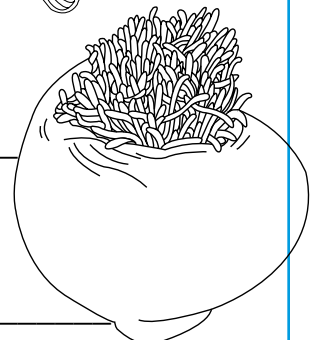
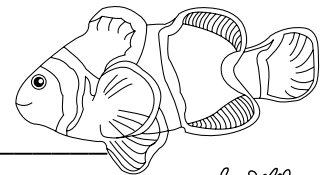
N

F

I

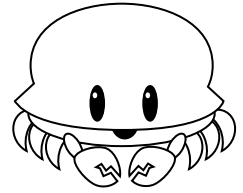
S

H

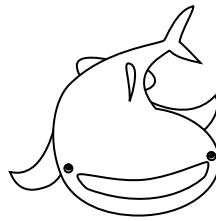


$$2 + 4$$

6



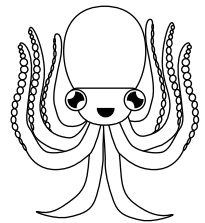
$$4 - 2$$



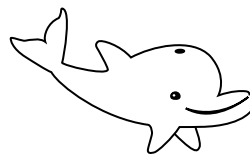
2

$$3 + 5$$

8



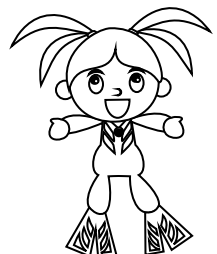
$$5 - 2$$



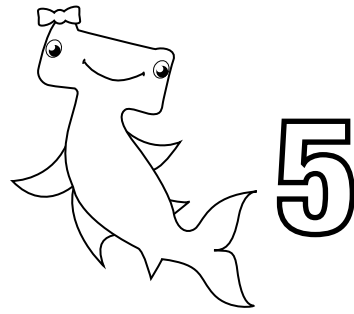
3

$$2 + 2$$

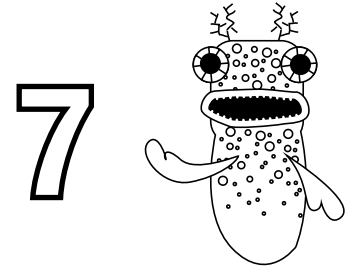
4



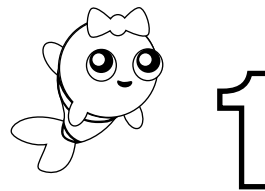
$$10 - 5$$



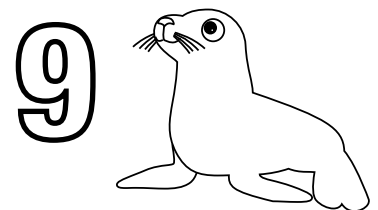
$$3 + 4$$



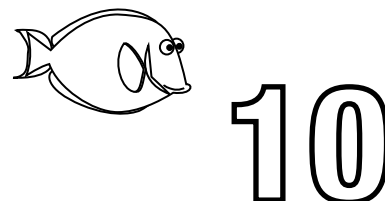
$$7 - 6$$



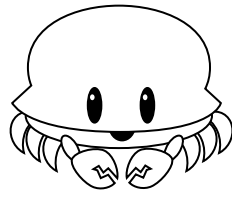
$$3 + 6$$



$$5 + 5$$



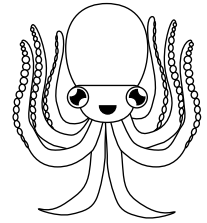
$$12 + 14$$



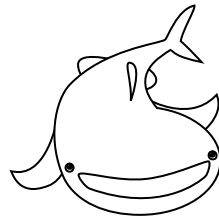
26

$$24 - 12$$

12



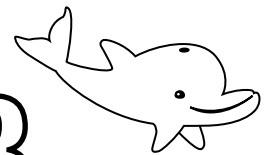
$$13 + 15$$



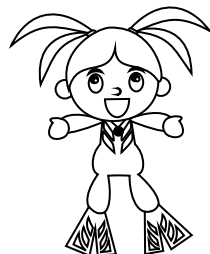
28

$$25 - 12$$

13



$$12 + 21$$



33

$$20 - 5$$

15



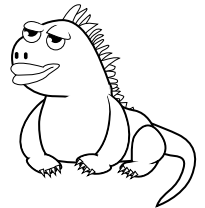
$$13 + 14$$

27



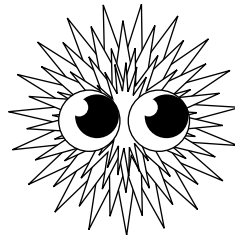
$$47 - 36$$

11



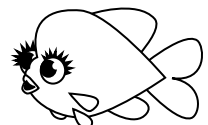
$$33 + 66$$

99



$$25 + 25$$

50

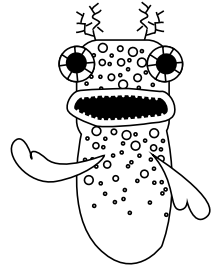


$$2 \times 4$$



8

$$5 \times 3$$



15

$$2 \times 6$$



12

$$4 \times 4$$



16

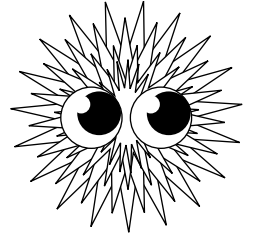
$$9 \times 3$$



27

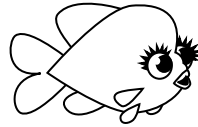
$$6 \times 6$$

36



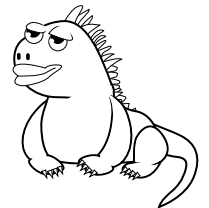
$$8 \times 4$$

32



$$7 \times 5$$

35



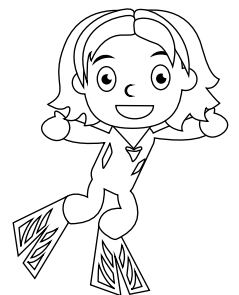
$$10 \times 2$$

20



$$8 \times 7$$

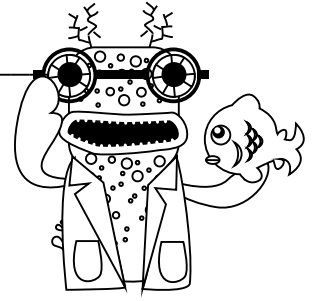
56



Symbiotic Inquiry

Name _____ Date _____

Directions: Symbiosis means living together and depending on one another. Use the guide below to observe and record how people live and work together.



1. What is the date and time?



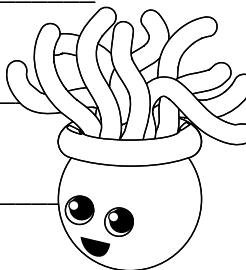
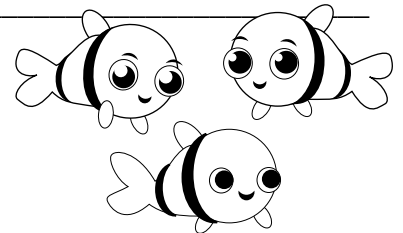
2. Where are you making your observations?



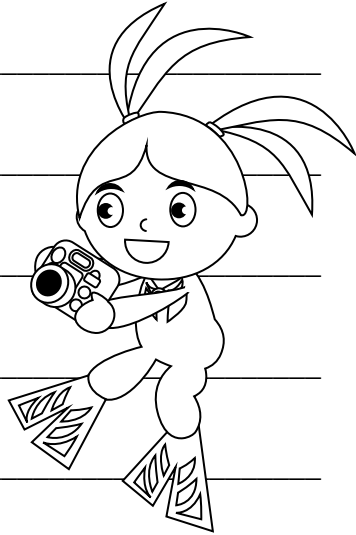
3. Who are you observing?



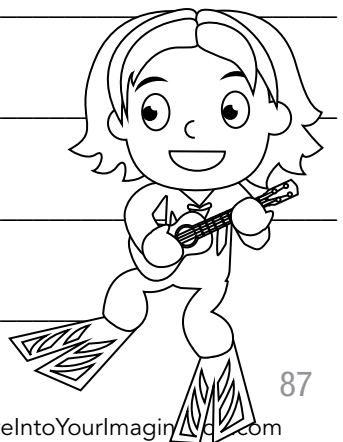
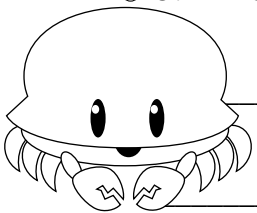
4. What activities are your study subjects doing that are mutually dependent or symbiotic?



5. Why do your study subjects need one another to do what they are doing?



6. What would happen if they did not develop a symbiotic relationship?



Symbiosis is Living Together

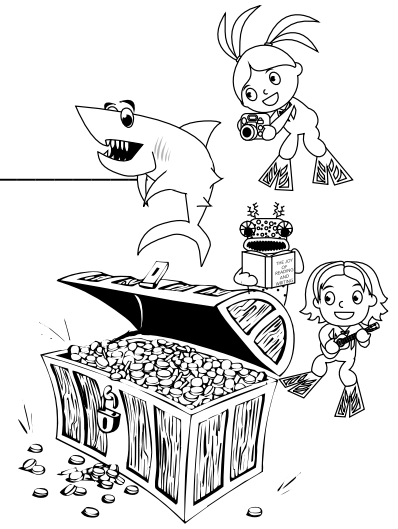
Name _____ Date _____

Directions: Use this word list to fill in the blanks for the sentences.

mutual
anemone
nest

animals
sting
retreat

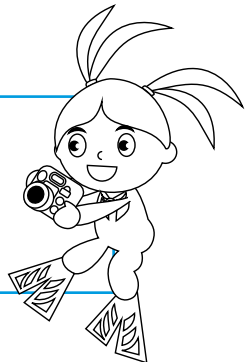
together
tentacles
invertebrates
hovering



1. The sea _____ is the home of the clownfish.
2. Anemonefish can often be seen _____ over the sea anemone.
3. Sea anemones may look like plants, but they are _____.
4. All the clownfish in a colony work _____ to protect the eggs.
5. Animals without a backbone are _____.
6. Sea anemones use colorful _____ to sting food and bring it to their mouths.
7. Clownfish lay their eggs in an algae _____.
8. Most animals leave sea anemones alone because they can _____ with their tentacles.
9. Sea anemones and anemonefish share a _____ partnership called symbiosis.
10. When the clownfish feel scared they will _____ into the tentacles of the sea anemone.

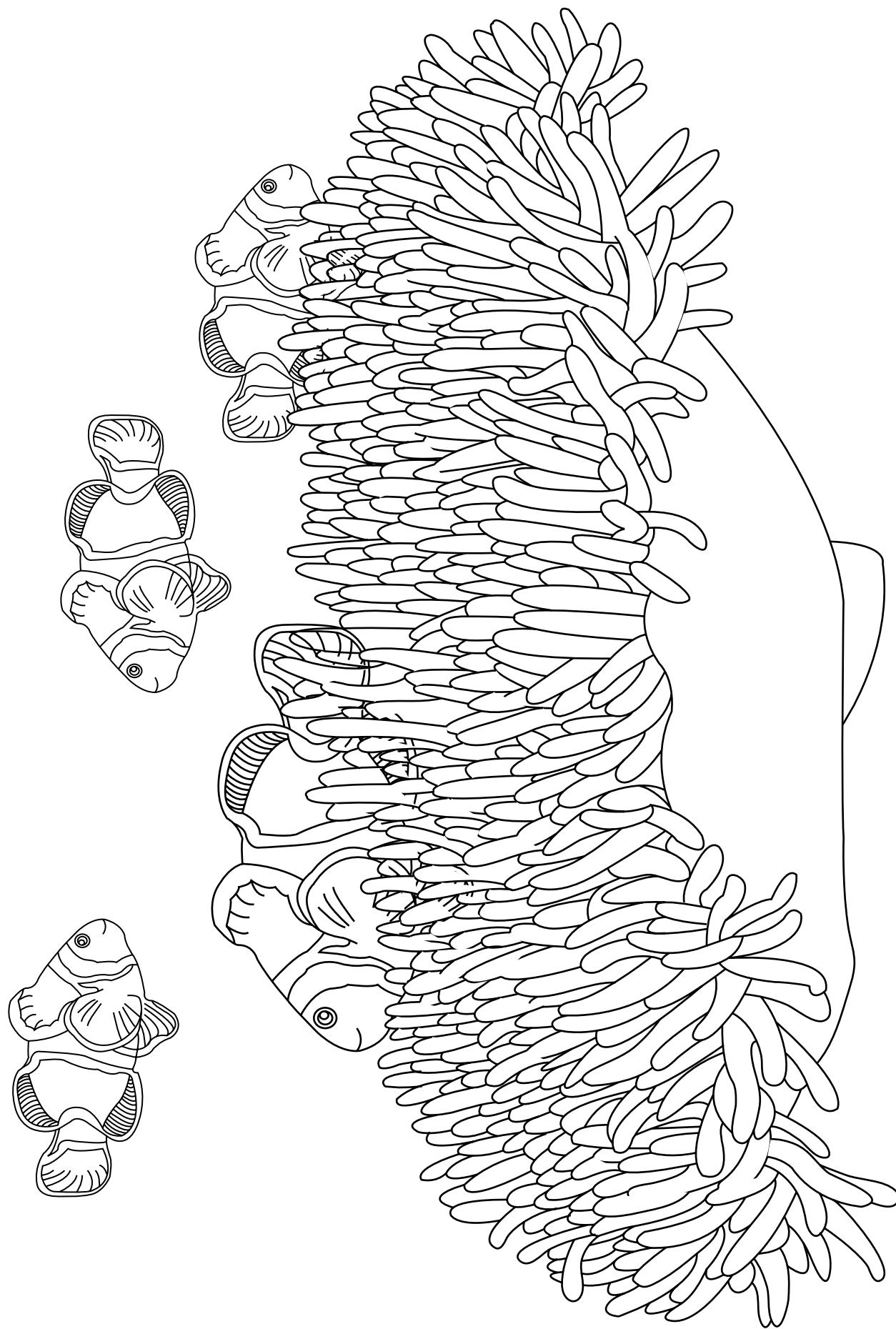
OCEAN ANNIE'S SUPER SCUBA CHALLENGE

Create your own descriptive story about the ocean using the all the words on the list.

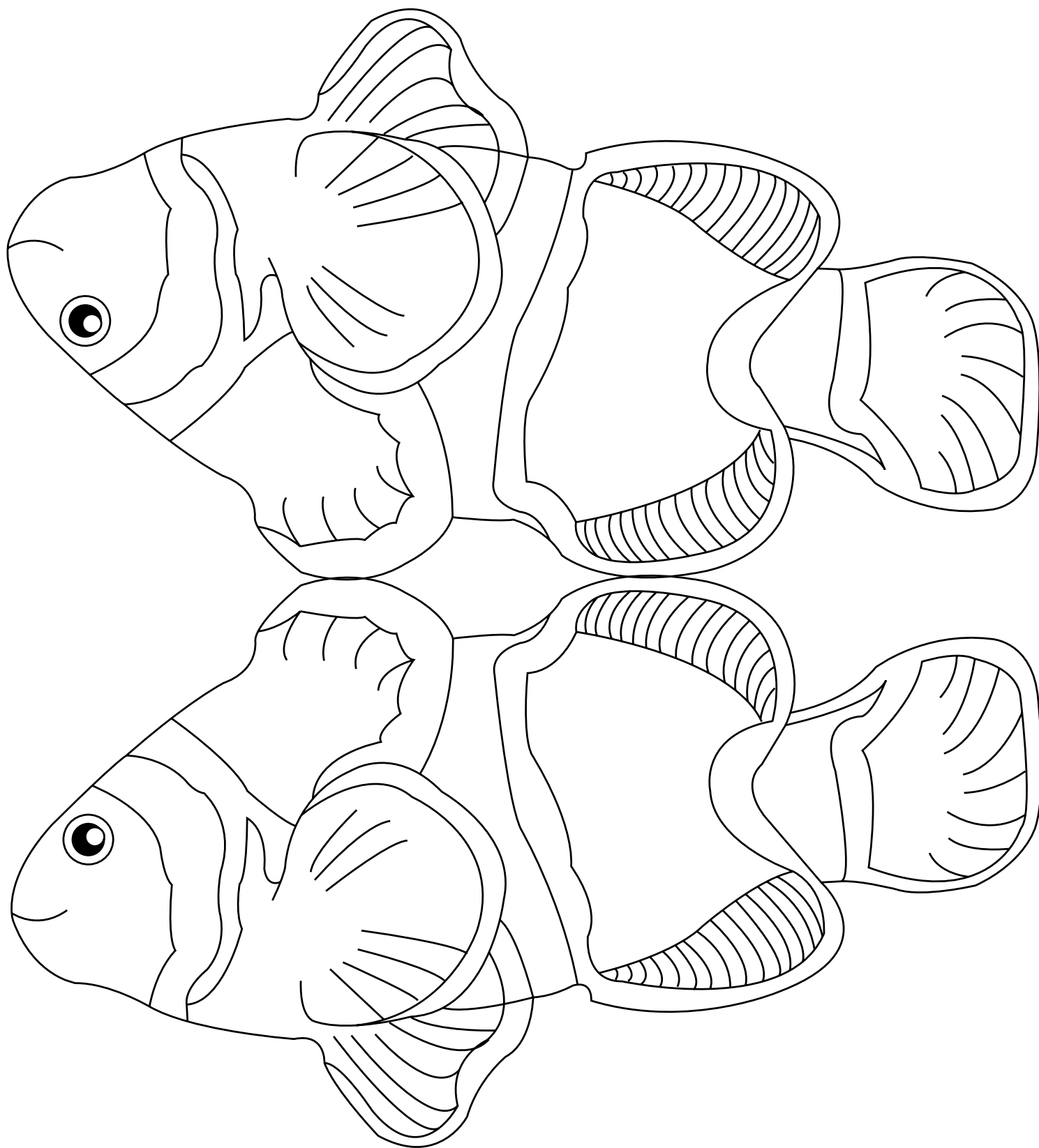


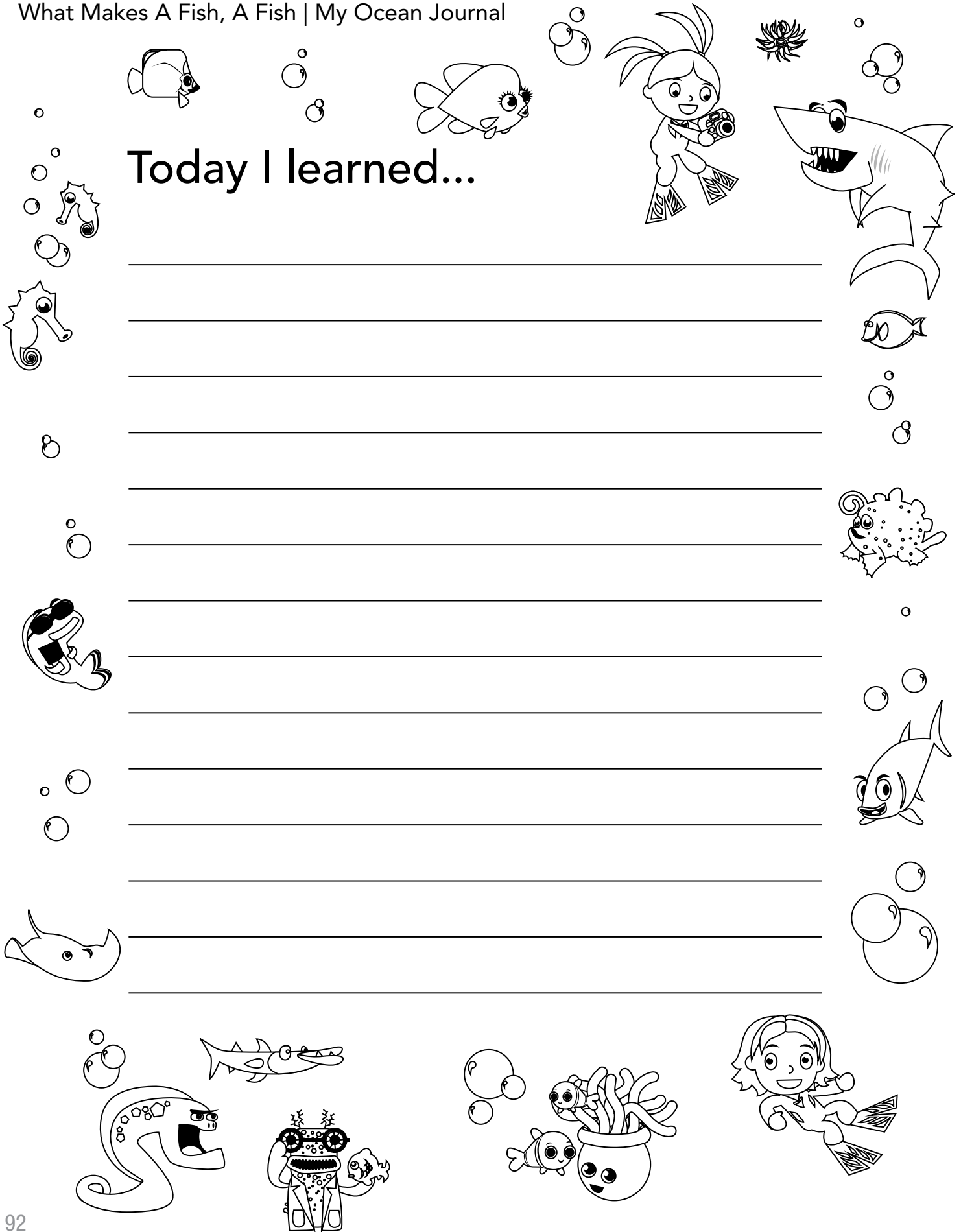
Venn Diagram

A Venn diagram consisting of two overlapping cloud-like shapes. Each shape contains five vertical lines for writing. The diagram is decorated with cartoon characters: a girl with a camera on the top right, a girl on the bottom left, and a fish on the bottom right.



Name _____ Date _____





Today I learned...

Hide and Seek on the Reef



C

Hide and Seek on the Reef



CONCEPT / TOPICS TO TEACH

Animals living in diverse ocean habitats develop unique ways of blending in to their environment, known as “*camouflage*.” In particular, color is important to fish and many can *change* the color of their skin completely in order to blend in and hide from predators, warn other animals they are poisonous, or communicate in a variety of ways to other members of their group using color changing techniques. Fish use specialized cells in the skin called chromatophores to perform these dramatic color changes.

Objectives:

- » Students will develop the ability to recognize geometric shapes and symmetry within living organisms by arranging shapes in a way that represents living creatures.
- » Students will build creative writing skills by designing a unique ocean habitat.
- » Students will employ the scientific method of inquiry to conduct an experiment exploring probability in order to model how camouflage works.
- » Students will explore and identify syllables by isolating them in multi-syllabic words.
- » Students will practice deductive reasoning through a series of basic math story problems while isolating irrelevant facts, and finding the solution.

Character Education: UNIQUE

Have your students look around the room at one another. Ask them to think about what makes them all the same and what makes them different or UNIQUE. A few examples of similarities may include: they are all children; they have two arms, eyes, a nose and mouth; they have hair and like to play. Now explain that even though they are similar in many ways, they are all UNIQUE too. This is an ideal time to discuss issues of diversity. Being UNIQUE means you are special and different, even though we are all similar. Perhaps some students have red curly hair or like to play a certain kind of game. Skin color or physical challenges are some of the first differences children notice. Encourage celebration of whatever it is that makes a child UNIQUE! Children should be proud of what makes them different or UNIQUE!

Ocean Annie and Scuba Divers are UNIQUE!

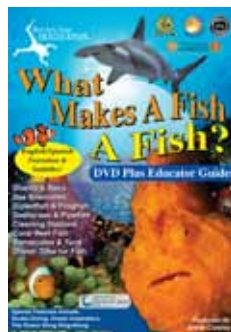
Scuba divers all need the same equipment, but they can choose different colors to make them UNIQUE. Ocean Annie wears a blue wetsuit, you might wear a black wetsuit. Scuba divers are all people who enjoy exploring the ocean and may look similar, but scuba divers have qualities that make them UNIQUE. People get to express themselves through what we wear, how we look, where we come from and what we want to do. Ask your students where they want to go scuba diving! Some may want to go ice diving and others might want to visit coral reefs in Australia or Hawaii. Some students may want to go cave diving or night diving. Encourage students to think of other ways scuba

divers are UNIQUE! Encourage students to think of ways they are UNIQUE. Even though scuba divers are UNIQUE, they still must practice scuba diving rules and communication skills for safety. Practice UNIQUE hand signals or communications for your classroom or school. Use this great exercise in character development to address bullying or any other issue that might be UNIQUE to your school. Many times behavior changes when children are different or UNIQUE. We have to learn how to adapt and celebrate differences. If you have UNIQUE children or kids challenged with disabilities such as being blind, deaf, use a chair or are physically challenged in other ways, they can still learn how to scuba dive! Scuba diving is for everyone!

Getting Started

Required Materials

- DVD "What Makes A Fish, A Fish?" by Dive Into Your Imagination
- Large Dry Erase Board/Easel and Markers



Anticipatory Set Lead-In

- ✧ Watch and become familiar with chapter three, "Hide and Seek on the Reef", from the DVD "What Makes A Fish, A Fish?"
- ✧ Ask students by a show of hands how many of them have ever played hide and seek?
- ✧ Ask students what kinds of places they might like to hide?
- ✧ Ask students if any of them can imagine where fish might like to hide in the ocean.
- ✧ Ask students to use their imagination and become naturalists, meaning they are scientists who study animals in their natural surroundings, and work with their team to collect information during the run of the video clip. Play the clip and review what they learned before moving on to activities.

Treasure Chest

- Camouflage
- Cell
- Chromatophore
- Disguise
- Estuary
- Mating
- Naturalist
- Population
- Predator
- Scales
- Species

Here are some questions and answers you can use to build a brainstorming session:

KWL

LGL

AG

WP

Questions for Students	Answers for Educators
What kinds of places do fish like to hide?	In sea grass, kelp forests, on coral reefs, rocky outcroppings, and in the sand.
How do fish use their bodies to help them hide?	They may change colors, or have body texture like bumps or hairy projections to help them blend in to their environment.
How many different colored seahorses can you find?	Many colors some of which include: orange, pink, white and yellow.
How many different kinds of pipefish do you see?	There are many – the white pipefish called an ornate ghost pipefish, a hairy pipefish, and a halimeda pipefish. Keep in mind pipefish and seahorses are in the same family of fish!

Video Review

- ✧ After watching the clip “Hide and Seek on the Reef” once or even a few times, discuss and write down additional facts, questions, and information students gained from the video for further research and discussion.
- ✧ Ask students to write a reflection in their journal about hide and seek on the reef.
- ✧ During the video, there were many different, interesting, and UNIQUE fish. What made the fish UNIQUE? They are all real ocean animals, yet they are more fun than cartoons. Nature is wonderful to explore and offers many opportunities. Ask students what they think of all these UNIQUE fish. Encourage them to become underwater explorers learning and uncovering mysteries from the sea!

Imagination Values

Children love to play the game hide and seek. Traditional hide and seek has students literally hide while the other person tries to find them. Discuss this with your students and ask them to imagine what it would be like if they could hide without taking cover, but using their surroundings to blend in and become invisible. In science, this is known as camouflage. Use this exercise as a movement activity and have them act out what you are saying, or have them be silent using only their minds. Ask children to imagine they are scuba divers or ichthyologists. By having them focus and gain a connection to the animals, they will attain critical elements of imagination play. You can read this script or use your imagination and create your own! On the count of three, say the magic word: 1, 2, 3...IMAGINATION!

“Many of you like to play hide and seek, but what if you could hide by blending into your surroundings? Look around the room and try to imagine what you would wear to blend into the classroom! Soldiers wear tan camouflage uniforms when they are in the desert and green uniforms in the jungle. Some of you wear camouflage pants, shirts or you might even have a backpack that is covered in a camouflage design. You wear these clothes because you like them but soldiers wear them for protection.

In nature, animals need camouflage for protection. In order to survive, animals on the coral reef need to camouflage themselves by blending into their surroundings. On the count of three let's say the magic word, imagination. 1, 2, 3...IMAGINATION! Now using your imagination, think about what you would look like as a fish on a coral reef. Would you look different as a flat fish on a sand flat? Now imagine you are in a kelp forest. What colors would you be? What do your fish lips look like? What shape is your body? Does it have bumps or is your skin smooth? How would you adapt in every environment? What color and pattern would make you UNIQUE? Can you imagine what you would look like in order to camouflage and blend into your surroundings? Would you use camouflage for protection or would you use it to your advantage? We can tell a lot about fish by observing them. As we continue with our activities, let's keep our imagination alive by playing hide and seek on the reef as we learn more about the fish in the sea!”

CLASSROOM ACTIVITY STATION C1 REEF SHAPES!



Overview

Students will be challenged to use their observation skills to relate the connection between familiar shapes and sea creatures. This activity will help students recognize symmetry in the ocean. This exercise will help students use *shape recognition, logic, observation, and deductive reasoning*.

Materials: "Reef Shapes", Colored construction paper, Scissors, Crayons or colored pencils

Talking Points

Post images of various ocean animals around the room and discuss:

- ✧ Shapes that are familiar to us are found everywhere in nature: circles, triangles, ovals, diamonds, etc.
- ✧ Ask students what kind of shapes they see within images of various sea animals. The oval body of a fish, the triangle shapes of fins, circles for eyes, etc.
- ✧ Explain to students that studying shape is one important way that scientists begin to understand how all living things are related to one another and helps them classify fish.
- ✧ Shapes are also a model for mathematics and the building blocks in our lives. Challenge your students to look at this both abstractly and quantitatively. Can they decontextualize and contextualize the fish and parts before beginning?
- ✧ Have students practice their scientific observation skills as they look for animals sharing common shapes.

Lesson Procedure

1. Photocopy and provide each student with a copy of "Reef Shapes."
2. Use the shapes provided on "Reef Shapes" as a template to make a few shape sets from construction paper.
3. Ask students to experiment with various ways to arrange the shapes to make them fit inside of their fish outline.
4. Challenge students to see how many ways they can fit the shapes or create their own.
5. Add completed work to their "What Makes a Fish" journals.



CLASSROOM ACTIVITY STATION C1 (Continued)

REEF SHAPES!

Extension Ideas

- » Ask students to put any shape in the middle of a page: triangle, circle, etc. Draw details on or around it to build the shape into a sea creature.
- » When comparing fishes, have students pay attention to the variations that exist among fish mouths. We learn a lot about what a fish eats by the shape of the mouth and what kind of teeth they have. Have them hypothesize about what the fish eats. Research to find out if their guess is correct.

Notes



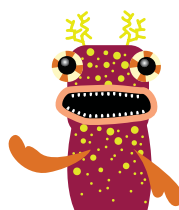
Scuba divers communicate in silence with hand signals, body language and eye contact.



When signalling your buddy OK, it is like saying, I am OK, are you?

CLASSROOM ACTIVITY STATION C2

HIDE THE FISH!



Scuba divers carry computers underwater to monitor their air supply.

Overview

Students will “hide the fish” by designing an environment around a coloring page fish. After completing their design they will write descriptive words or sentences to describe the habitat they have drawn. This activity will help students understand how specific animals use the environment to become “nearly invisible” as a means of camouflage. This exercise will help students use shape recognition, logic, and deductive reasoning to better understand the characteristics of organisms and their relationship to the environment. Participation in this activity will provide students with a chance to practice artistic skills, creative writing, and build literacy.

Materials: Fish illustrations, Writing paper, Crayons, Markers, Colored pencils, Pencil

Talking Points

- ✧ There is one big ocean that covers most of the earth. Using a map or globe will help enforce this perspective. There are five names people gave the one ocean because of geography and currents. The ocean is an interconnected circulation system powered by wind, tides, the force of the Earth’s rotation known as the Coriolis effect, the sun and water density differences.
- ✧ Some areas like the north and south poles, have freezing water, but water near the equator is much warmer. Sea level changes because of tides, plate tectonics, as ice caps melt and as ocean temperatures change causing expansion and contraction.
- ✧ The ocean floor has features just like those that we see on land: mountains, valleys, forests, plains, etc. Hawaii is a series of islands, but they are really mountains and we only see the tips because the mountains are underwater.
- ✧ Remind students the video demonstrated animals’ color and body shapes closely related to the environment in which they live. You may wish to replay the film clip and have students focus on the visual aspect of what they see.

Lesson Procedure

1. Photocopy the fish shapes and cut out enough so each student can choose one fish.
2. Ask students to choose and decorate a fish and design an environment around the fish that would help to conceal or hide the fish.
3. Instruct students to write sentences or a story describing their unique fish and the environment they designed. Why is it an ideal place for their fish to hide? Include the word “UNIQUE” in relation to the fish’s character.
4. Post completed work in an area where students can share their ideas about their designs or have them get with their buddy teams and share.
5. Add completed stories to the “What Makes a Fish” journals.

CLASSROOM ACTIVITY STATION C2 (Continued)

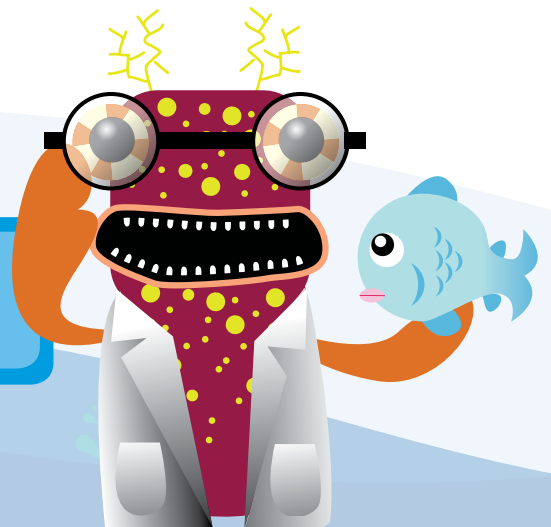
HIDE THE FISH!

Extension Ideas

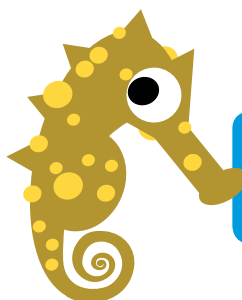
- » Have students find diverse scenic photos in magazines at home to bring to class. Post them up around the room, and ask students what kinds of animals might best be able to camouflage in each.
- » Ask students to choose a colored square from an assortment that would provide the best camouflage if they lived in the ocean. Read a book from the suggested reading list aloud, and instruct students to hold up their color square each time their color appears in the illustrations during the story.

Notes

Eat responsibly! Carry a safe seafood card with you when shopping or at a restaurant.



CLASSROOM ACTIVITY STATION C3 CAMOUFLAGE



Scuba divers plan their dives and dive their plan. They also keep a journal!

Overview

Students will conduct a scientific experiment to study the effectiveness of camouflage. Using the scientific method of inquiry, students will make guesses about which color beads will most effectively camouflage against a specified background. Through a controlled experiment students will test their hypothesis, collect data about the effectiveness of different colored beads, and make a conclusion about the effectiveness of certain colors to provide camouflage. Participation in this activity will provide students with an opportunity to practice the *scientific method of inquiry*, and use *logic and deductive reasoning*.

Materials: Beads (at least six colors, and at least 30 of each color) available at craft shops or online, Stop watch, Yarn, “Camouflage” activity sheet

Talking Points

- ✧ Spend a moment with students reviewing that in the film they saw that pipefish and seahorses use coloring, texture and even body shape to blend in with their environment. Ocean animals use camouflage to hide and survive in the ocean.
- ✧ Point out to students that the ocean contains materials from all parts of the planet, and that weathered rock, minerals, and other materials living and non-living are carried into the ocean by rivers, rain and such. All of these materials help make up our shorelines and the ocean floor.
- ✧ Use this exercise to challenge students to think mathematically. Using 30 beads of six colors, you have 180 beads that will be graphed based on camouflage. How many other ways can students use this exercise to look for and make use of structure.

Lesson Procedure

1. This activity can take place in the classroom on a carpeted area, on a sheet of felt, on a sheet or blanket, or outside in a grassy, gravel, or forested area. Ideally the location will have some variation of color or shading. Yarn can be used to mark the boundaries of the area where the students will look for the beads.
2. Explain you are going to conduct an experiment to learn more about the principles of camouflage discussed in the video.
3. Ask students to observe their surroundings and describe the colors that are most dominant, meaning what colors they see the most.
4. Show students your bag of beads and ask them to make predictions about which beads might blend in best with the surroundings and why?
5. Explain to the class that you will be dropping the beads onto the ground, and that when

CLASSROOM ACTIVITY STATION C3 (Continued)

CAMOUFLAGE

you say "START" they will have exactly one minute to pick up as many beads as they can.

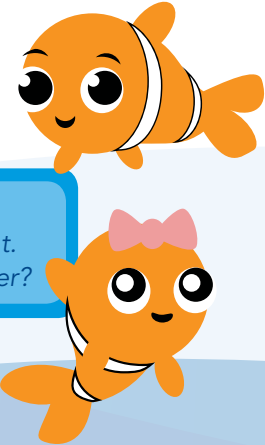
6. At the end of one minute stop the students, and have students count how many of each color bead they were able to collect.
7. Ask students which color they had the most of, and which they had the least of? Were the results fairly consistent among the groups? If so, why? If not, why not?
8. Try the experiment again and see if results are consistent.

NOTE TO EDUCATOR: Instead of doing this activity as a class, you can break the students into buddy teams and use the "Camouflage" activity page for students to record and report their results. If you run the activity in student teams, be sure that each team has bead sets with at least six colors and thirty pieces of each color. Designate the roles and responsibilities of each team member such as time keeper, data recorder, bead collector, etc. and have them switch places. When doing it this way, you can use felt on their desks and have different colors of felt available to see if they get different results with different kinds of felt.

Extension Ideas

- » Run the experiment in different locations (asphalt, carpet, etc.) to illustrate that different colors camouflage differently against different backgrounds.
- » Ask students to bring pillowcases or a t-shirt to school. During an outdoor period, allow students to use paints to decorate their pillowcases or t-shirts to make camouflage outfits that they can blend in during their play period.
- » Have students bring a small stuffed animal to class. The students will design and color a habitat for that animal that camouflages it well within their play area. You can also bring in several animals or figures and hide them in your play area. Then have students take turns hiding them and finding them during free time.

Notes



Teamwork is a part of every dive. Your buddy is important. How do you treat one another?

CLASSROOM ACTIVITY STATION C4

HIDE 'N SEEKABLE SYLLABLES



Overview

Students will practice and expand their vocabulary and learn about syllables as they examine words related to hide and seek on the reef. Participation in this activity will provide students with a chance to practice *literacy, new vocabulary, analytical thinking*, and become familiar with the concept of *syllables*.

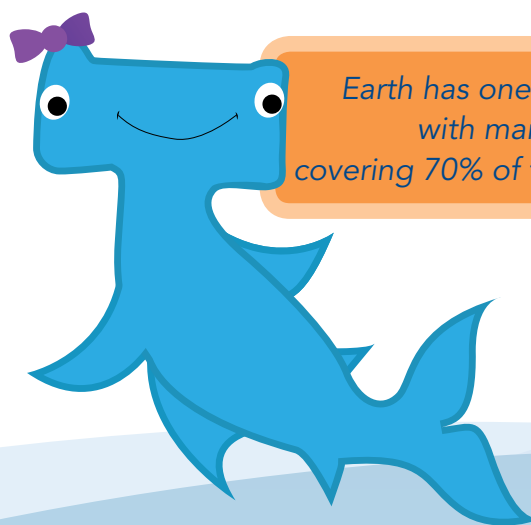
Materials: "Hide 'n Seekable Syllables", Pencils

Talking Points

- ✧ The ocean supports a great diversity of life, ecosystems and habitats where organisms live. More different kinds of organisms are found in the ocean than on land, yet the ocean is 90% unexplored!
- ✧ Many groups of organisms exist only in the ocean. Ocean life ranges in size from the tiniest organisms to the largest animal on Earth, the blue whale.
- ✧ Ocean organisms have a variety of different structures and behaviors that help them to survive in the sea.
- ✧ There are distinct and unique ocean habitats throughout the ocean and on the coast, off shore, in the deep, and at the surface.
- ✧ While figuring out these worksheets, apply the rules of scuba diving, breathe continuously and never hold your breath. Think creatively, make observations, discover and learn.

Lesson Procedure

1. Give each student "Hide 'n Seekable Syllables".
2. As a class, in buddy teams, or individually, ask students to work through the words on the worksheet.
3. Add completed worksheets to the "What Makes a Fish" journal.



Earth has one big ocean with many features covering 70% of the planet.

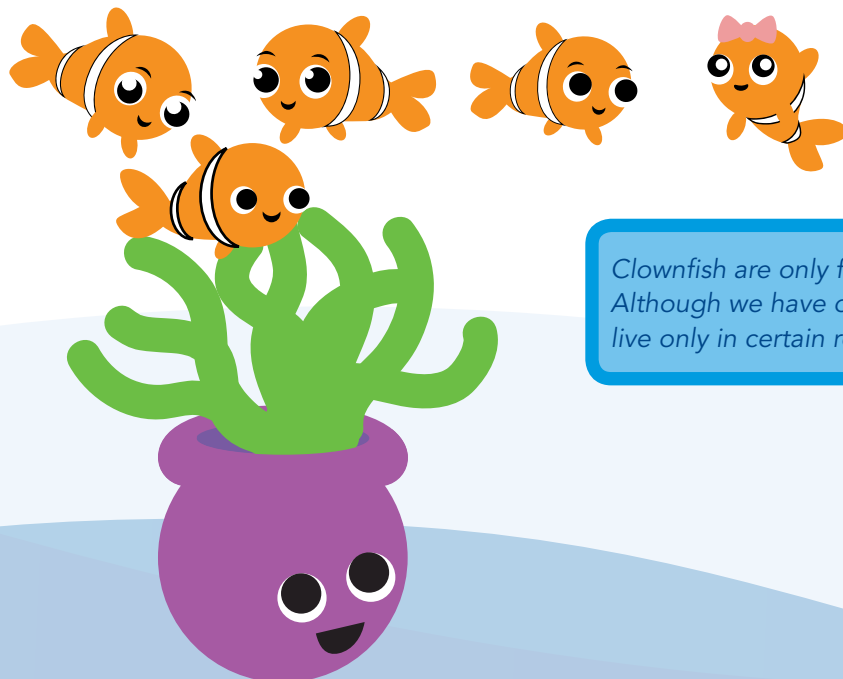
CLASSROOM ACTIVITY STATION C4 (Continued)

HIDE 'N SEEKABLE SYLLABLES

Extension Ideas

- » Choose words from the worksheet to further investigate. Students can complete a word map to help define the word or incorporate the words into sentences and a story.
- » Ask students to arrange the words on the worksheet in alphabetical order.
- » Select a different habitat. Challenge students to think of animals who live in that habitat with names one syllable long, two syllables, three syllables, etc.

Notes



Clownfish are only found in the South Pacific. Although we have one ocean, some animals live only in certain regions of the ocean.

CLASSROOM ACTIVITY STATION C5 “A-REEF-MATIC”



Overview

Students will practice basic math skills and reading comprehension by completing a series of word problems about life on the reef. Participation in this activity will provide students with a chance to practice *basic math skills, literacy, new vocabulary, analytical thinking*.

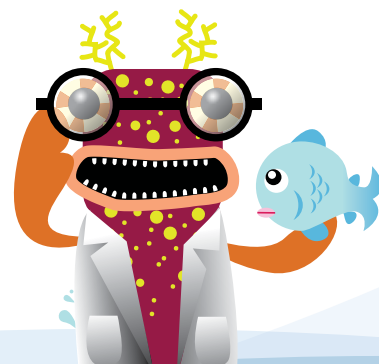
Materials: “A-Reef-Matic”, Pencils, Manipulatives

Talking Points

- ✧ Life on earth depends on the ocean. The ocean creates oxygen, food, water and energy. All living things depend on resources from the ocean, yet ocean resources are limited.
- ✧ People explore the ocean to answer questions they have about it. We are still discovering new things about the ocean all the time because the ocean is largely unexplored.
- ✧ We need to learn about ocean resources through exploration and scientific investigation. Ocean exploration helps us understand the health of the ocean, find new medicines, food for humans, and new sources of energy including oil, gas and wind.
- ✧ Scientists, fishers, engineers, surfers, swimmers, photographers, filmmakers, artists and scuba divers explore the ocean.
- ✧ People use creativity, curiosity, tools, and technology to make better observations of the ocean, utilizing science, literacy and math to explore.

Lesson Procedure

1. Photocopy and provide students with “A-Reef-Matic”.
2. Instruct students to read the problems carefully and cross out any information not needed to solve the problem.
3. Students will write the function they will use to solve the problem and find the solution.
4. As a class, in buddy teams, or individually, ask students to work through the problems on the worksheet.
5. Completed work can be added to the “What Makes a Fish” journal.



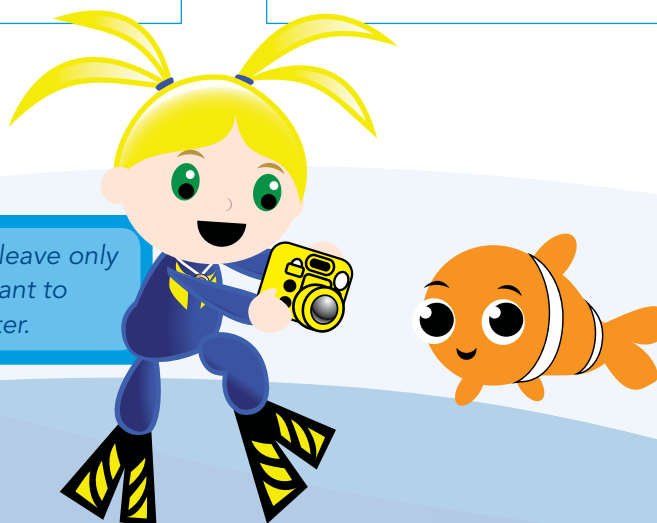
Most of the oxygen in our atmosphere comes from the phytoplankton in the ocean.

Extension Ideas

- » Have students write their own story problems and switch with a buddy to solve.
- » Order posters from the Dive Into Your Imagination series and post them up around the room. Ask students what kinds of animals might best use camouflage in each environment.
- » Ask students to think of what color provides the best camouflage in the open ocean. Have students think about sharks, tuna fish, barracuda and other fish living in the open sea. Most of these animals are silver, blue or gray tones on top with lighter under bellies known as counter-shading.
- » Ask students what land animals camouflage themselves to their surroundings. You can get them started with lions and tigers.
- » Ask students to try and position their bodies as seahorses or pipefish then move slowly around the room. Switch it up by having them become scientists, scuba divers, boat captains or submarine pilots. If they get too excited have them return to be slowly swimming seahorses in the sea!

Notes

Take only photos and leave only bubbles. We do not want to touch others underwater.



CLASSROOM ACTIVITY STATION C6

FIND ME



Overview

Students will explore the form of camouflage known as mimicry through a writing/illustration exercise. Students will think of one of their favorite fish in the ocean and ways that they can imitate their selected animal using behavior, color, size, etc. Participation in this activity will provide students with an opportunity to work on language and *writing skills, creative thinking, concept development, and vocabulary development.*

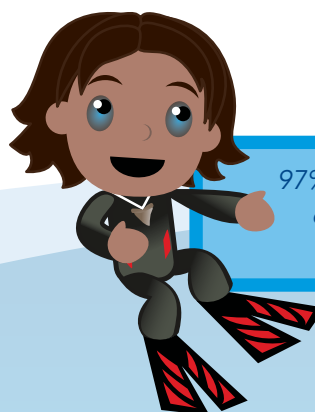
Materials: Paper, Pencils, Colored pencils, markers, crayons

Talking Points

- ✧ The ocean supports a great diversity of life and ecosystems. Some animals in the sea camouflage by pretending to be entirely different animals. These animals are known as mimics.
- ✧ In order to mimic, animals might have skin coloring that is nearly identical to another animal. Often the mimicking animals are not poisonous but they mimic another animal that is dangerous, poisonous, or toxic.
- ✧ Animals might also adopt the shape and even the actions of another animal to avoid detection.
- ✧ Ask students to think about and discuss times when they have mimicked or pretended to be something or someone else.

Lesson Procedure

1. Ask students what fish they would like to mimic on the reef.
2. Depending on your class skill level, challenge students to either write sentences, a story, or illustrate a storyline that explains what fish they would like to mimic on the reef and why. What colors would they be? Are they predators or prey and how do they hide?
** Alternatively, older kids could write a short comic about their animals with template provided.*
3. Once students have completed their stories, break them into buddy teams or small groups to share their ideas.
4. Add completed stories to their “What Makes a Fish” journals.



97% of all water Earth is in our Ocean. It is integral part of our water cycle.

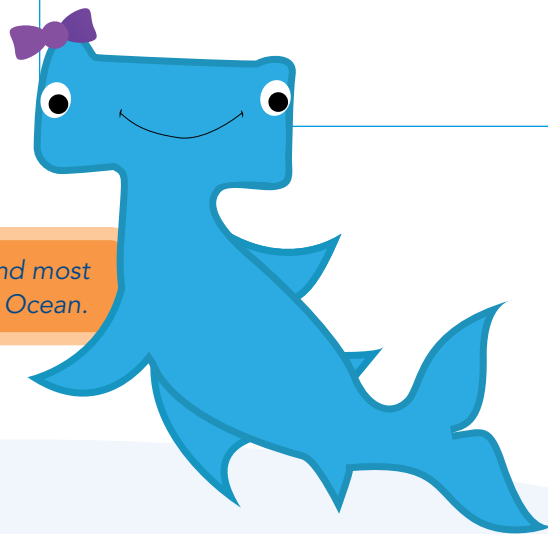
CLASSROOM ACTIVITY STATION C6 (Continued)

FIND ME

Extension Ideas

- » Set students up in buddy teams facing one another. One member of each pair needs to be designated leader. Ask them to make slow, deliberate movements as their buddy "mimics" them. Give each player a turn to be the leader.
- » Ask students to write a story about things they mimic at play-time. Are they teachers, doctors, or lawyers? Do they want to be scientists, scuba divers or explorers? Do they want to be submarine pilots, fishermen or underwater photographers? What about a seahorse, shark or dolphin? Encourage them to think of ocean roles they can mimic for their story.

Notes



The ocean is 3 dimensional and most living space on Earth is in the Ocean.

CLASSROOM ACTIVITY STATION C7

BOOK STALL



Overview

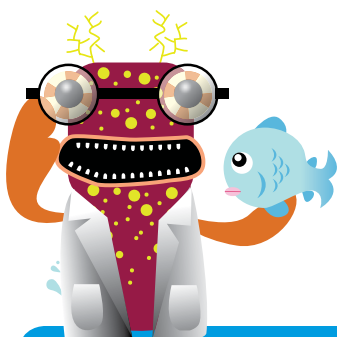
Students will practice and build independent reading strategies. Providing a reading or computer area where students can look through books and other supplemental materials will help to build literacy.

Materials: The story *The Little Fish Who Wished Away His Colors* by Kimberly Jackson

Lesson Procedure: Character Education

UNIQUE

1. As a class, read the story *The Little Fish Who Wished Away His Colors* by Kimberly Jackson, or *Rainbow Fish* by Marcus Pfister. Talk with students about ways to appreciate uniqueness in themselves and others.
2. Next, provide each student with an "I Am Unique" page or two depending on the size of your class. Students can leave their "I Am Unique" page on their desks so that throughout the day, all of their classmates can write in a reason why each person in their class is unique. Once everyone in class has a completed sheet, encourage each student to use what others said about them to write sentences or a story about why they are unique.



Everything you do on land affects my home. Help keep me clean!

Poster: UNIQUE

"Camouflage is nature's protection. You are one of a kind!"

Fine Art Prints, posters, greeting cards and other products are available to decorate your classroom or school while inspiring your students with real ocean animals and environmental scenes. Contact us to learn more.

These are pygmy seahorses demonstrating camouflage. Look at the color, shape, and texture of the animal and it's environment. What do you notice?

Pygmy Sea Horses on Sea Fan, Indonesia



Book Suggestions

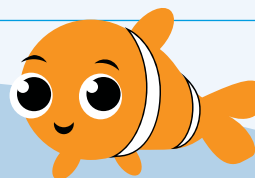
- » Berkes, Marianne Collins. *Over in the Ocean in a Coral Reef*. Illus. Jeanette Canyon. Nevada City, California: Dawn Publications, 2004. Print. Grades Pre-K – K.
- » Gambrell, Linda B. *Fishy Tales*. New York: DK Readers, 2009. Print. Grades Pre-K–K.
- » Jackson, Kimberly. *Humu: The Little Fish Who Wished Away His Colors*. Waipuha, Hawaii: Island Heritage Publishing, 2000. Print. Grades K - 1.
- » Jenkins, Steve. *Down, Down, Down: A Journey to the Bottom of the Sea*. Tulsa: Usborne Books, 2009. Print. Grades K - 2.
- » Nyquist, Kate Boehm. *Maggie's Coral Reef Adventure*. Illus. Kathleen Garry-McCord. Monterey, California: Monterey Bay Aquarium, 2000. Print. Grades 1 - 2.
- » Parker, Steve. *Fish*. *DK Eyewitness Books*. Illus. Dave King, et al. New York: DK Children, 2005. Print. Grades 3 - 5.
- » Pfister, Marcus. *The Rainbow Fish*. Trans. James J. Alison. New York: North-South Books, 1992. Print. Grades Pre-K - 1.
- » Priddy, Roger. *Big and Busy Ocean*. New York: Priddy Books, 2009. Print. Grades Pre-K - 1.

Closure and Follow Up

- ✧ Once students have had a chance to experience learning stations, gather them back together and spend time reviewing facts students knew and wanted to know.
- ✧ Ask students what new facts they learned from participating in the activities and write those down as a review. Take some time to correct any misinformation from earlier conversations.
- ✧ Spend a moment talking with students about why it is important to respect all things living in the ocean whether they are a seahorse or an eel, and how each plays an important role in keeping the ocean balanced and healthy.
- ✧ Have students write a reflection about why what they learned in the lesson was important to them. Emphasize there is no right or wrong answer and what they think makes them UNIQUE.
- ✧ Reinforce learning by reviewing treasure chest vocabulary.

Plan for Independent Practice

- » Encourage students to think of examples of terrestrial or other ocean animals that use camouflage for survival, and benefits associated with it. Have them create a report with photos, illustrations and writing to share with class.
- » Ask students to choose a favorite kind of fish and write about why it is UNIQUE.
- » Review the word UNIQUE with students and discuss how it relates to their character and their lives. Encourage them to use their imagination and think of all the ways they are UNIQUE. Help them celebrate the ways they are UNIQUE. We want them to embrace their UNIQUE characteristics. As children grow we want them to recognize these qualities in a positive way because this will hopefully promote acceptance of one another instead of isolation.



DVD TRANSCRIPT

Hide And Seek On The Reef

Swimming along the reef there are a family of fish that like to hide. Let's play hide and seek on the reef.

These fish disguise themselves to look like the coral reef and estuaries that they live in. This helps them stay alive by hiding from their predators. They may change their colors or grow hair-like strands on their body to blend in. These extraordinary fishes are in the pipefish family and cousins include pipefish and seahorses.

When you look at them, you may think their heads look like horses... that is how they got their names! But they are nothing like a horse! For one thing, they are much too small to ride. They also live in the sea. Instead of hooves for walking, pipefish use their fins to swim.

Let's play hide and seek on the reef.

Here is a white pipefish. Can you find it now?

Can you find the hairy pipefish hiding in the algae? How many do you see?

What about now? Can you see the green halimeda pipefish?

These fish move very slow and have bony plates and rings instead of scales. They have a long tube snout with a small mouth at the tip. Their jaws lack teeth because they suck up their food like a vacuum!

Seahorses are amazing! Unlike most creatures of the sea, they can only protect themselves by blending into the ocean environment. Their survival depends on their ability to hide.

Pygmy seahorses live on sea fans.

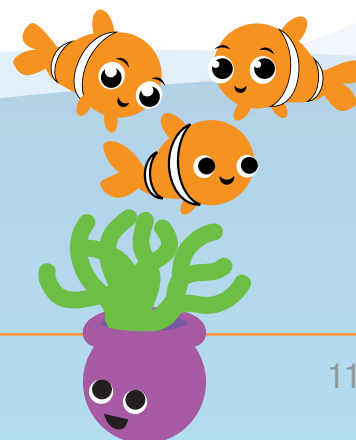
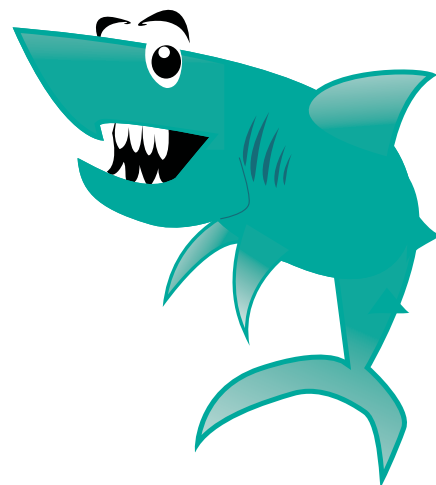
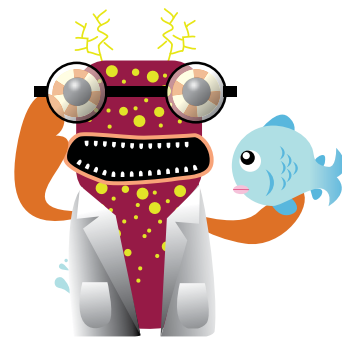
Here is a pink pygmy sea horse...can you find two?

Here is a white sea horse. Can you find it now?

Where is the yellow one? Can you find it here?

How about the orange one?

Can you spot any more?



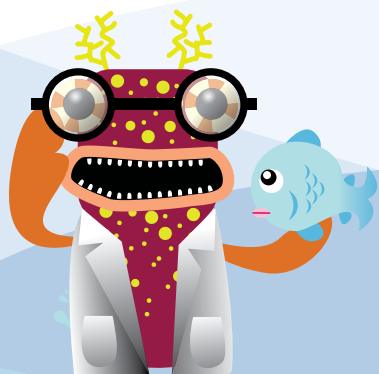
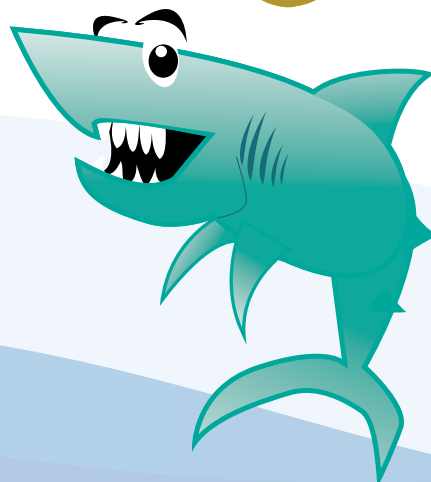
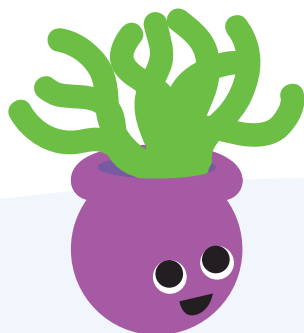
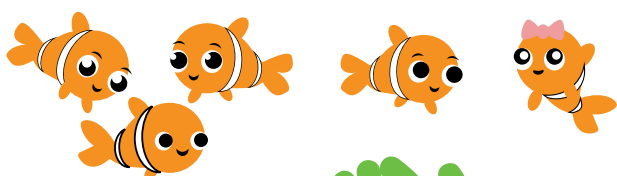
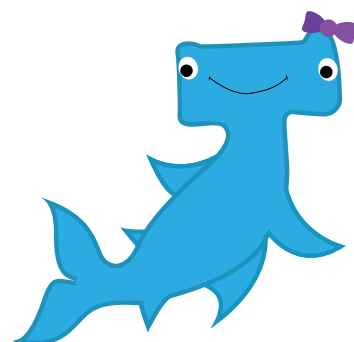
Go Blue! Ocean Annie's Tips to Help Our Environment

In some parts of the world, people fish with poisonous cyanide to capture fish for home aquariums. Fishermen dive into the sea and spray poison into cracks and pockets on the reef to stun the fish and make them still so they are easy to collect.

Many fish caught this way die before they reach market or suffer shortened lives. Many more creatures such as coral that cannot easily move out of the way also die from repeated contact with poison.

In order to help, we need to stop this practice. If you, your friends, your school, or your family keep saltwater fish at home, inquire about what parts of the world the fish come from. You need to know how the fish in your tank are caught. Many fish and aquarium shops are beginning to provide access to captive bred animals in order to promote the sustainability and health of our world ocean rather than capturing them from the reef by using poison.

Avoid buying souvenirs that are made from once living sea life such as shells, seahorses, sea stars, coral jewelry, or other ocean animals. Many times they are taken from the sea to sell to tourists changing the balance in the Ocean. As scuba divers, we take only photos and leave only bubbles. As good citizens of the world, we want to live at one with nature and always support the health of our Ocean. By doing this, we GO BLUE and LIVE BLUE!





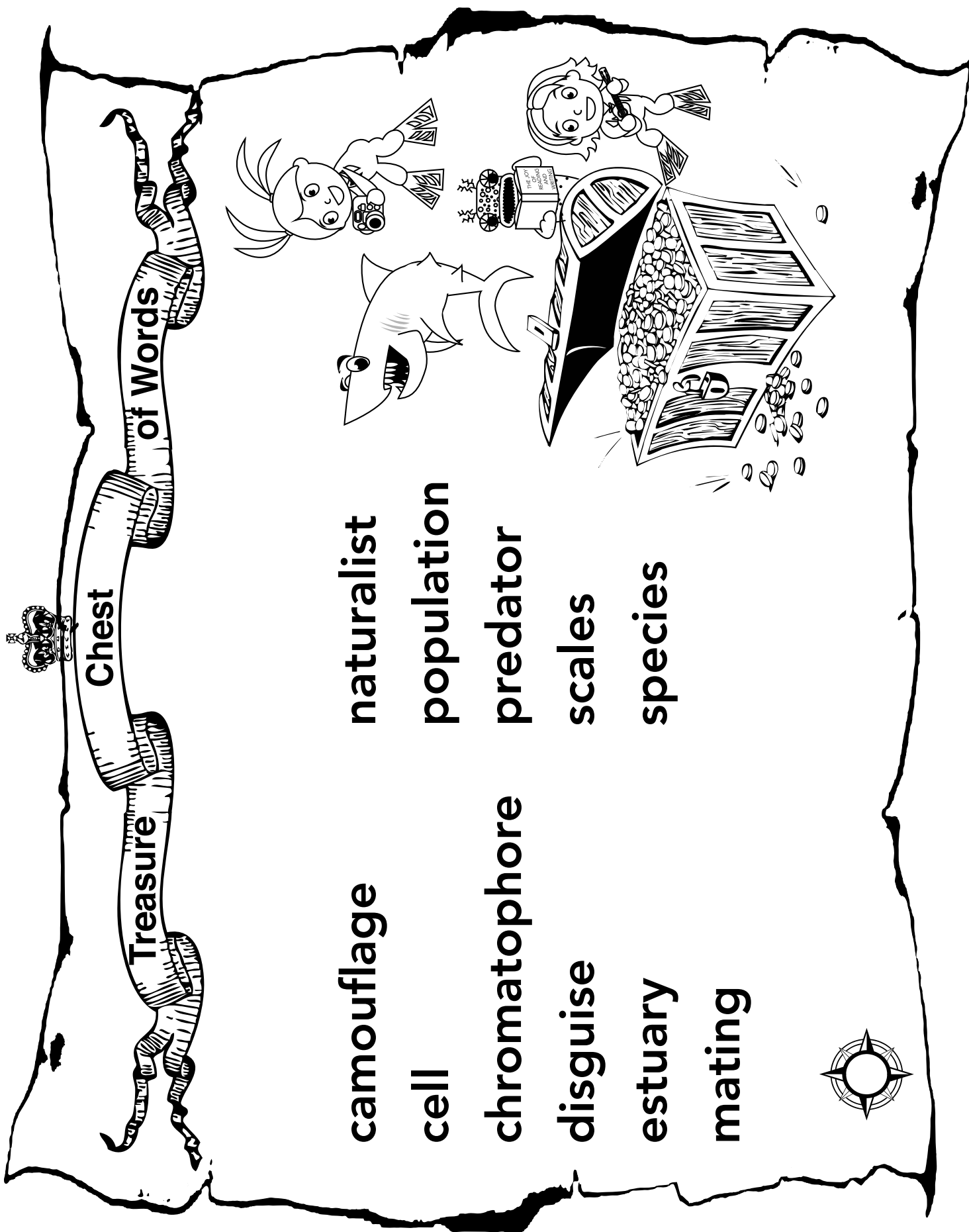
Hide And Seek On The Reef

ACTIVITIES



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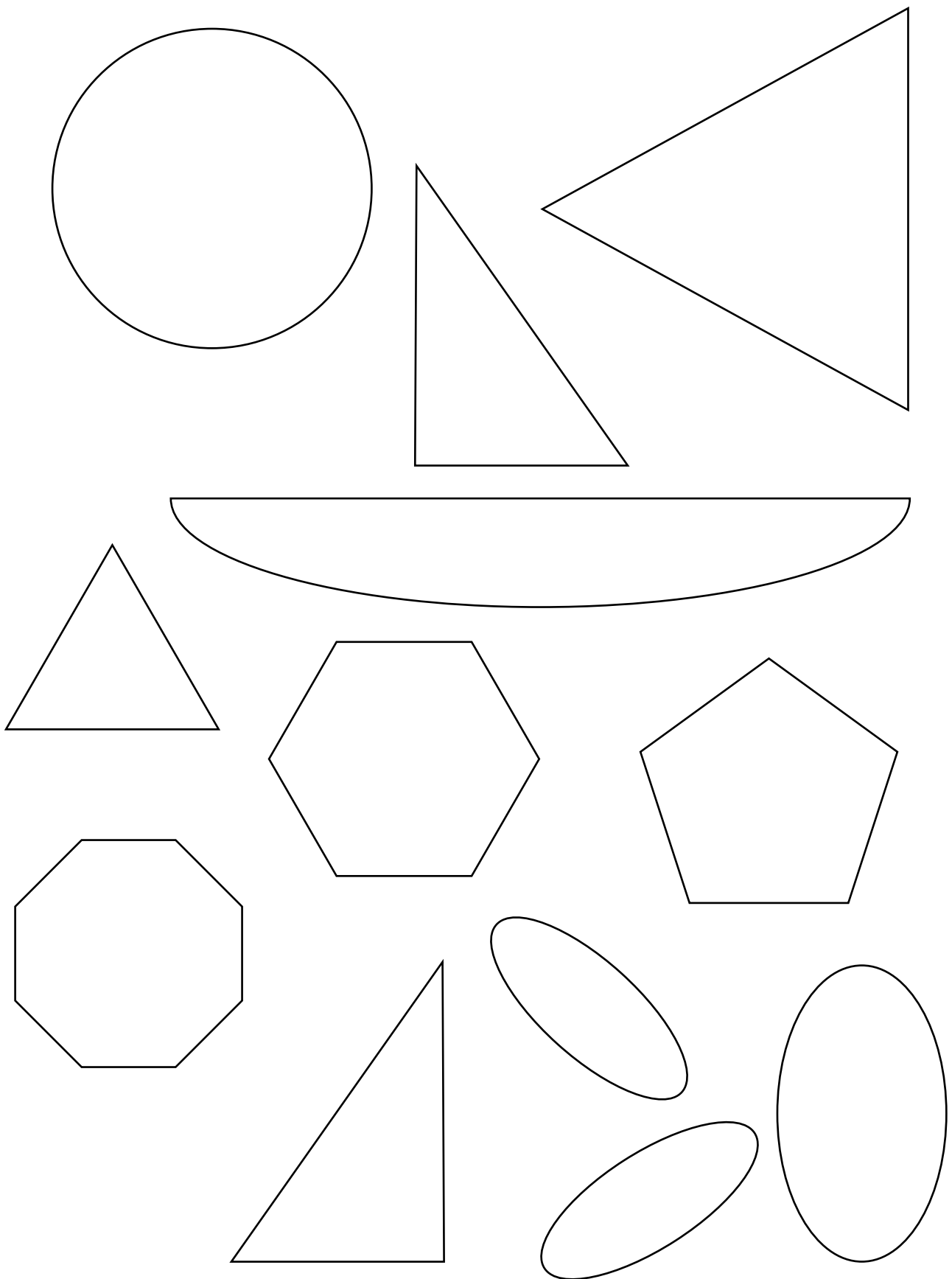
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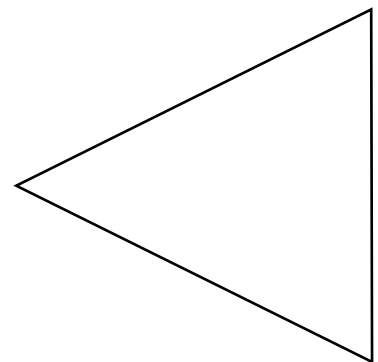
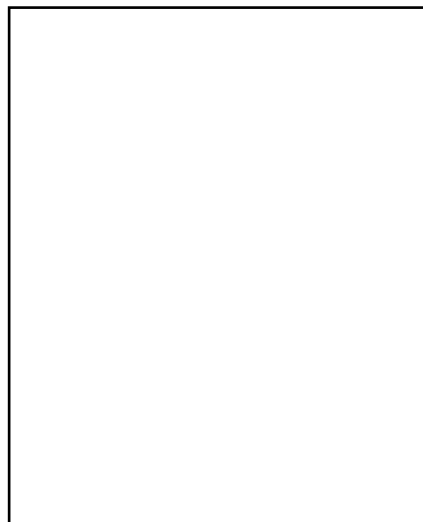
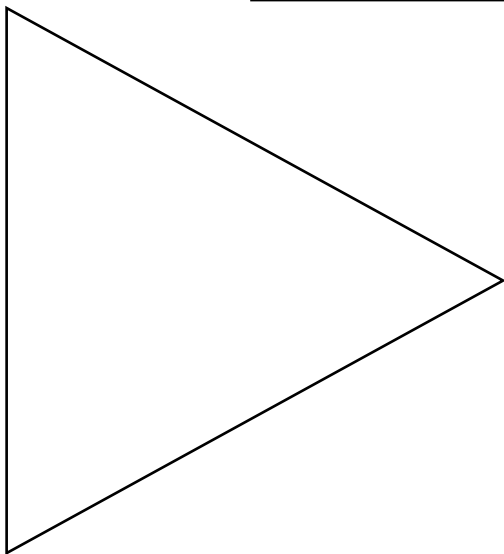
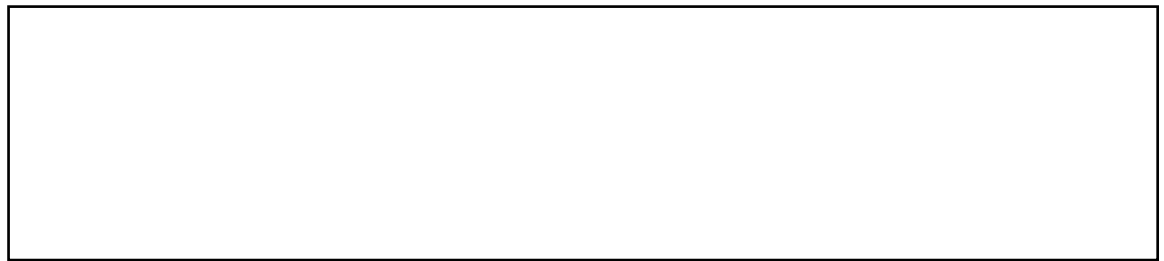
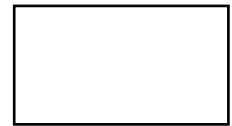
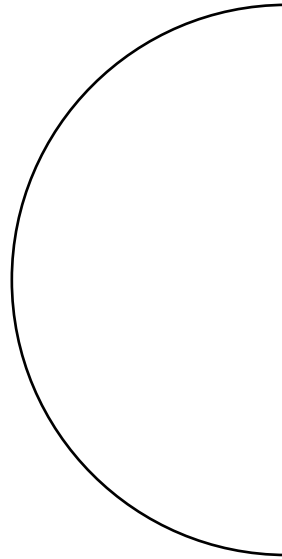
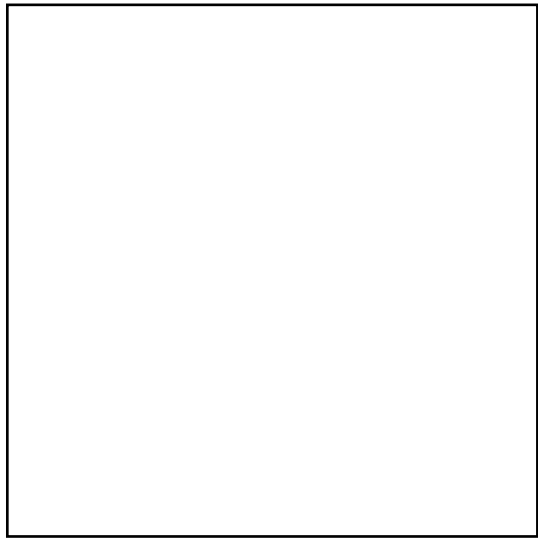
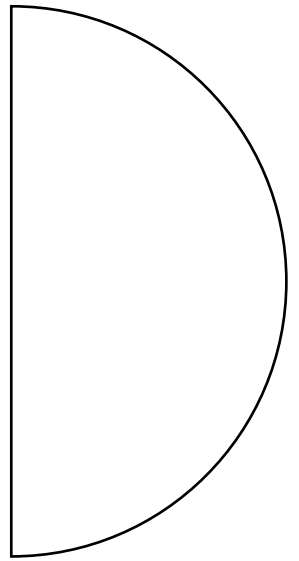
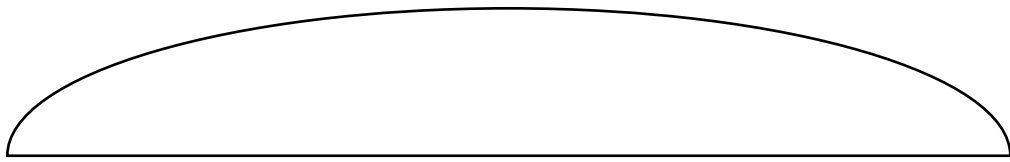


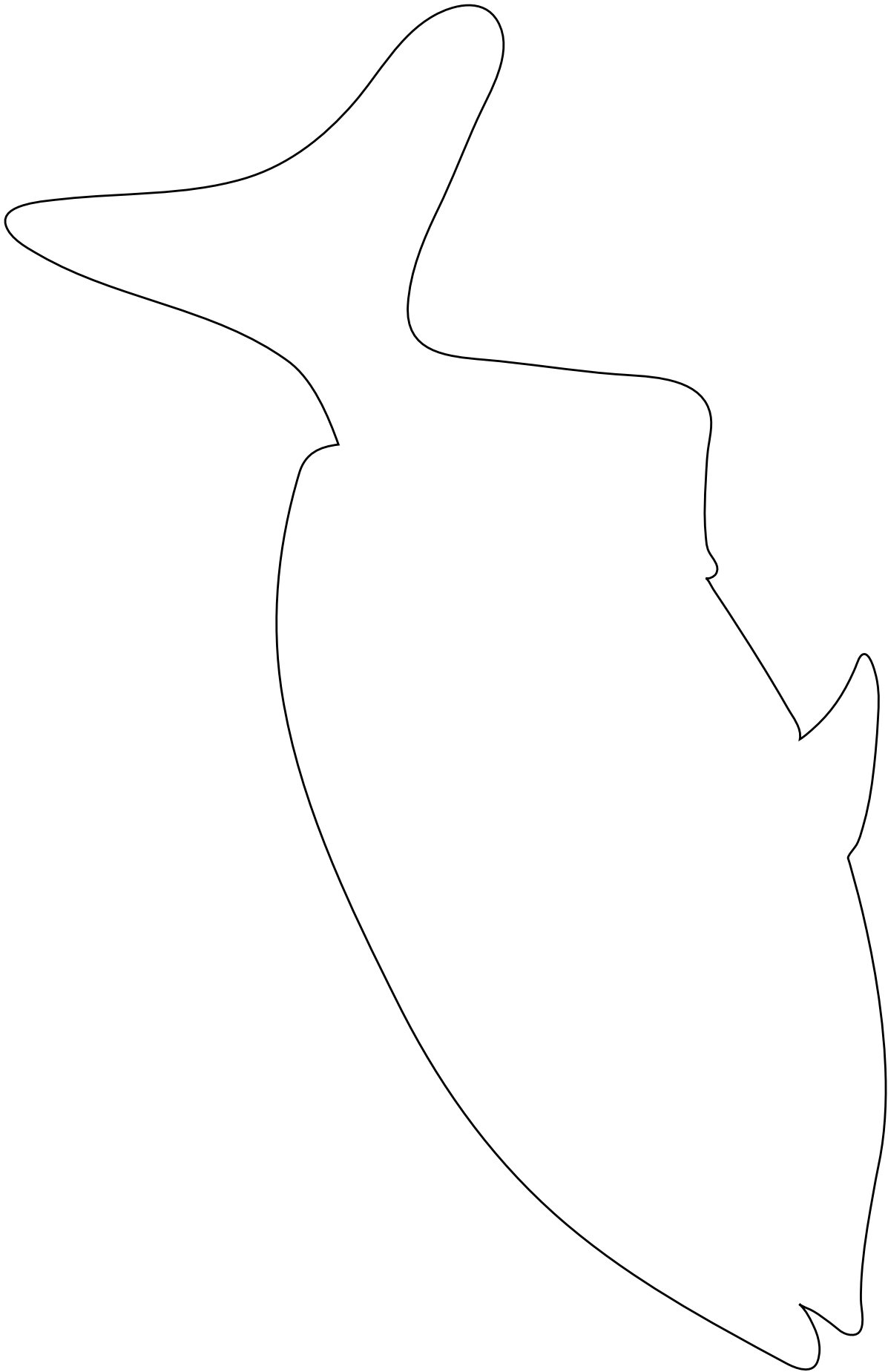
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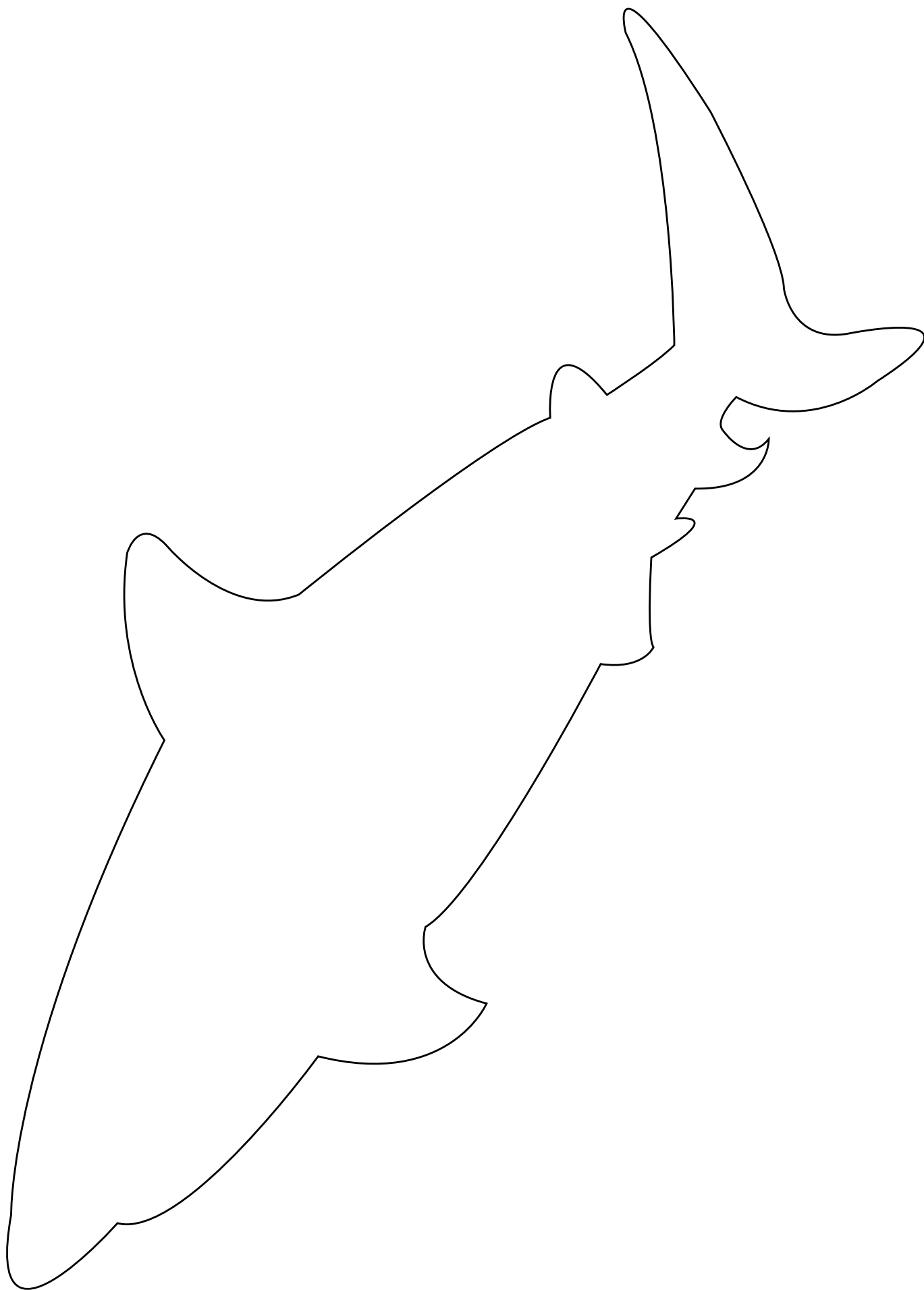


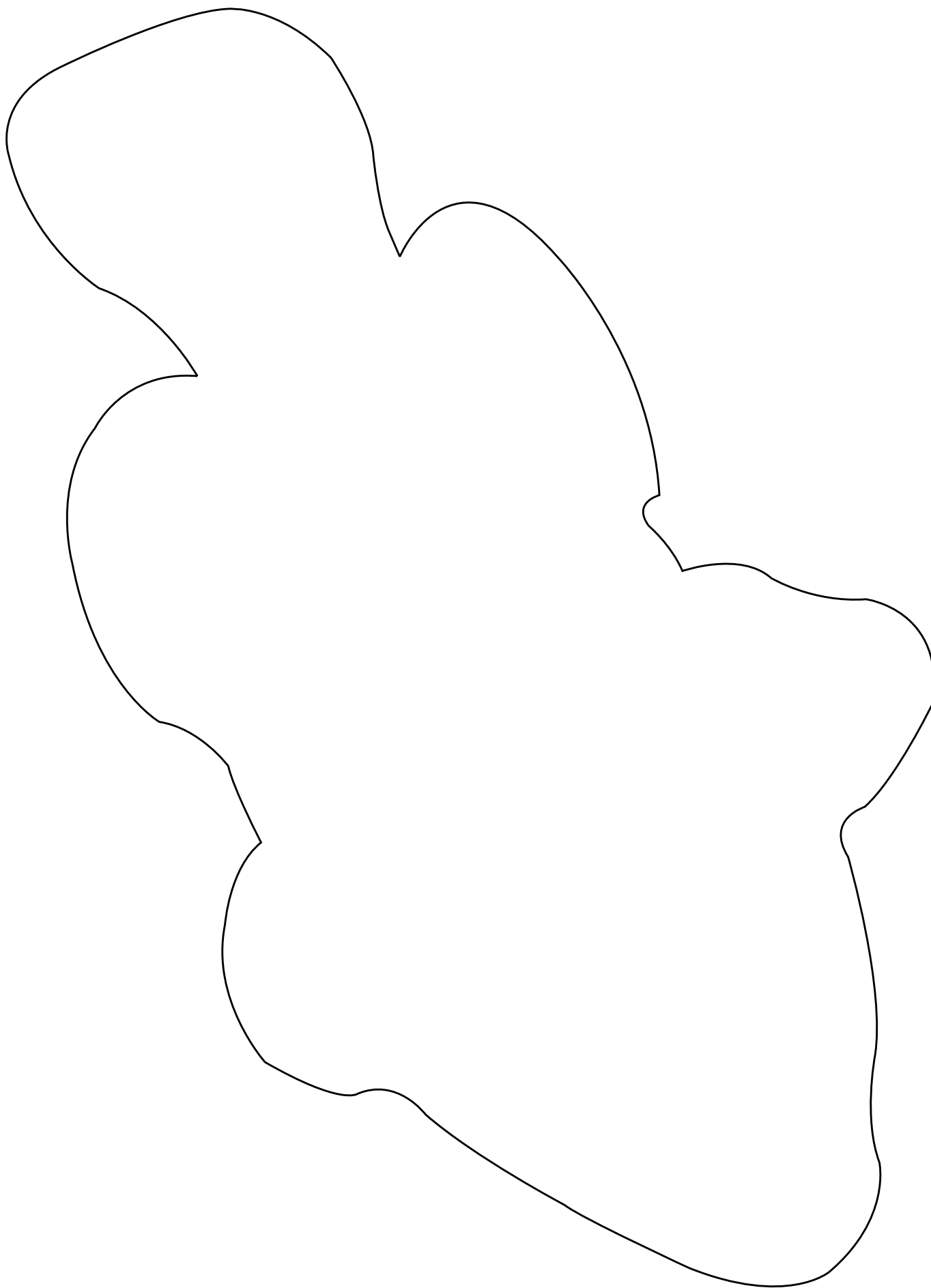


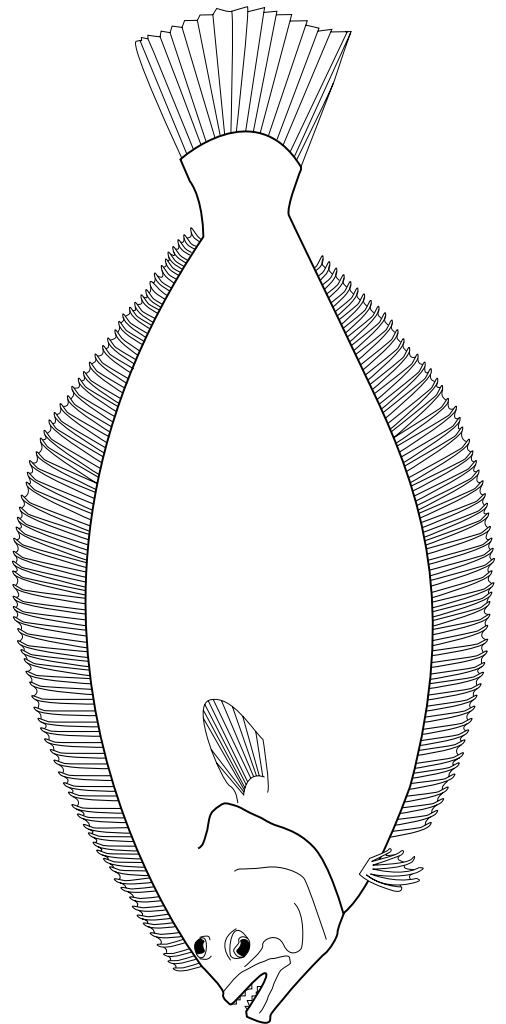
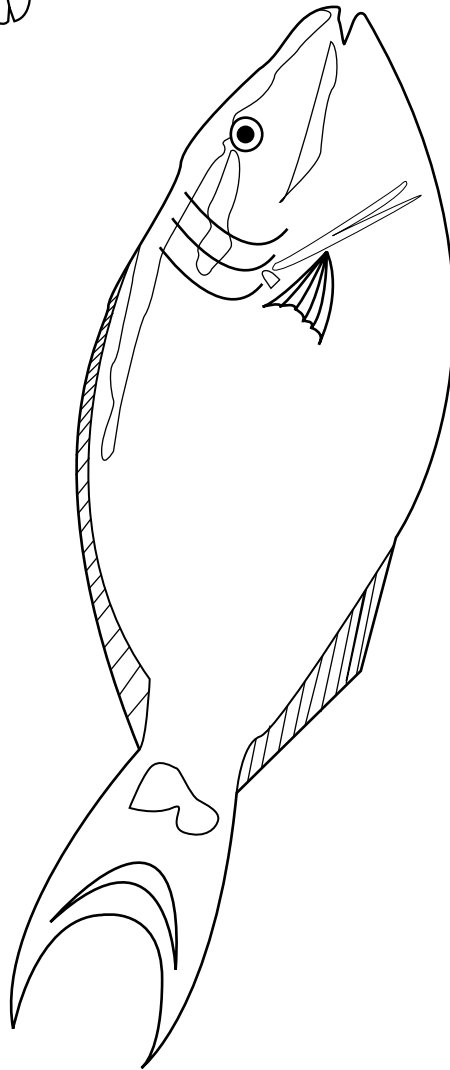
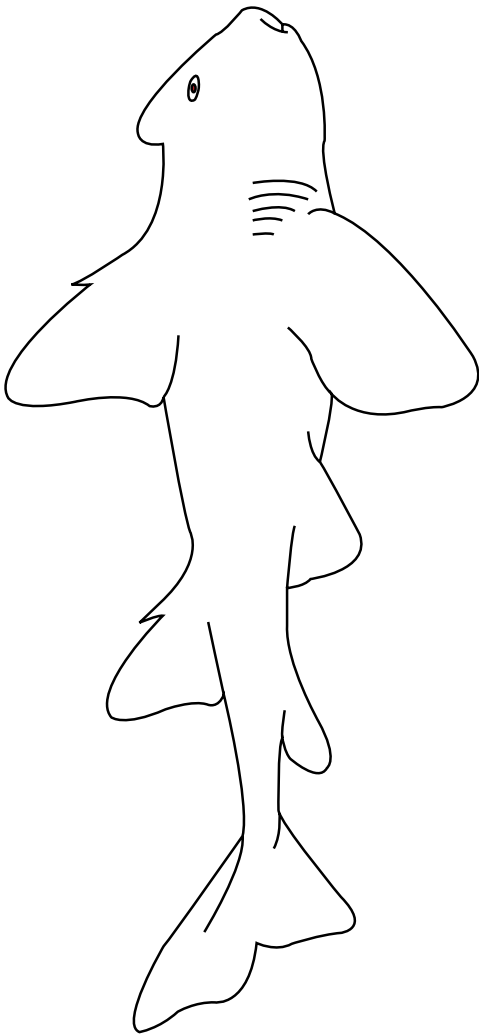
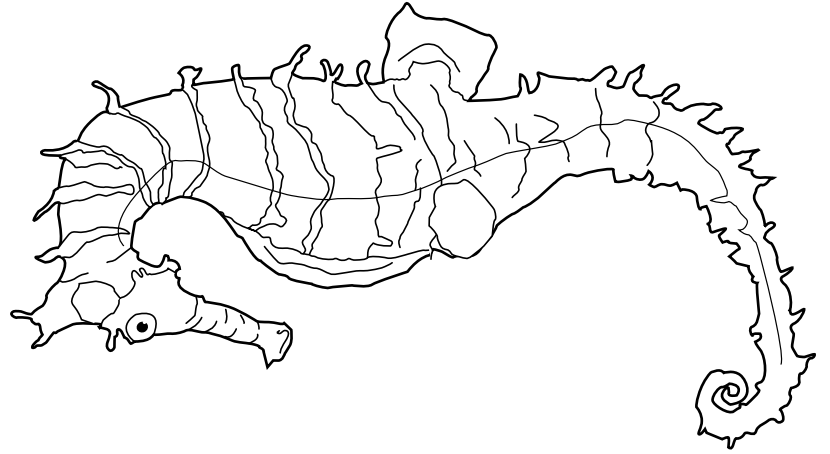
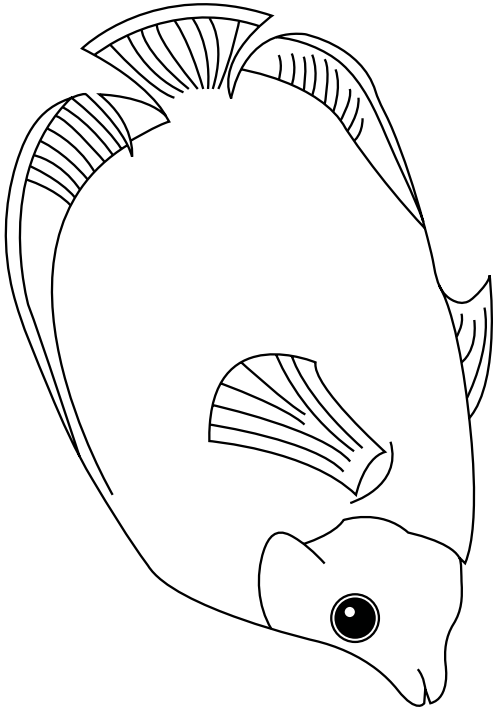


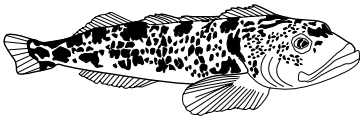




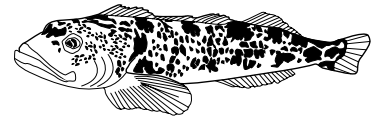








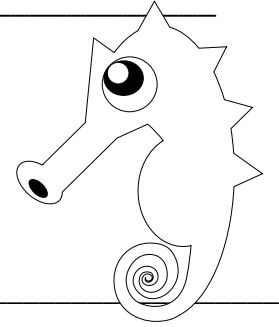
Camouflage



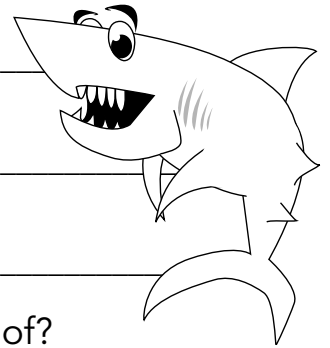
Name _____ Date _____

Directions: Answer the questions using the beads provided.

1. Describe the environment you are working in. What colors do you see most? What colors do you see the least?



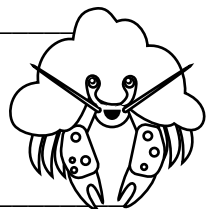
2. Look at your bag of beads. Which ones do you think will blend in best with your work environment and why?

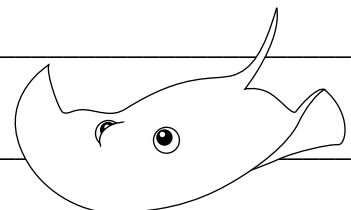


3. At the end of your time, which color bead did you collect the most of?

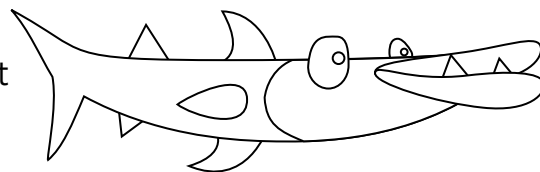
4. At the end of your time, which color bead did you collect the least of?

5. Why do you think that your results came out the way that they did?



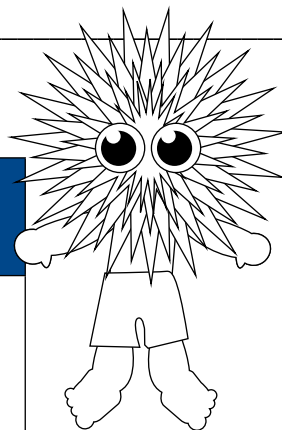


6. If you did the experiment again, do you think that the results would be the same, why/why not?



7. Repeat the experiment and record your results using tallies:

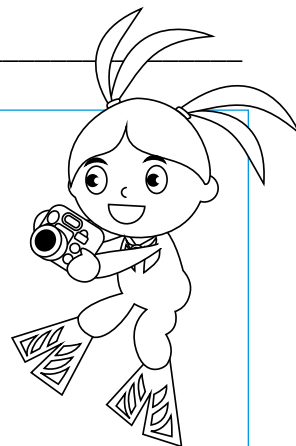
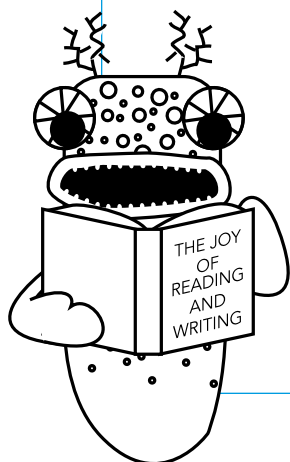
Bead Color Collected The Most	Bead Color Collected The Least



8. Do you think you would have the same result if you tried this experiment in a different setting, why/why not?

OCEAN ANNIE'S SUPER SCUBA CHALLENGE

Using the bead color that you collected the most of, list as many ocean and land animals you can think of that are that color.



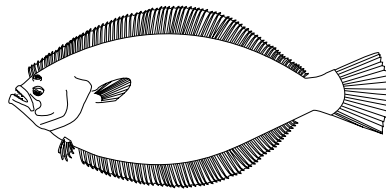
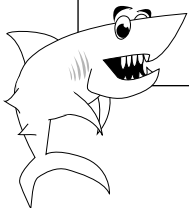
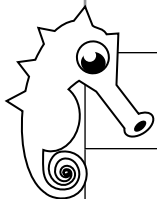
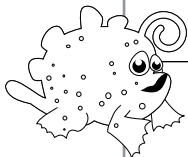
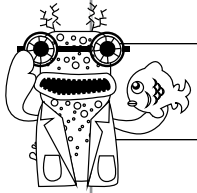
Hide 'n Seekable Syllables



Name _____ Date _____

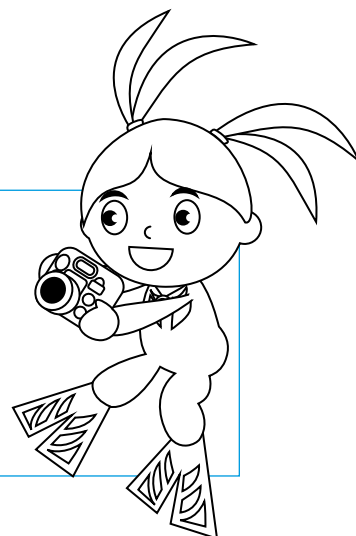
Directions: Read each word in the first column. Record the number of syllables in the second column. Draw a line to divide the words into syllables in the third column. **Helpful Hint: Every syllable chunk has at least one vowel!**

WORDS	SYLLABLES	WRITE AND SEPARATE SYLLABLES
pigment		p i g m e n t
disguise		d i s g u i s e
coloration		c o l o r a t i o n
hide		h i d e
environment		e n v i r o n m e n t
camouflage		c a m o u f l a g e
conceal		c o n c e a l
obscure		o b s c u r e
transparent		t r a n s p a r e n t
elusive		e l u s i v e



OCEAN ANNIE'S SUPER SCUBA CHALLENGE

Think of your favorite hiding spot of for an imaginary game of Hide and Seek. How would you use camouflage to better hide in this spot? On a separate page describe how you would do this using words, pictures, or both.



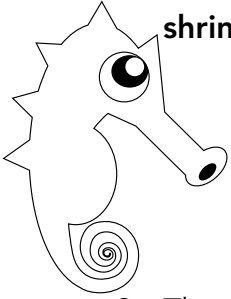
A-Reef-Matic

Name _____ Date _____

Directions: Read each question carefully and cross out the information that is not needed to solve the problem. Solve the problem by showing your thinking in the space provided.

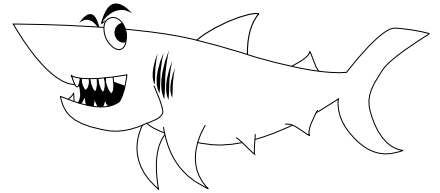
1. The yellow seahorse ate six shrimp. The pink seahorse ate four shrimp. The orange seahorse ate five shrimp. **How many shrimp did the pink and orange seahorse eat together?**

Answer _____



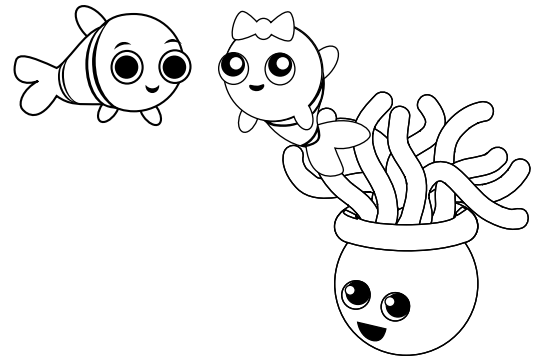
2. The white shark swam five miles. The tiger shark swam seven miles. The silvertip shark swam three miles. **How many miles did the white and silvertip shark swim together?**

Answer _____



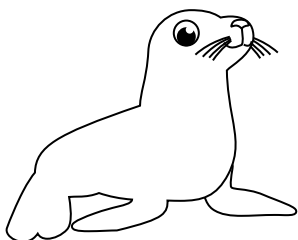
3. The clownfish had ten eggs but four of them hatched. The grouper had eight eggs. **How many eggs did the clownfish have once some hatched?**

Answer _____



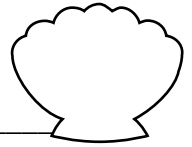
4. The purple magnificent sea anemone had eight tentacles. The green sea anemone had six tentacles. The white sea anemone had ten tentacles. **How many tentacles did the white and green sea anemone have together?**

Answer _____



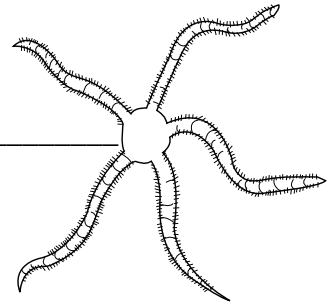
5. The grey oyster made four pearls and gave two away. The brown oyster made six pearls. **How many pearls did the grey oyster have left?**

Answer _____



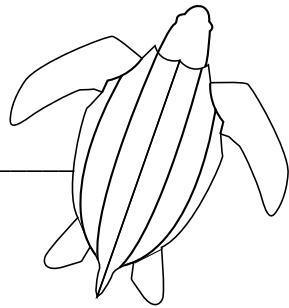
6. There were five orange sea stars in the tide pool but two left to find deeper water. There were four red sea stars on a rock. There were seven brown sea stars on the coral reef. **How many orange sea stars were left in the tide pool?**

Answer _____



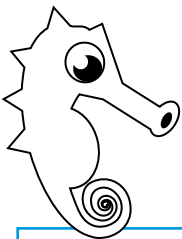
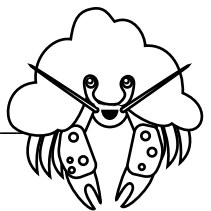
7. There were two leatherback sea turtles passing by the reef. There were four green sea turtles munching sponges. There were five hawksbill sea turtles sleeping in a cave. **How many leatherback and green sea turtles were there all together?**

Answer _____



8. There were three crabs crawling on the reef. Five crabs were hiding in the rocks. Two crabs were scurrying across the sand. **How many crabs were there all together?**

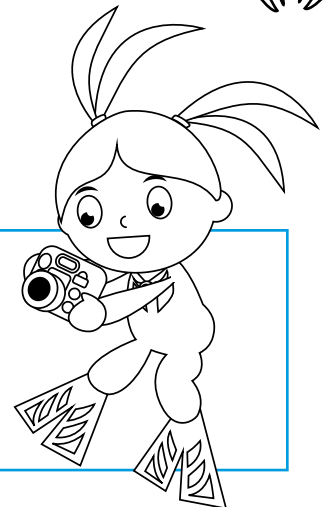
Answer _____



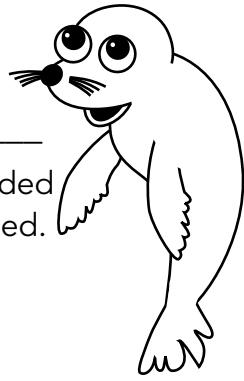
OCEAN ANNIE'S SUPER SCUBA CHALLENGE

If you add all the answers together, what is the final number?

Answer _____



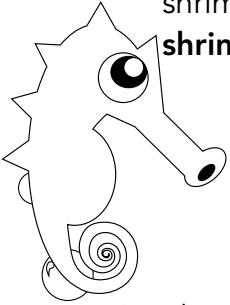
A-Reef-Matic



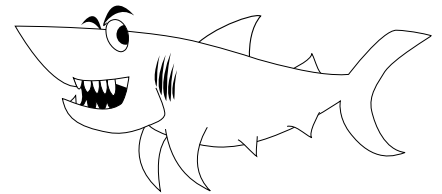
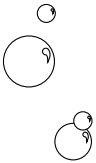
Name _____ Date _____

Directions: Read each question carefully and cross out the information that is not needed to solve the problem. Solve the problem by showing your thinking in the space provided.

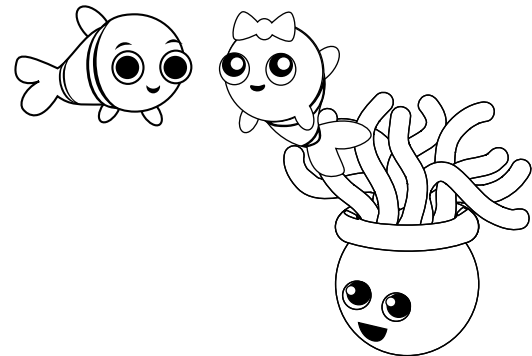
1. The yellow seahorse ate six shrimp. The pink seahorse ate nine shrimp. The orange seahorse ate eleven shrimp. **How many shrimp did the pink and orange seahorse eat together?** _____



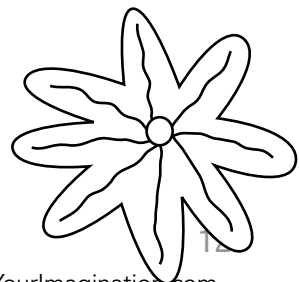
2. The white shark swam five miles. The tiger shark swam seven miles. The silvertip shark swam twice as far as the white shark. **How many miles did the white and silvertip shark swim together?** _____



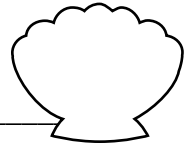
3. The clownfish had nineteen eggs then six of them hatched. The grouper had eight eggs. **How many eggs did the clownfish have once some hatched?** _____



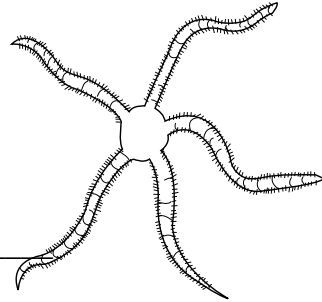
4. The purple magnificent sea anemone had eight tentacles. The green sea anemone had thirteen tentacles. The white sea anemone had twelve tentacles. **How many tentacles did the white and green sea anemone have together?** _____



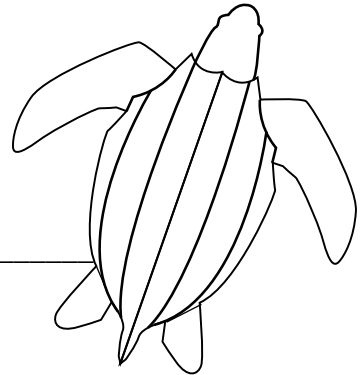
5. The grey oyster made twelve pearls and gave three away. The brown oyster had ten pearls and gave away twice as many as the grey oyster. **How many pearls did the grey and brown oyster have left?**



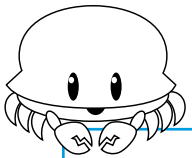
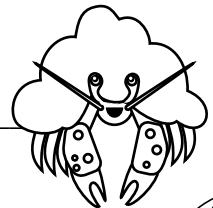
6. There were eleven orange sea stars in the tide pool but several left to find deeper water. There were four red sea stars on a rock. Now there are seven orange sea stars on the coral reef. **How many orange sea stars left to find deeper water?**



7. There were eight leatherback sea turtles passing by the reef. There were thirteen green sea turtles munching sponges. There were nine hawksbill sea turtles sleeping in a cave. **How many leatherback and green sea turtles were there all together?**

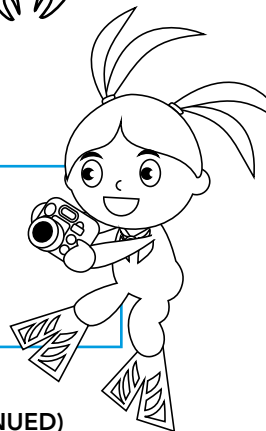


8. There were six crabs crawling on the reef. Fifteen crabs were hiding in the rocks. Four crabs were scurrying across the sand. **How many crabs were there all together?**



OCEAN ANNIE'S SUPER SCUBA CHALLENGE

If you add all the answers together, what is the final number? _____

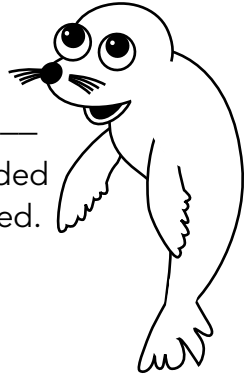




A-Reef-Matic

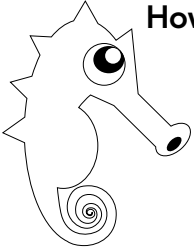
Name _____ Date _____

Directions: Read each question carefully and cross out the information that is not needed to solve the problem. Solve the problem by showing your thinking in the space provided.

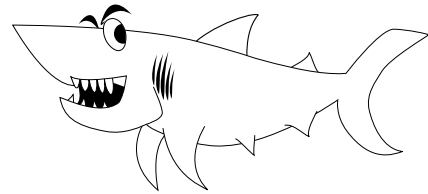


1. The yellow seahorse ate eight shrimp. The pink seahorse ate fourteen shrimp. The orange seahorse ate twenty-two shrimp.

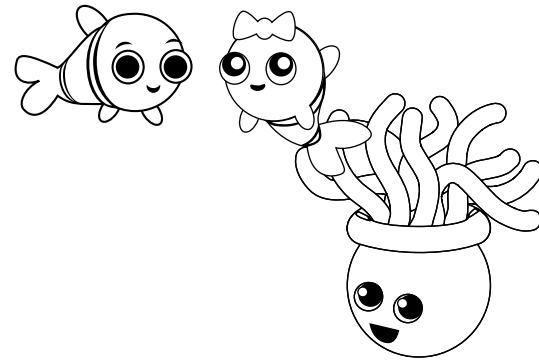
How many shrimp did the pink and orange seahorse eat together? _____



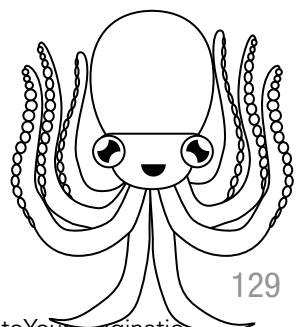
2. The white shark swam eight miles. The tiger shark swam thirteen miles. The silvertip shark swam four times as far as the white shark. **How many miles did the white and silvertip shark swim together?** _____



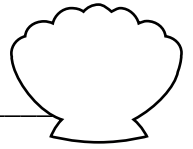
3. The clownfish had twenty-six eggs, then nine of them hatched. The grouper had eleven eggs. **How many eggs did the clownfish have once some hatched?** _____



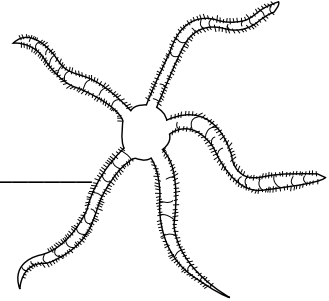
4. The purple magnificent sea anemone had twenty tentacles. The green sea anemone had thirty-two tentacles. The white sea anemone had twelve tentacles. **How many tentacles did the white and green sea anemone have together?** _____



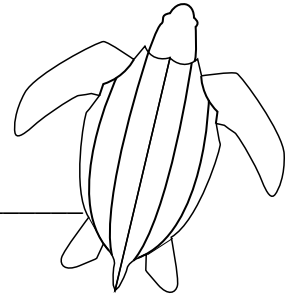
5. The grey oyster made twenty pearls and gave three away. The brown oyster had sixteen pearls and gave away three as many as the grey oyster. **How many pearls did the grey and brown oyster have left?** _____



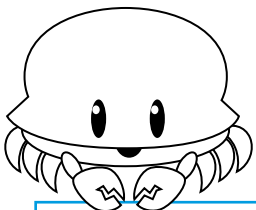
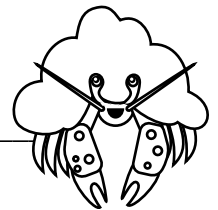
6. There were forty orange sea stars in the tide pool but several left to find deeper water. There were eight red sea stars on a rock. Now there are thirty-three orange sea stars on the coral reef. **How many orange sea stars left to find deeper water?**



7. There were nineteen leatherback sea turtles passing by the reef. There were thirteen green sea turtles munching sponges. There were fifteen hawksbill sea turtles sleeping in a cave. **How many leatherback and green sea turtles were there all together?**

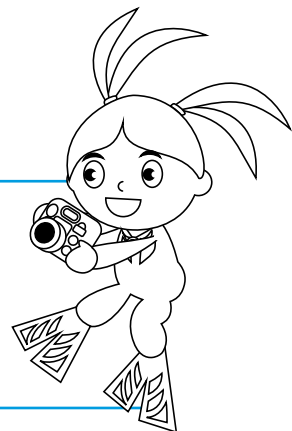


8. There were eighteen crabs crawling on the reef. Fifteen crabs were hiding in the rocks. Twenty-four crabs were scurrying across the sand. **How many crabs were there all together?**



OCEAN ANNIE'S SUPER SCUBA CHALLENGE

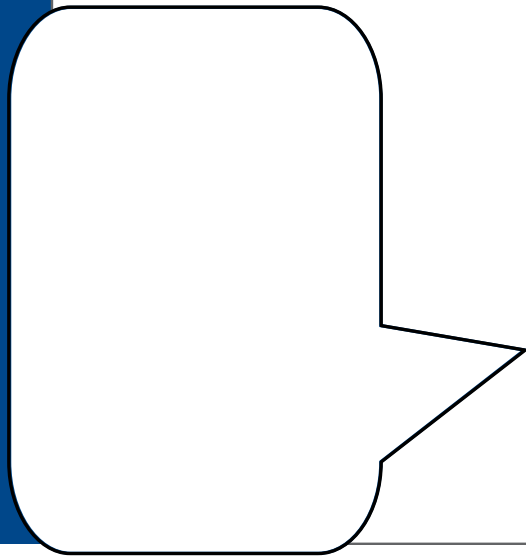
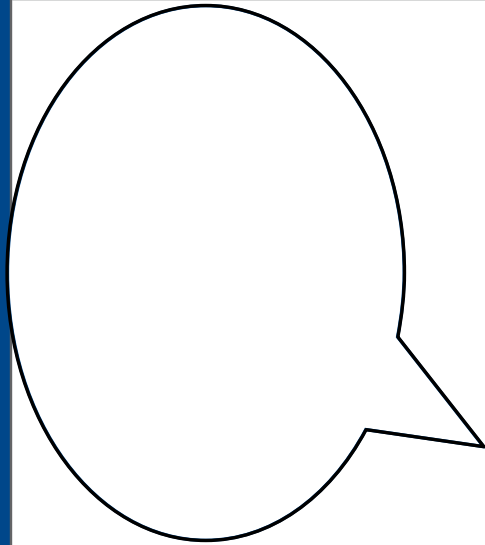
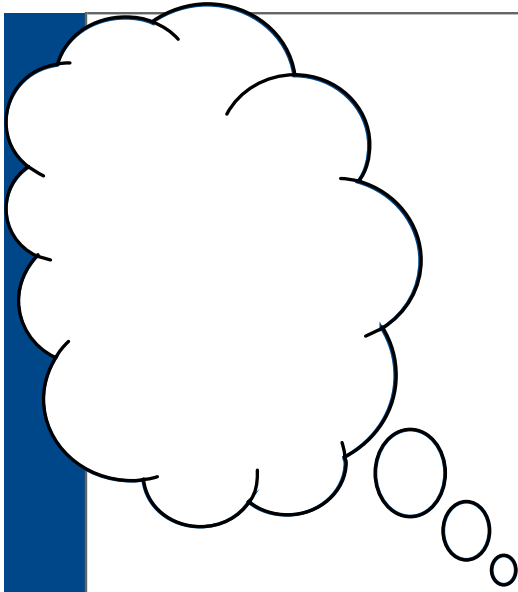
If you add all the answers together, what is the final number? _____



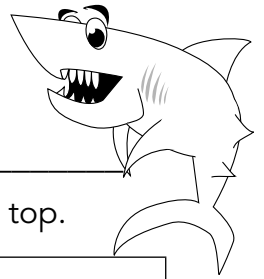
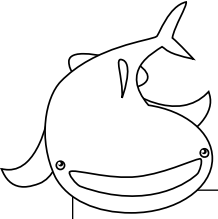
Name _____ Date _____

Directions: Write and illustrate a comic about a fish you find hiding through camouflage on the reef!

FISH ARE COMICAL



I Am Unique!



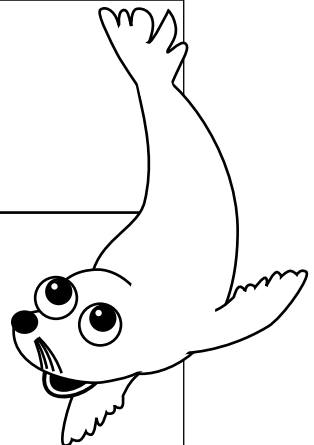
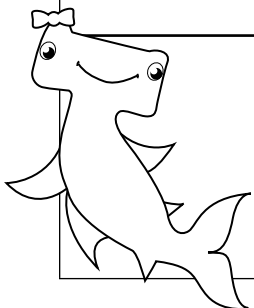
Name _____ Date _____

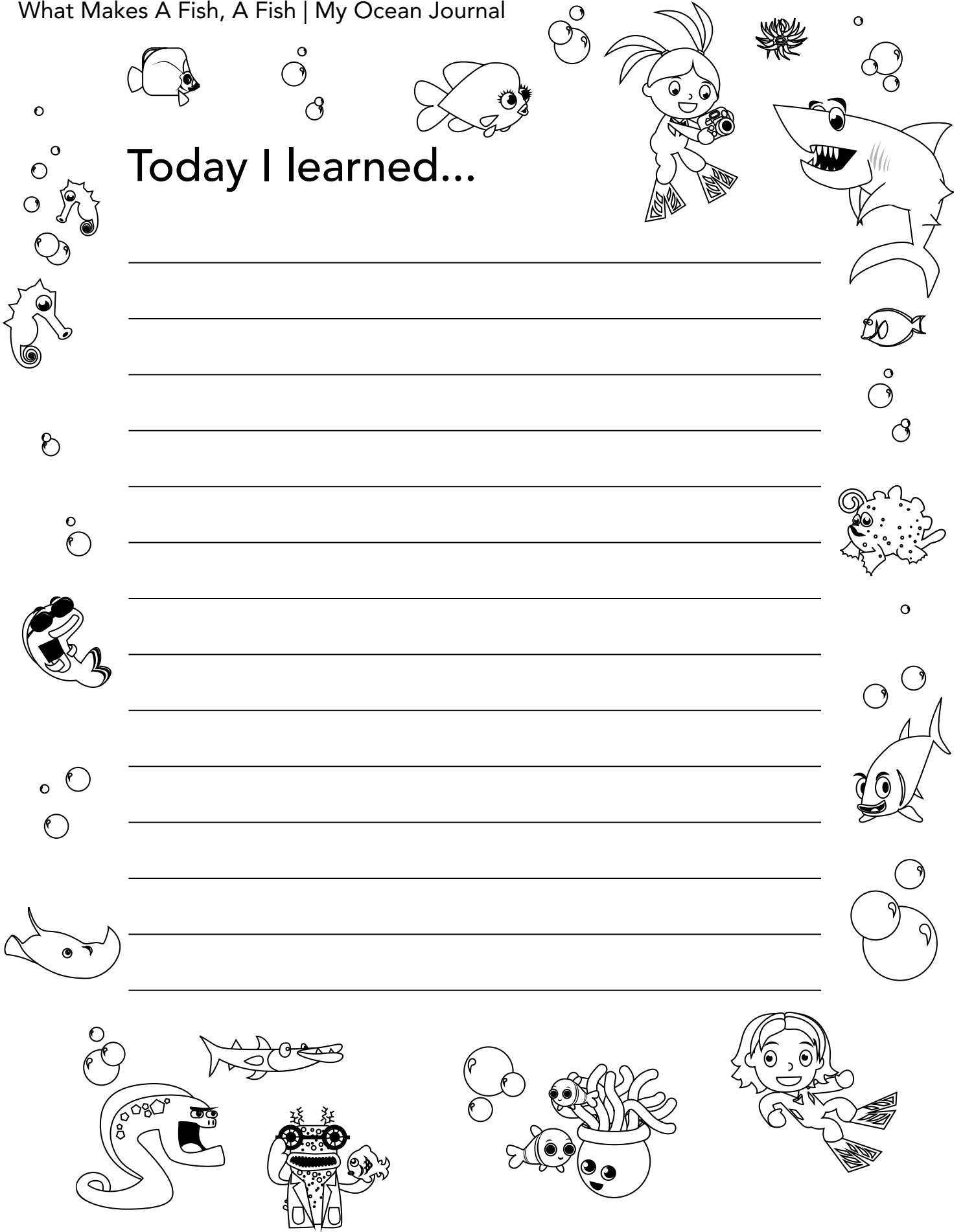
Directions: Fill in the areas on the chart below with the information at the top.

MY NAME IS _____ I AM UNIQUE!

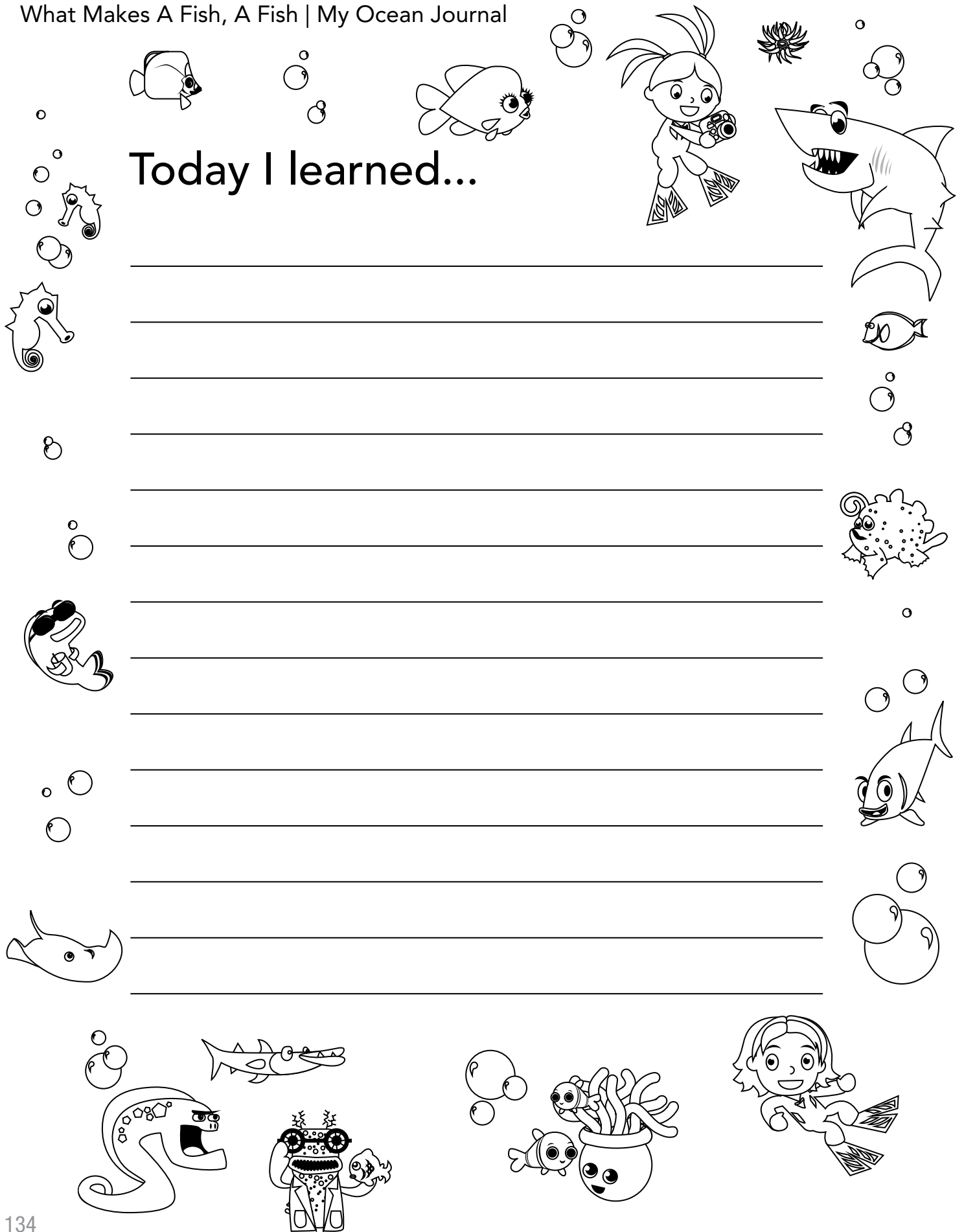
My friend
(write name below)

Thinks I am unique because...
(write in a reason why your friend is unique)





Today I learned...



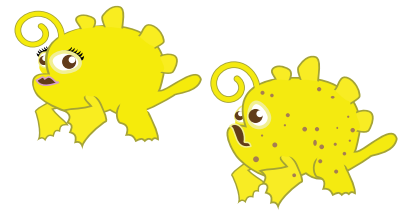
Today I learned...

Frogfish are Funny Looking Fish



D

Frogfish are Funny Looking Fish



CONCEPT / TOPICS TO TEACH

Frogfish are just one of many kinds of fish living in the ocean and they belong to the anglerfish family. Frogfish are *diverse* because they come in many shapes, colors, textures, and sizes. There are more than forty different species of frogfish within the anglerfish family.

Objectives:

- » Students will build understanding about the concept of diversity by designing a frogfish and then making observations about similar and different designs by classmates.
- » Students will sharpen observation skills by estimating and identifying subtle differences in sizes of similar shapes.
- » Students will exercise observation skills by examining complex organic shapes to identify matches within groups.
- » Students will enhance vocabulary and literacy skills by finding antonyms in order to complete sentences about frogfish.
- » Students will practice using a ruler and manipulatives by collecting measurement data about a frogfish.
- » Students will use the scientific method of inquiry to identify diversity within a specific family of fishes.

Character Education: PATIENCE

In order to succeed in life, Dive Into Your Imagination encourages everyone to follow the 4 P's in life: PATIENCE, Persistence, Perseverance and Passion. Growing up children often hear, "You must be patient." In reality we need to encourage students to PRACTICE PATIENCE. PATIENCE is the ability to wait without becoming upset. By encouraging your students to PRACTICE PATIENCE, they can start to recognize this within one another and help their buddy teams and friends practice PATIENCE too! In a society where everything is available at the touch of a button, technology causes a decrease in attention spans. Having students understand and practice PATIENCE is a great exercise to use in your classroom.

Example: How Ocean Annie and Scuba Divers practice PATIENCE and maintain breath control

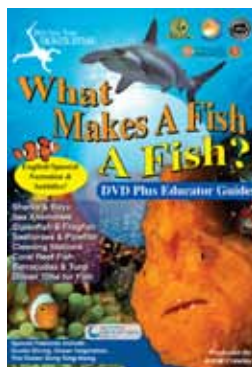
When scuba divers move, they focus on moving slowly and breathing slowly. If scuba divers move fast, they breathe fast. The same things happen between breath and movement on land. When students move fast, they breathe fast. When students experience anxiety they either stop breathing or do rapid, shallow breaths. When playing sports, taking tests, or even participating in an activity station, a child might feel judged, which can bring on anxiety or excitement, triggering a decreased mental reasoning because of their breathing. Teach your students the golden rule of scuba diving to enable them to control breathing, helping them focus.

When students become scuba divers in your classroom, you can remind them to move slow and breathe slow with hand signals. Sharing the hand signals to indicate there is something wrong, you are breathing really fast is a fun way to get your students focused and take control of their actions while helping one another learn how breath control supports focused learning. Remember the golden rule of scuba diving: Stop, Think, Breathe Slowly, and then Act will give students tools they can use in their daily lives. Teaching students in their early years to always return to a slow, centered breath will help them throughout their entire lives. This skill will help you too! Encouraging students to remember to stop, think and breathe slowly will help them practice PATIENCE too.

Getting Started

Required Materials

- DVD "What Makes A Fish, A Fish?" by Dive Into Your Imagination
- Large Dry Erase Board/Easel and Markers



TREASURE CHEST

- Diversity
- Esca
- Ichthyologist
- Illicium
- Patience
- Scientist
- Species

Anticipatory Set Lead-In

- ✧ Watch and become familiar with chapter four "Frogfish are Funny Looking Fish" from the DVD "What Makes A Fish, A Fish."
- ✧ Ask students what kinds of things make them different from one another. Have them look around the room at one another and list them in a column marked "different." Examples students may notice include: skin color, hair, eyes, sizes, clothes, etc.
- ✧ Ask students what kinds of things make them the same and list them in a column marked "same". Examples of similarities may include: they are all kids, they all go to the same school, they all live near one another, etc.
- ✧ Explain things that make students the "same" make them all part of a same "type" and the things that make them "different" make them "diverse." Note that many of the things that make us the same also make us different.
- ✧ Explain that in the film segment about frogfish, students will see many *diverse* kinds of frogfish. Frogfish come in different colors, shapes, and sizes.
- ✧ During the run of the film clip have students imagine they are ichthyologists, meaning they are scientists who specialize in the study of fish and will work independently or with buddies to collect information about frogfish.

Here are some questions and answers you can use to build a brainstorming session:

KWL

LGL

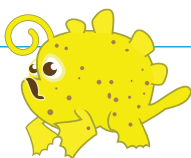
AG

WP

Questions for Students	Answers for Educators
How many different colors can you find on the frogfish?	Almost any color imaginable can be seen on frogfish including: yellow, orange, red, white, green, brown, purple, and more.
Are all frogfish the same size?	No. Some are quite small, and some are larger than a softball.
Are all frogfish the same shape?	They are all similar in shape, but may have different skin textures, patterns or fins to set different kinds of frogfish apart from one another.
Do frogfish swim like other fish?	No. They have specially designed pectoral fins they use to sort of crawl on the bottom. They can also gulp water and shoot it out their gills in order to move and propel themselves in the water column.

Video Review

- ✧ After watching the clip about frogfish once or even a few times, discuss and write down additional facts, questions, and information students gained from the video for further research and discussion.
- ✧ Ask students to write a reflection in their journal about frogfish.
- ✧ Ask students what else they want to know about frogfish that wasn't included in the film clip, and write down those questions for later research.
- ✧ Compare what students learned about the diversity of frogfish to what makes them diverse from their classmates such as color, shape, size, etc.



Imagination Values

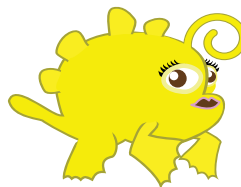
Before the activities begin, use this as an imagination exercise with your students. You can use this as a movement activity and have them act out what you are saying, or have them be silent and use their minds only. Have students imagine they are fish. Here is a script you can read, or use your imagination and create your own. By having them focus and gain a connection to the animals, they will attain critical elements of imagination play. On the count of three, become a fish when we say the magic word: 1, 2, 3...IMAGINATION!

"On the count of three let's say the magic word, IMAGINATION. 1, 2, 3...IMAGINATION! Now, imagine you are a fish! What would your body look like? Where are your fins? What kind of mouth do you have? Where would you live? You would be very independent and like to do things all by yourself. Do you know that you would have to do everything on your own from the moment you hatched out of your egg? After fish hatch, as a baby fish, you become plankton and float in the water for between 7 and 60 days until you settle on the reef. Once you find a home on the reef, as a fish, your parents would not make you breakfast or lunch. You would have to hunt for every meal!

Now, imagine you are a frogfish. Frogfish are in the anglerfish family and are fishes who fish for fish! You have an illicium that works like a fishing pole and an esca like bait on top of your head. You would throw it out; hoping another fish swimming by would try to bite your lure! Frogfish come in many different styles. Some frogfish are smooth while others have hair! That's right, imagine being a hairy frogfish. Frogfish are experts at camouflage and blending into their surroundings. Sometimes frogfish stay in the same place on the reef for more than a month! How long can you remain absolutely still without talking or moving. As a frogfish, you would not swim with your fins, but you would walk along the bottom very, very slowly! Can you practice patience? How long can you stand still? As we do our activities today, let's keep imagining how it feels to be a frogfish with an illicium and esca on our heads!"

CLASSROOM ACTIVITY STATION D1

FROGFISH ARE DIVERSE



Overview

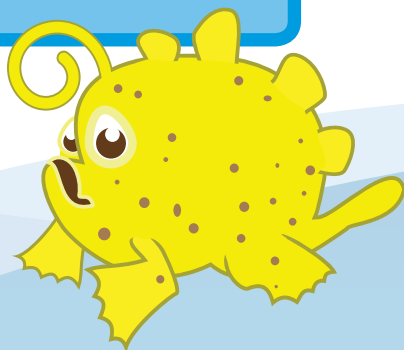
Children will use a template or independently design a frogfish using various materials and write words or a story indicating how their frogfish is diverse. Participating in this activity is intended to stimulate understanding about *diversity*, promote *vocabulary skills*, *creative writing*, and *artistic skills*.

Materials: Butcher Paper, Frogfish Template provided in this lesson plan, Heavy paper to cut out frog fish shapes for each student, Glitter, Pipe cleaners, Small pompons, Glue sticks, Scissors, Paper or Index Cards, Pencils, Crayons, or Colored Pencils

Talking Points

- ✧ Review the meaning of the word diversity.
- ✧ Talk about the different kinds of frogfish viewed in the video in terms of colors, texture, size, shape, etc.
- ✧ Ask students if they can remember how frogfish hunt for food using their special fishing lure called an esca.
- ✧ Camouflage plus the fishing behavior are “adaptations” and important ways that slow moving frogfish are able to increase their chance of catching a meal.

I may be a funny looking fish, but I am a master of disguise. I have more patience than any fish because I can stay in one place for a really long time!



Lesson Procedure

1. Cover a bulletin board in your room with butcher paper and the title “Frogfish are Diverse”.
2. Provide each student with a frogfish shape to decorate or allow them to create their own.
3. Set up a work station with craft materials such as: glitter, pipe cleaners, pompoms, glue sticks, paint, crayons or colored pencils.
4. Instruct students to decorate their frogfish any way they choose, and then write words, sentences, or a story describing the diversity of their frogfish.
5. As students complete their fish, hang their work on a board or around the room for viewing.
6. Completed writing can be added to students’ “What Makes a Fish” journals. Encourage students to incorporate the character education concept of practicing patience into their stories.

CLASSROOM ACTIVITY STATION D1 (Continued)

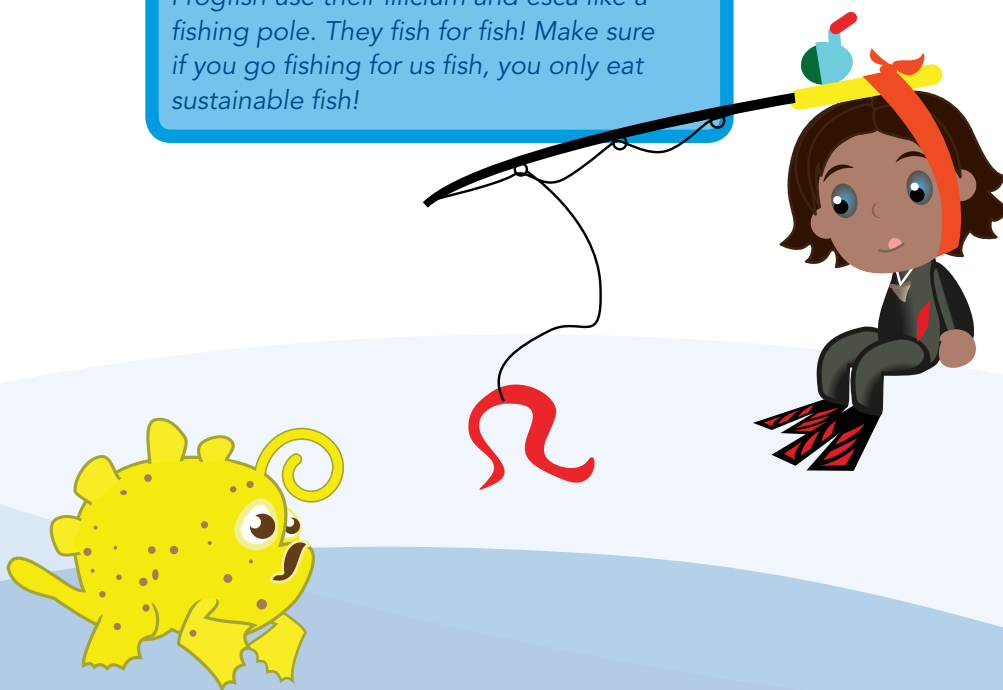
FROGFISH ARE DIVERSE

Extension Ideas

- » Use the bulletin board to help students review all of the body parts of the frogfish and basic fish biology.
- » See if students can come up with words to describe the frogfish using each letter of the word "frogfish."
- » Break class into buddy teams and ask each team to come up with a list of ways that the frogfish they designed are alike, and ways that they are different or unique.
- » Discuss the fact that people are diverse, and use the "Celebrate Diversity" graph provided at the end of this lesson to chart the diversity of your class's hair color and celebrate diversity.

Notes

Frogfish use their illicium and esca like a fishing pole. They fish for fish! Make sure if you go fishing for us fish, you only eat sustainable fish!



CLASSROOM ACTIVITY STATION D2

SIZE IT UP!

Overview

Children will practice their observation and estimation skills as they examine rows of frogfish to see if they can find two that are the same size. Participating in this activity will help students enhance their ability to *estimate*, practice *logic*, and use *deductive reasoning*.

Materials: "Size It Up", Pencils, Crayons, or Colored Pencils

Talking Points

- ✧ Frogfish are diverse, meaning there are many kinds of frogfish. There are more than forty different species of frogfish scientists have discovered so far.
- ✧ Even when frogfish are the same type, they exhibit varieties in color, size, and skin texture.
- ✧ Have students imagine that they are ichthyologists studying images of frogfish. Students will determine which frogfish are of equal size.
- ✧ Encourage students to attend to precision with their measurements while using tools appropriately.

Lesson Procedure

1. Photocopy and provide each student with a copy of "Size It Up."
2. Completed activity pages can be added to students' "What Makes a Fish" journals.

Although I use my gills for feeding, I can also use them to help me swim. I can suck in water through my mouth and pump it out of my gills helping me move.



CLASSROOM ACTIVITY STATION D2 (Continued)

SIZE IT UP!

Extension Ideas

- » As a class or in buddy teams, ask students to come up with words that describe the frogfish. Depending on skill level, words can be incorporated into sentences or a story.
- » Ask students to choose one row on their worksheet and to decorate the fish in as many *diverse* ways as they can (different colors, stripes, polka dots, etc.).
- » Write the word "frogfish" across a board in uppercase letters, then write it again below (only scrambled) in lowercase letters. Ask students to draw lines that match the upper and lower case versions of each letter.
- » Have students write the word "frogfish" across the top of a sheet of paper and see how many diverse words they can make from its letters.
- » Make a series of fish cut-outs that are identical shape and size. Ask students to measure their height in fish. You can make multiple sets of fish in different sizes and extend the activity to require students to make bar graphs representing the different measurements.

Notes

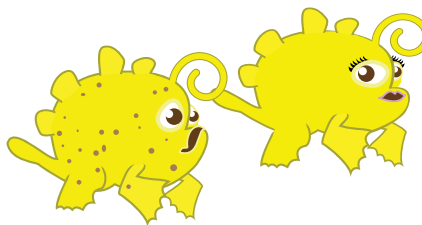
OCEAN ANNIE SUPER SCUBA CHALLENGE

Write in one word that describes the size or shape of each frogfish on your page.

Color, shape, and texture helps fish blend into their environment. Predators and prey use camouflage. It is a fish eat fish world beneath the sea!



CLASSROOM ACTIVITY STATION D3 FROGFISH BUDDY UP



Overview

Students will play a game of memory as they look for matching pairs of frogfish. Participating in this activity will provide students with an opportunity to practice *recognizing organic shapes*, *attention to detail*, *exercise memory skills*, and understand the *biological diversity* that exists within one particular group of fish.

Materials: Frogfish Pair cards, Heavy paper

Talking Points

- ✧ The ocean and humans are inextricably interconnected. Everything we do on land affects the ocean. Animals need a healthy and clean ocean.
- ✧ We need a clean ocean too. In order for people to be healthy, the ocean needs to be healthy. Humans benefit from the ocean.
- ✧ The ocean provides much of the food we eat and our water. The ocean is a major source of the water cycle, which provides precipitation for plants and animals on land.
- ✧ The ocean provides recreation, imagination and fun too. Frogfish are funny looking fish and come in different shapes and sizes. Using your analytical and scientific skills let's have a look at "Frogfish Pairs."

Lesson Procedure

1. Photo copy the "Frogfish Pairs" card set twice on sheets of card stock.
2. Cut the cards into a deck and shuffle them.
3. Lay the cards face down.
4. Instruct students to take turns picking up two cards and observing the images. When students find matched pairs on a turn, then he/she may keep the pair. The student with the most pairs wins the round.
5. Repeat as desired.



Shapes can be found all over nature. What kind of shapes can you find in ocean animals?

CLASSROOM ACTIVITY STATION D3 (Continued)

FROGFISH BUDDY UP

Extension Ideas

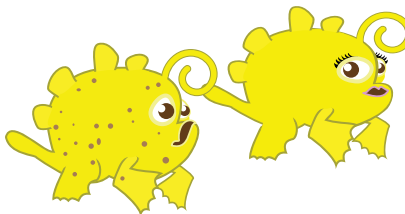
- » Challenge students to draw their own version of a frogfish or other creature of the deep.
- » Choose a book about unusual creatures to study as a class and ask students to select a favorite for independent study.
- » Have students expand this memory match game by adding other animal pairs to the mix.

Notes

If you have a home or school aquarium, know where your fish come from! Use aquarium raised fish, never endangered fish from the wild.



CLASSROOM ACTIVITY STATION D4 FROGFISH OPPOSITES



Overview

Students will learn about opposites as they review fun facts and complete sentences about frogfish. Participation in this activity will provide students with an opportunity to *enhance literacy, increase vocabulary*, and review critical content from the DVD.

Materials: Frogfish Opposites

Talking Points

- ✧ There are many kinds of animals living in the ocean.
- ✧ Animals in the ocean are grouped together by scientists based on physical and behavioral similarities.
- ✧ Sometimes even within a group, there is great variety also known as diversity and frogfish are a good example of this.
- ✧ Sometimes the differences between frogfish are very subtle. Telling some frogfish apart requires very close attention to details.
- ✧ Developing words, language skills and literacy requires us to pay attention to details too. Let's apply the golden rule of scuba diving and as we work through this activity, remember to stop, think, breathe slowly, then act before each question.

Lesson Procedure

1. Provide each student with a "Frogfish Opposites" activity sheet.
2. Have students individually or in buddy teams complete the sentence with the correct antonyms.
3. Add completed work to the "What Makes a Fish" journal.



The ocean makes our planet habitable.

CLASSROOM ACTIVITY STATION D4 (Continued)

FROGFISH OPPOSITES

Extension Ideas

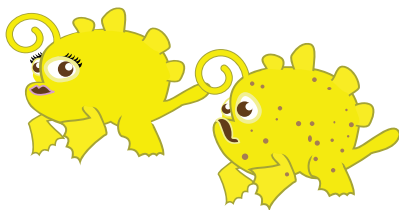
- » Challenge students to come up with some of their own words to describe the physical qualities of frogfish. Challenge students to weave some of the antonyms from the activity into a story.
- » Have students choose the words from the activity and develop a list of synonyms.

Notes

Everything we do on land affects the ocean.



CLASSROOM ACTIVITY STATION D5 FROGOMETRY



Overview

Students will practice using comparative vocabulary and measurement terms as they learn about the bizarre and exciting anatomy of frogfish. Students will observe a clearly labeled wall chart and use measuring tools and their observation skills to make comparisons about the size of frogfish. Participation in this activity will provide students with an opportunity to practice with *comparative terminology, fundamentals of measurement, logic, deductive reasoning, and basic fish anatomy.*

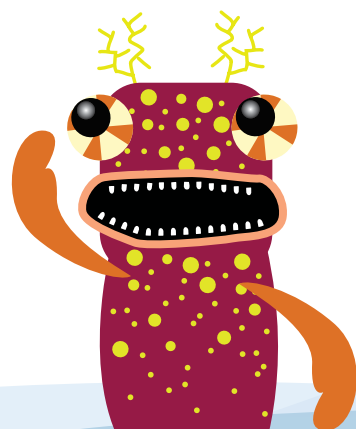
Materials: "Frogometry", Scissors, Measuring tools: rulers, linker cubes, string, etc.

Talking Points

- ✧ When using our measuring tools, remember we need to pay great attention to detail. Try and measure with precision. Use appropriate tools. We would not use a yardstick to measure a clownfish.
- ✧ When answering questions, instead of one word answers, be creative in your observations. What can you discover, how do you communicate your answers in writing so someone else can understand what you are trying to express?
- ✧ Use your imagination and become scuba diving scientists specializing in frogfish! You are about to discover something nobody else knows! Have fun while learning!

Lesson Procedure

1. Provide individuals or buddy teams with a "Frogometry" packet and a premeasured ten-inch string.
2. Depending on proficiency level, ask students to complete "Frogometry" individually or in buddy teams.
3. Use "Frogometry" as a guiding tool to lead students through a series of steps to analyze and measure different aspects of frogfish anatomy.



Symbiosis is an important relationship between organisms in the Ocean.

CLASSROOM ACTIVITY STATION D5 (Continued)

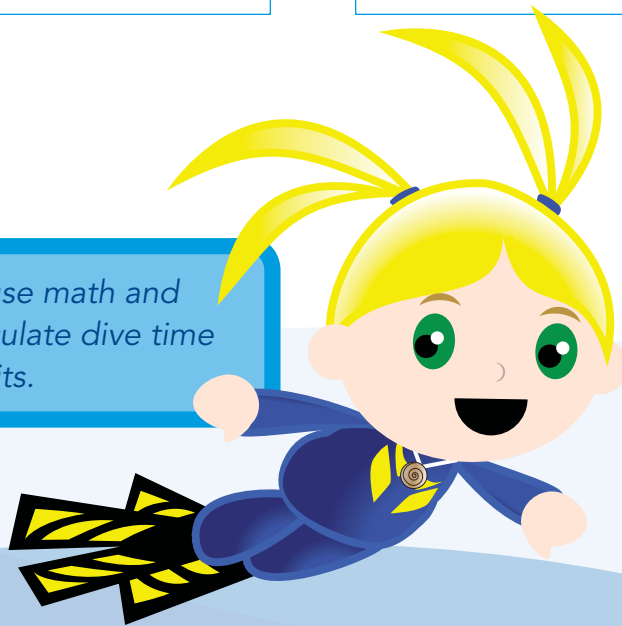
FROGOMETRY

Extension Ideas

- » Challenge students to line themselves up in order according to their heights without using any verbal communication.

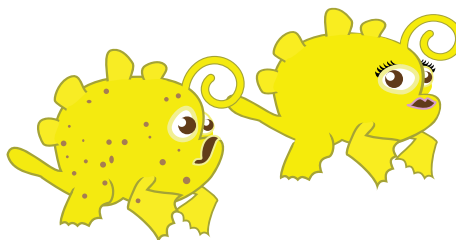
Notes

Scuba divers use math and physics to calculate dive time and depth limits.



CLASSROOM ACTIVITY STATION D6

DICHOTOMOUS KEY



Overview

Students will learn basics of the science called taxonomy, which is how biologists classify all living things based on similar physical qualities and characteristics. Students will identify two unknown kinds of frogfish using a tool scientist's use called a dichotomous key. Participation in this activity will provide students with an opportunity to practice *deductive reasoning, logic, observation, and analytical skills*.

Materials: Dichotomous Key, "Frogfish 1" wall chart, "Frogfish 2" wall chart

Talking Points

- ❖ Taxonomy is the system scientists use to organize living things into groups based on similar qualities and characteristics.
- ❖ The system of taxonomy relies on observing general things that make things similar, and fine qualities that make them different.
- ❖ When scientists have two similar animals and are uncertain of their identity, they can use a tool called a dichotomous key to attempt to reveal the animal's identity and family relationship.
- ❖ A dichotomous key is a system of if/then questions leading observers through a series of steps to help them discover the identity of an unknown plant or animal.
- ❖ A dichotomous key might also leave gaps where scientists still have not made a conclusive identification.

Lesson Procedure

1. Post both wall charts in an area where students can readily view them.
2. Provide each student with a copy of the Dichotomous Key.
3. Assist the class or buddy teams to work through the questions on the *Dichotomous Key* completely for both *Frogfish 1*, and then again for *Frogfish 2*. They will be able to identify each animal. Have students follow these steps:
 - Look at the chart of Frogfish 1 and find the answer for question number one on the key.
 - The answer to question number one leads to the next question and so on through the key until students can go no further, revealing the scientific identity of the fish.
 - Repeat the process for "Frogfish 2"

CLASSROOM ACTIVITY STATION D6 (Continued)

DICHOTOMOUS KEY

Extension Ideas

- » Ask students to collect two objects from the outdoors such as rocks, leaves, sticks, etc. Challenge them to observe what makes their objects similar and different. Students can draw a conclusion as to whether they are more *similar* or *dissimilar* and whether it is likely that they are closely related. They may already know the answers to some objects, yet have them prove this scientifically.
- » Have students put one of their shoes in the middle of a circle. Ask students to observe ways the shoes are similar and different. Challenge them to see if they can come up with ways to organize the shoes based on similar characteristics. For example the shoes can be grouped by color, shoes with laces, or by type such as gym shoes, dress shoes, sandals. This is a good opportunity to point out the science of taxonomy is complicated, and scientists often see different and equally correct ways to organize information about the living world. This also allows children to see many different ways of answering questions.

Notes



Conserve water! Turn the faucet off when you brush your teeth. Only do the dishes or laundry when you have a full load. What else can you think of to save water?

CLASSROOM ACTIVITY STATION D7 BOOK STALL



Overview

Students will build independent reading strategies. Providing a reading or computer area where students can look through books and other supplemental materials will help to build literacy.

Materials: Ocean Life Book & DVD by Annie Crawley and Cynthia Stierle

Lesson Procedure: Character Education PATIENCE

1. Pair students into buddy teams and designate one member of each team as leader. The leader will slowly make movements, gestures, and facial expressions while their buddy exercises PATIENCE in attempting to mirror the leader's movements.
2. Have students read the frogfish page and create a story about one of the frogfish. Challenge them to incorporate patience into their story.

Character Education: PATIENCE

"Focus on nothing and everything will appear"

Fine Art Prints, posters, greeting cards and other products are available to decorate your classroom or school while inspiring your students with real ocean animals and environmental scenes. Contact us to learn more.

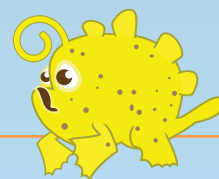
Have students define the word patience. List all the animals they believe use patience and why they practice patience.

Blood sea star and brittle stars, Channel Islands, California



Book Suggestions

- » Coldiron, Deborah. *Anglerfish. Underwater World*. Edina, Minnesota: ABDO Publishing, 2008.
- » Collard, Sneed B. III. *The Deep-Sea Floor*. Illus. Gregory Wenzel. Watertown, Massachusetts: Charlesbridge Publishers, 2003.
- » Crawley, Annie and Cynthia Stierle. *Ocean Life from A to Z*. New York, New York: Reader's Digest, 2007.
- » Earle, Sylvia A. *Sea Critters*. Photo Wolcott Henry. Des Moines, Iowa: National Geographic Children's Books, 2000.
- » Jenkins, Steve. *Down, Down, Down: A Journey to the Bottom of the Sea*. Tulsa: Usborne Books, 2009.
- » Johnson, Jinny. *Children's Guide to Sea Creatures*. New York: Simon and Schuster, 1998.
- » Rake, Jody Sullivan. *The Frogfish*. Mankato, Minnesota: Capstone Press, 2009.
- » Worth, Bonnie. *Wish For a Fish; All About Sea Creatures*. Illus. Aristedes Ruiz. New York: Random House, Inc., 1999.



Closure and Follow Up

- ❖ Once students have experienced the learning stations, gather them back together to spend time reviewing new information learned about frogfish.
- ❖ Reflect with class on how much knowledge has been gathered about diversity generally and frogfish specifically.
- ❖ Spend a moment talking about why having so many species of frogfish is important to a healthy ecosystem. Discuss how they eat different things and play the role of predator in their environment.
- ❖ Ask students to identify other kinds of sea animals that are diverse, yet part of a close group. Sharks, whales, even seahorses are good examples.
- ❖ Ask students how they used patience during the exercises. Did they need to practice patience in one lesson more than another? How did this help them?
- ❖ To reinforce learning, you can review treasure chest vocabulary.



Observations are a great way to study animals. Look at the shape of our mouths, teeth, bodies and fins to see what you can learn!

Plan for Independent Practice

- » These exercises can be used as preparation for a field trip to a zoo, aquarium, or farm where students will be asked to make observations about what similarities and differences between animals they can observe.
- » Students can report to class about similarities and differences they observe among members of their families.
- » During an outdoor break, students can be asked to see how many diverse forms of leaves or other plants they can gather, then compare them grouping the similar and sorting the dissimilar scientifically.
- » Select stories from the suggested reading list to read aloud as a class or for self-study.
- » Review the word PATIENCE with students and discuss how it relates to their lives. Encourage them to use their imagination and think of all the ways they PRACTICE PATIENCE. Have students think of all the reasons PATIENCE is helpful. Now have them write a story about patience and practicing patience.
- » Have students read the transcript to Frogfish are Funny Looking Fish. Have them design a comic strip about these fish or write a story on how these fish fit into their environment.

DVD TRANSCRIPT

Frog Fish Are Funny Looking Fish

Frogfish are very funny looking fish!

Yellow, red, orange, brown and green.

Spotty ones and even hairy ones.

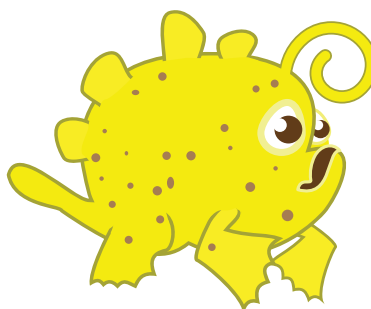
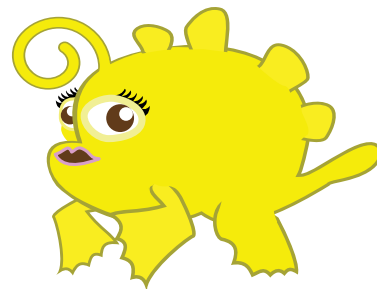
Big Frogfish. Teeny tiny frogfish.

What makes these fish unique?

They have an "ESCA" attached to their head that acts just like a fishing pole with a worm already attached. They throw it out and sit and wait. Hoping for some bait.

They fish for fish!

Frogfish are very funny looking fish!



Go Blue! Ocean Annie's Tips to Help Our Environment

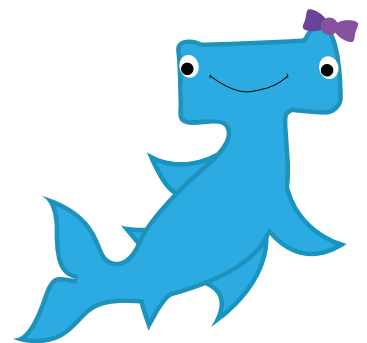
Do you know that every day products that you use around the house affects the health of all water on our planet? It is important to know what is in the products we use, the food we eat, and also where they come from so we can ensure our choices protect our personal health and the health of our environment.

It is easy to become overwhelmed by decoding product labels because it is not always clear what words mean or which words are the important ones to pay attention to. For example the word "natural" is vague, and can be misleading, but the word "organic" is something specific with set standards to be met in order for that word to appear on a label.

There is good news because there are more reliable sources than ever to turn to for good, user friendly information about what is healthful for you and your environment. When choosing cleaning products or soaps, make sure you choose environmentally friendly products.

As a class project, pick an essential food group and do research on the differences between non-labeled, natural, and organic food. Try this with milk and eggs, fruits and vegetables, or meat and fish. If your school is serving fish at school lunches, you may want to do an investigation if it is sustainable fish or if the school can offer a healthy alternative to fish, cutting it off the menu completely! There are too many fish being taken out of the ocean without their ability to reproduce and sustain healthy populations. Scientists are predicting within the next 50 years there may be no fish left in the sea.

Email us to receive a Sustainable Seafood Card or to find out more about these important issues. As good citizens of the world, we want to live at one with nature and always support the health of our Ocean. By doing this, we GO BLUE and LIVE BLUE!





Frogfish
are Funny
Looking Fish



ACTIVITIES

Name _____ Date _____



Chest

Treasure

of Words

diversity

esca

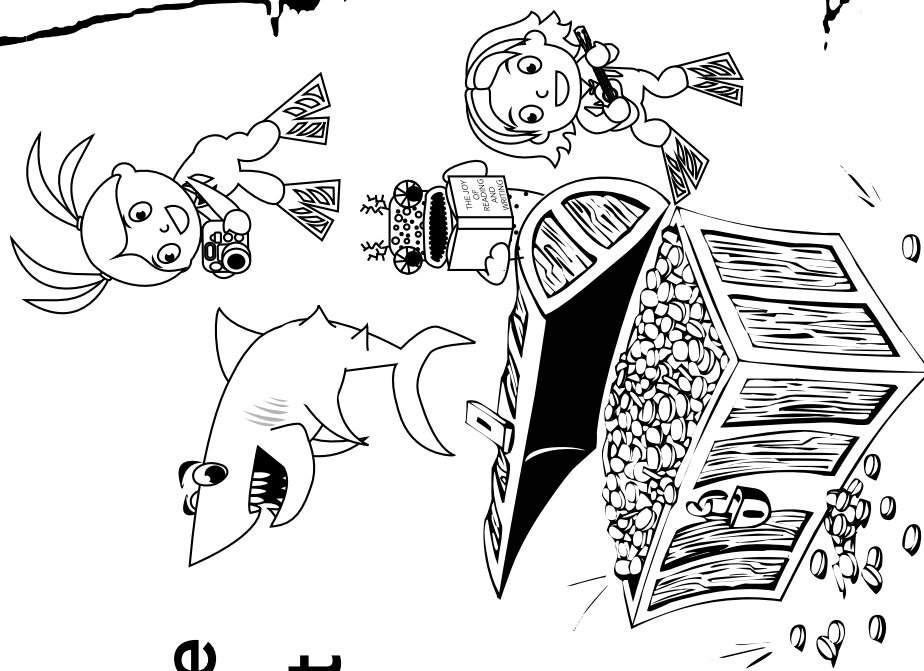
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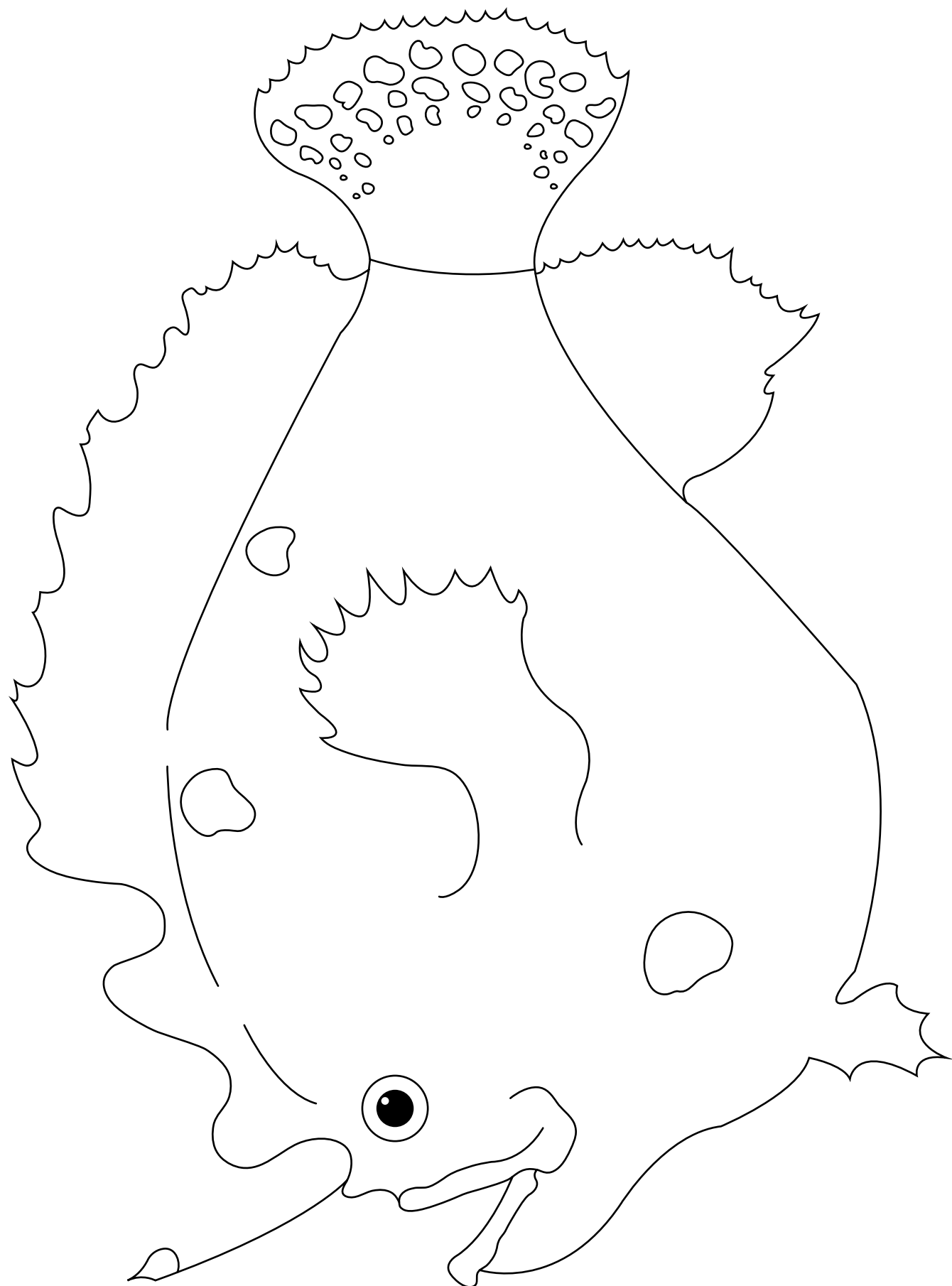
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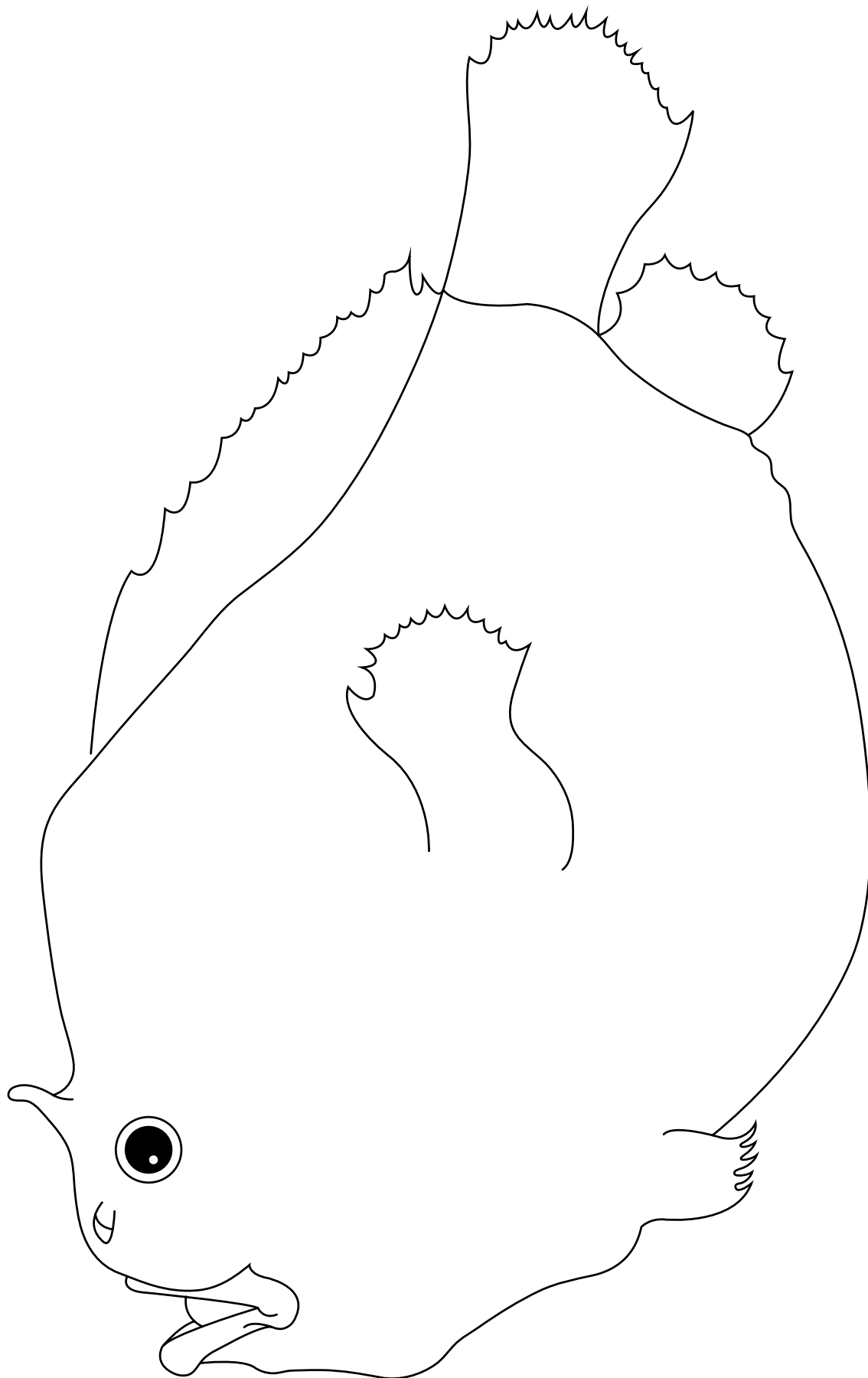
patience

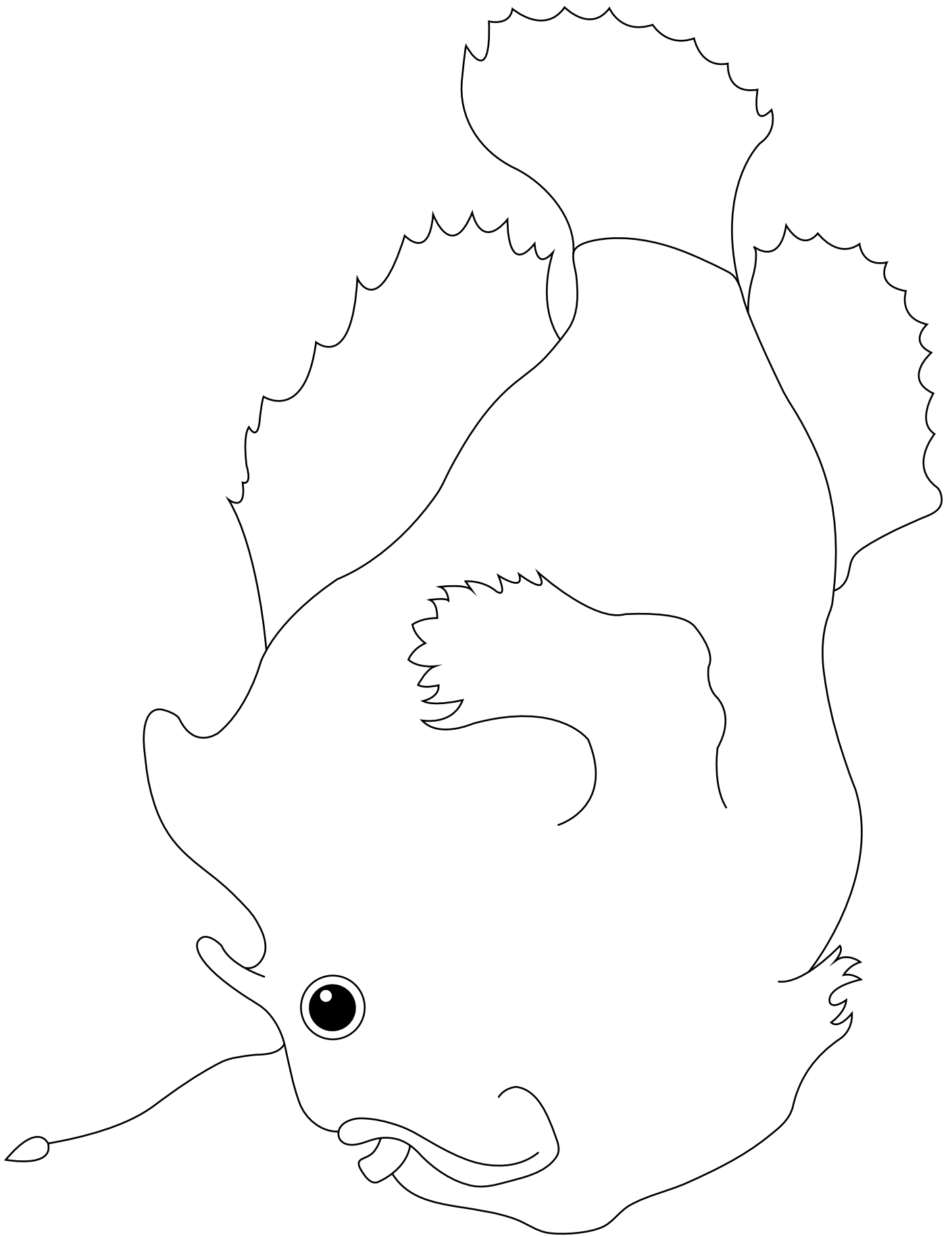
scientist

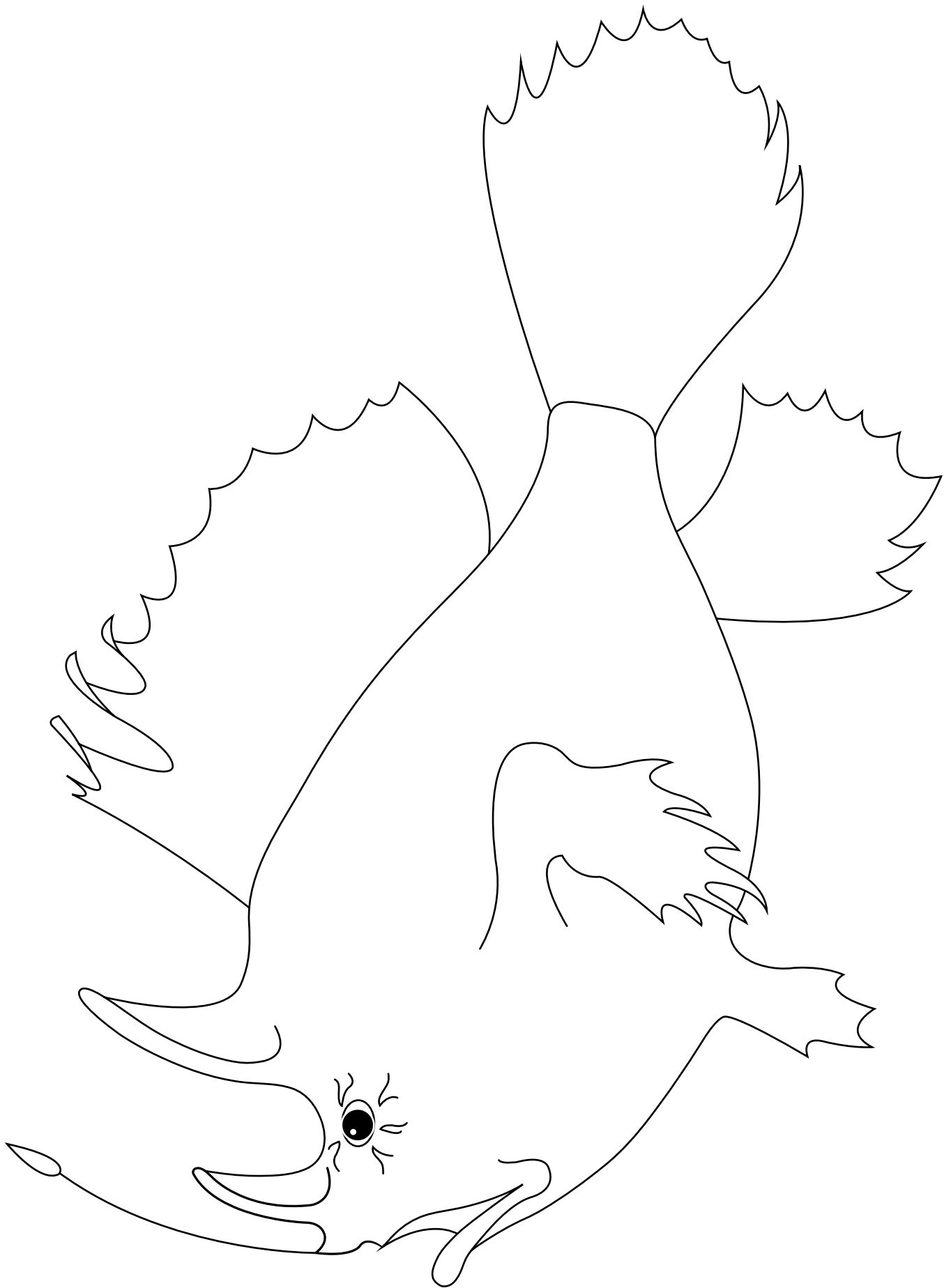
species

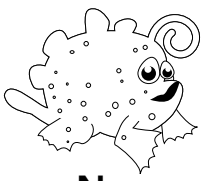








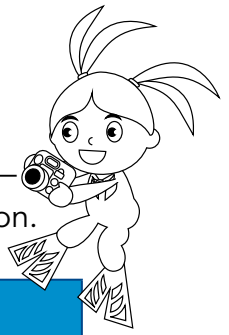




Celebrate Diversity

Name _____ Date _____

Directions: Fill in the areas of the bar chart with the information you gather in the lesson.



CELEBRATE DIVERSITY

12

11

10

9

8

7

6

5

4

3

2

1

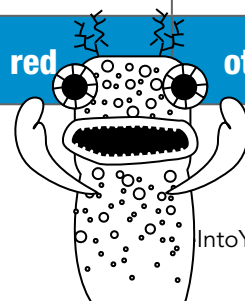
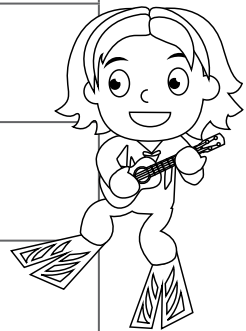
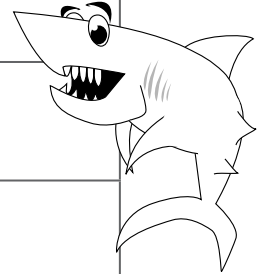
brown

blonde

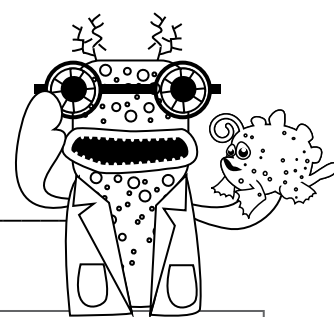
black

red

other



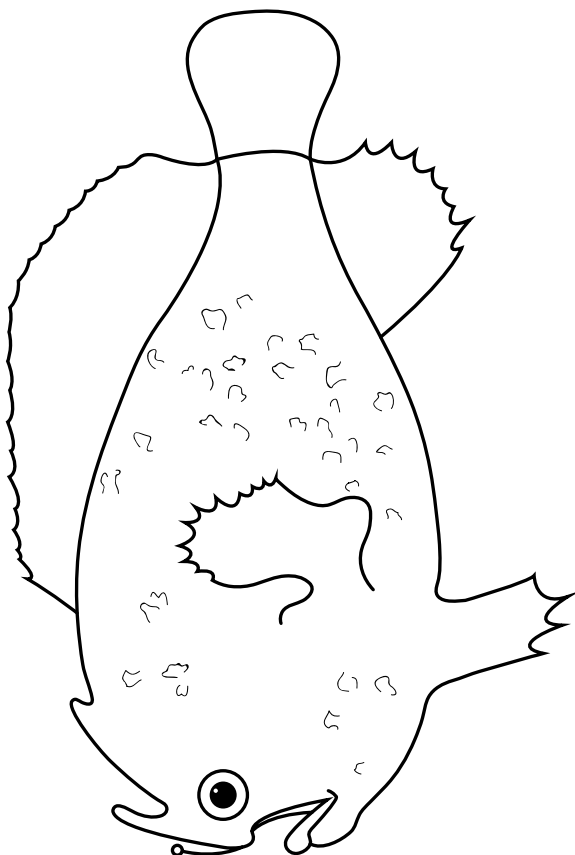
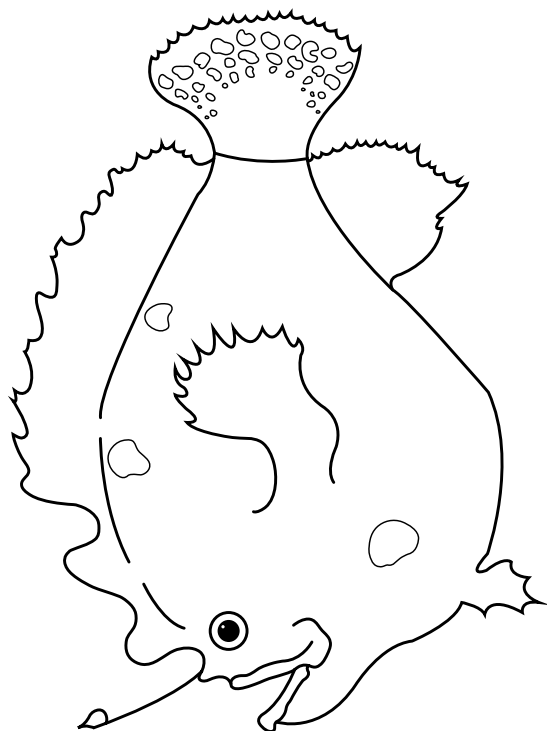
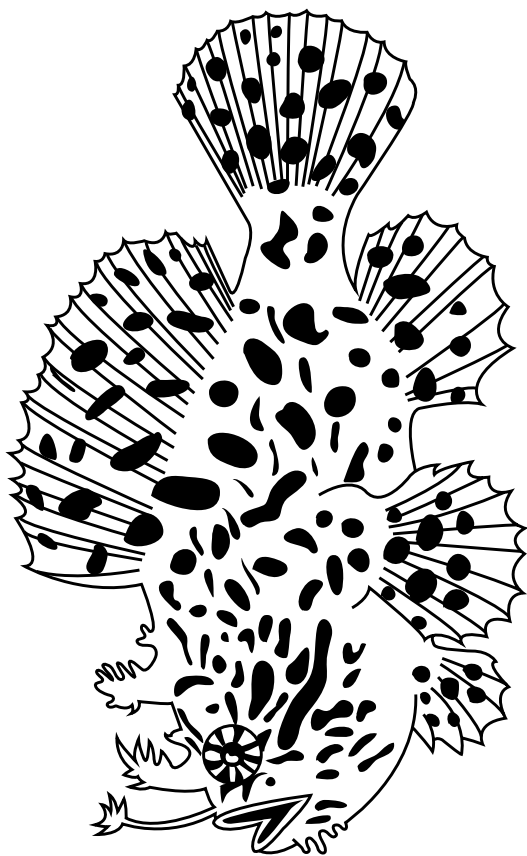
Size It Up!

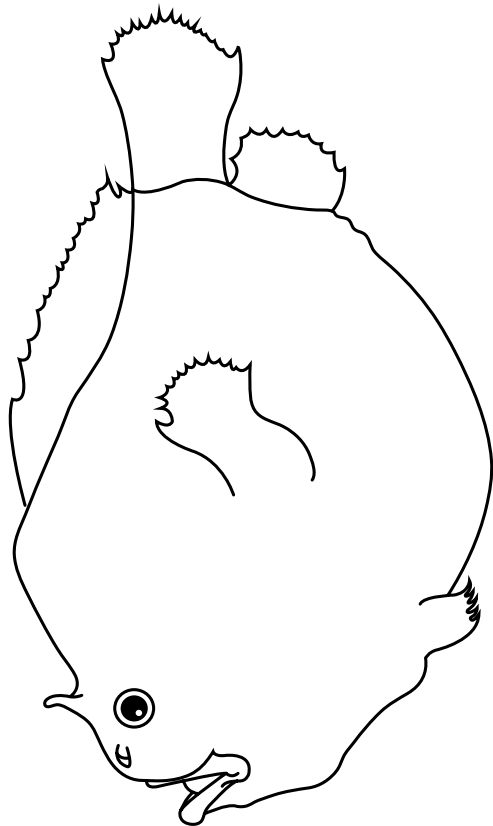
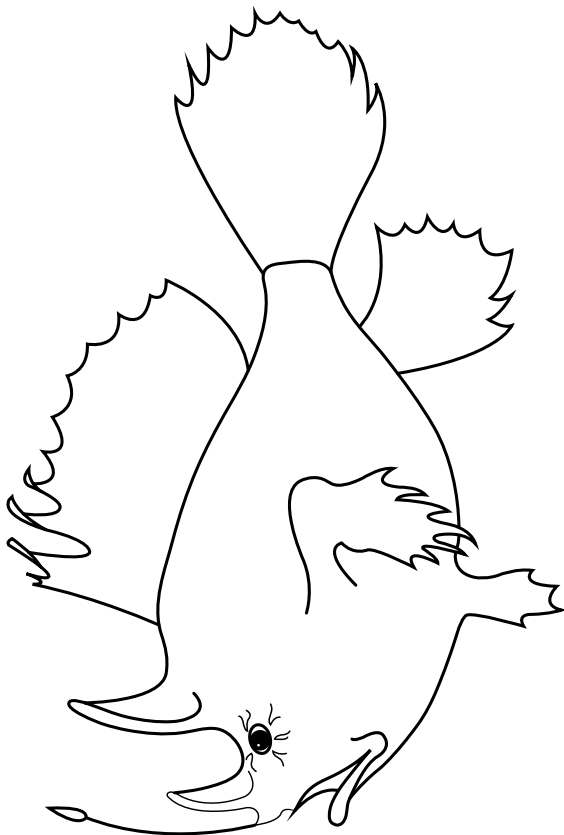
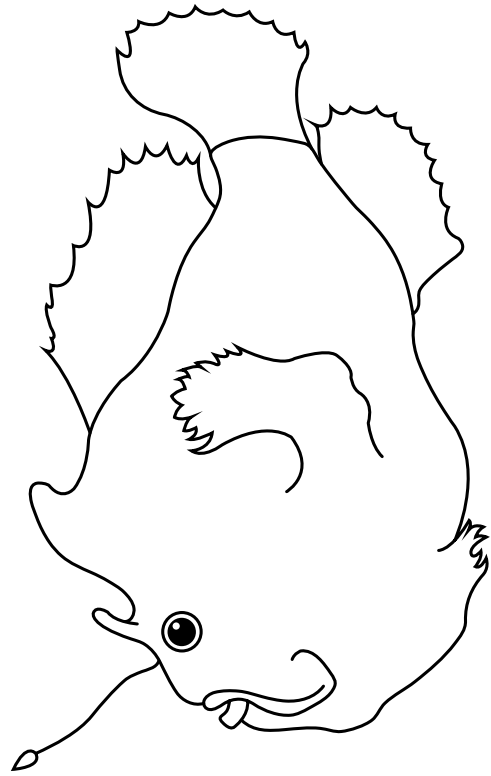
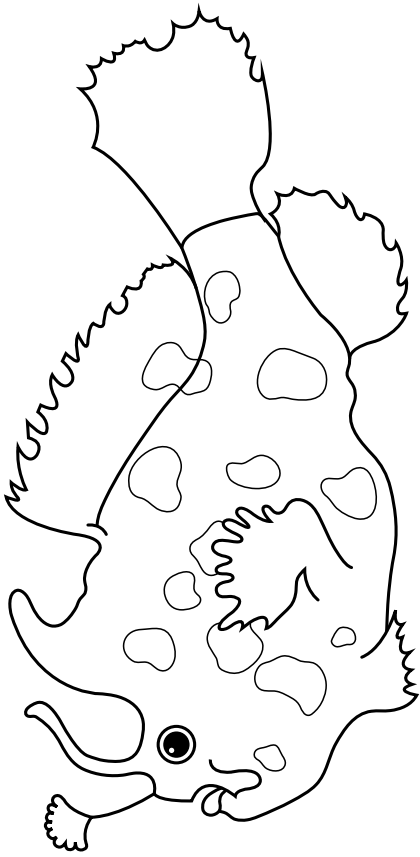


Name _____ Date _____

Directions: In each row, circle the two frogfish that are the exact same size.

	A	B	C	D
1				
2				
3				
4				
5				
6				
7				
8				



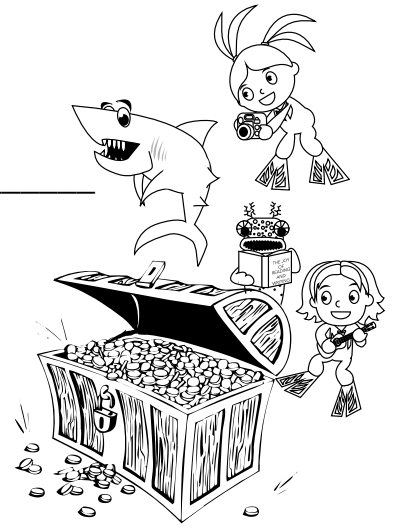


Frogfish Opposites

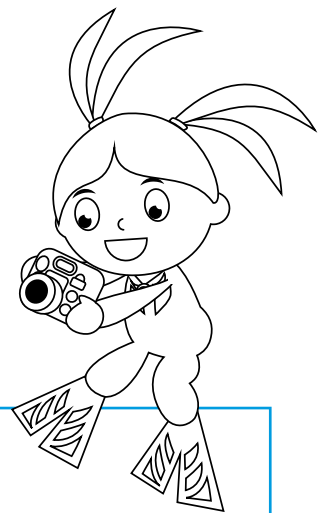
Name _____ Date _____

Directions: Use this word list to fill in the blanks on this worksheet.

short big thin light smooth
still slow weak narrow awake

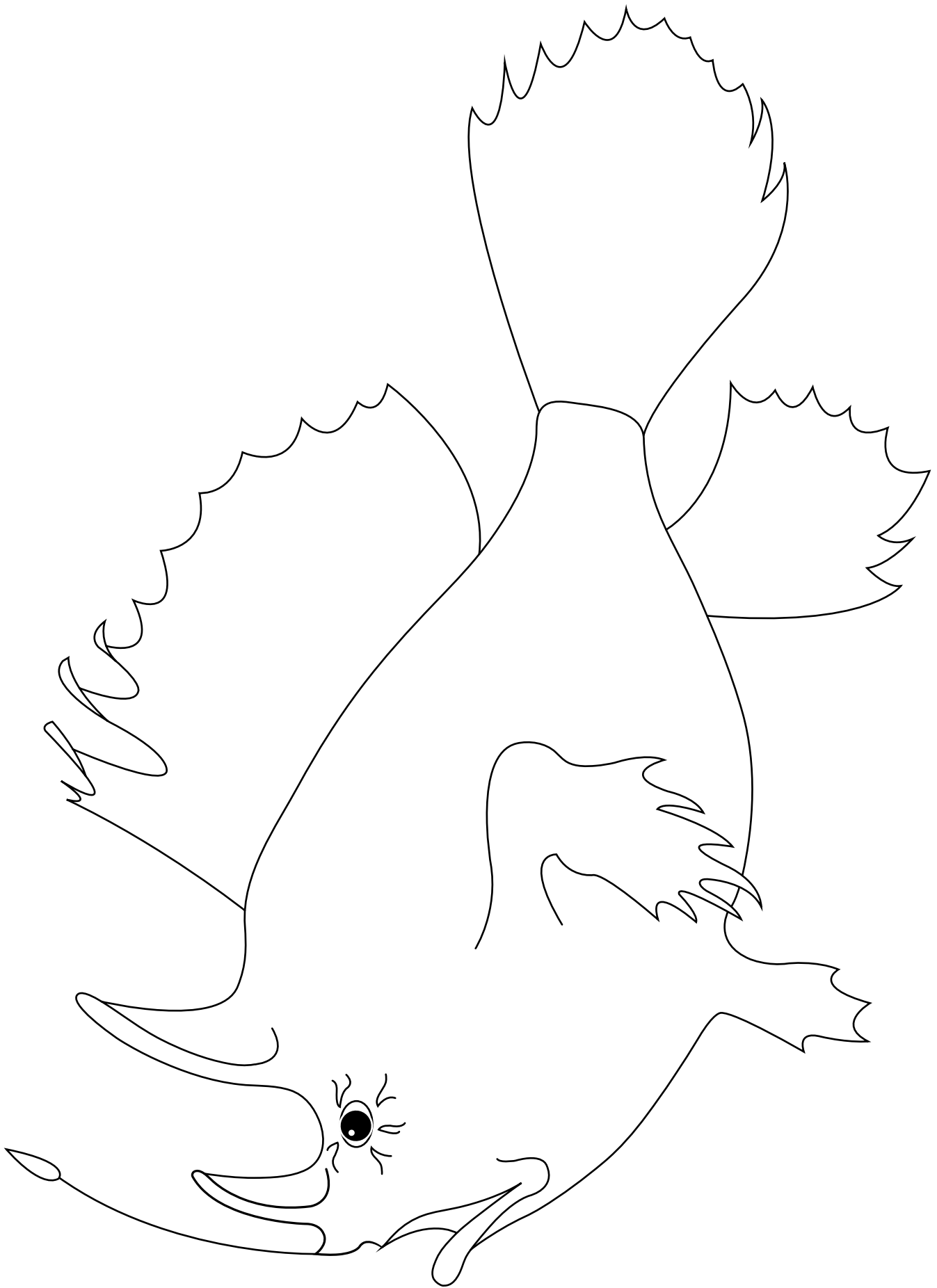


1. If some frogfish are **bumpy**, then some frogfish are ____ _.
2. Though one frogfish moves ____ _ , then another is **fast**.
3. When that frogfish is ____ _ , then that one is **asleep**.
4. This frogfish is **wide**, and another one is ____ _.
5. That frogfish is ____ _ and that one is **small**.
6. When that frogfish **wiggles**, this one lies ____ _.
7. Though that frogfish is **thick**, that one is ____ _.
8. This frogfish is **strong**, and another one is ____ _.
9. That frogfish is **long**, but this one is ____ _.
10. Though that frogfish is ____ _ , another is **dark**.

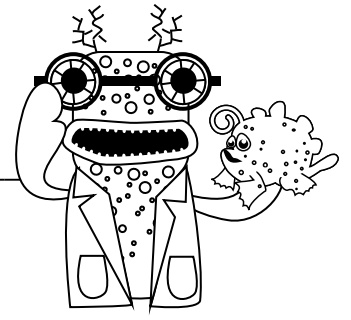


OCEAN ANNIE'S SUPER SCUBA CHALLENGE

On a separate piece of paper, choose your favorite sentence from above and illustrate it. Draw a detailed picture to show how the frogfish would look from the sentence!



Frogometry

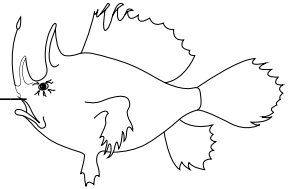


Name _____ Date _____

Directions: Frogfish are diverse ocean creatures! Use your observation skills and measuring tools to help describe these amazing fish.

1. What kinds of words can you use to describe this frogfish?

2. The **illicium** is the spine that the frogfish uses to fish for food. The esca at the end of it looks like bait. Some frogfish have one, while others have two. **How many does your wall chart frogfish have?** _____



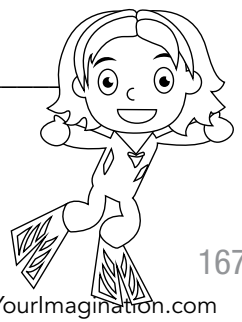
3. Look at the **illicium** on your frogfish. Are they the same or different from each other? **If they are different, describe how?**

4. With the string you were given, measure the **illicium**. **Was your starting observation right?**

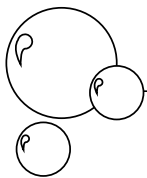
5. The **pectoral fin** comes out from the middle part of the body. It is measured from the point where it attaches to the body to the very tip of the fin. **Can you take a ruler and measure how many inches the pectoral fin is on your model frogfish?**

6. The **pelvic fin** is located directly below the pectoral fin. **Does it appear to be the same length?**

7. Take your string and compare the pelvic and the pectoral fin. **Was your guess right? Was one bigger than the other?**

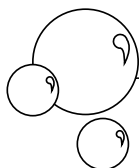


8. In your opinion what are reasons why one fin would be longer than the other? Describe your thinking.



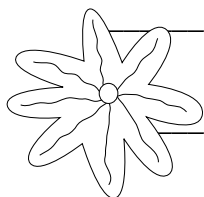
9. Take a ruler and measure the length of your fish from the front edge of the mouth to the tip of his tail. _____

10. The dorsal fin runs along the fish's back. Bony spines support the dorsal fin and hold it up. Use your ruler to measure from the base of the fishes back to the very edge of the dorsal fin at a variety of spots. Is the dorsal fin equally long in all places? Can you describe it?



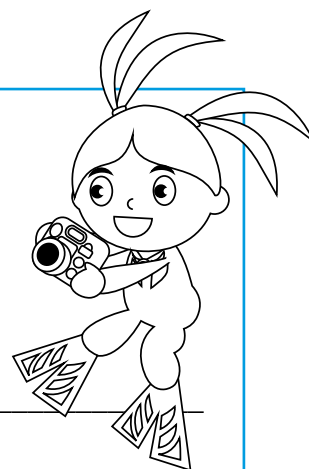
11. Using your string vertically meaning up and down, can you find the thickest part of the fish? _____

12. Using your ruler vertically meaning up and down, can you find the thinnest part of the fish? How narrow is it?



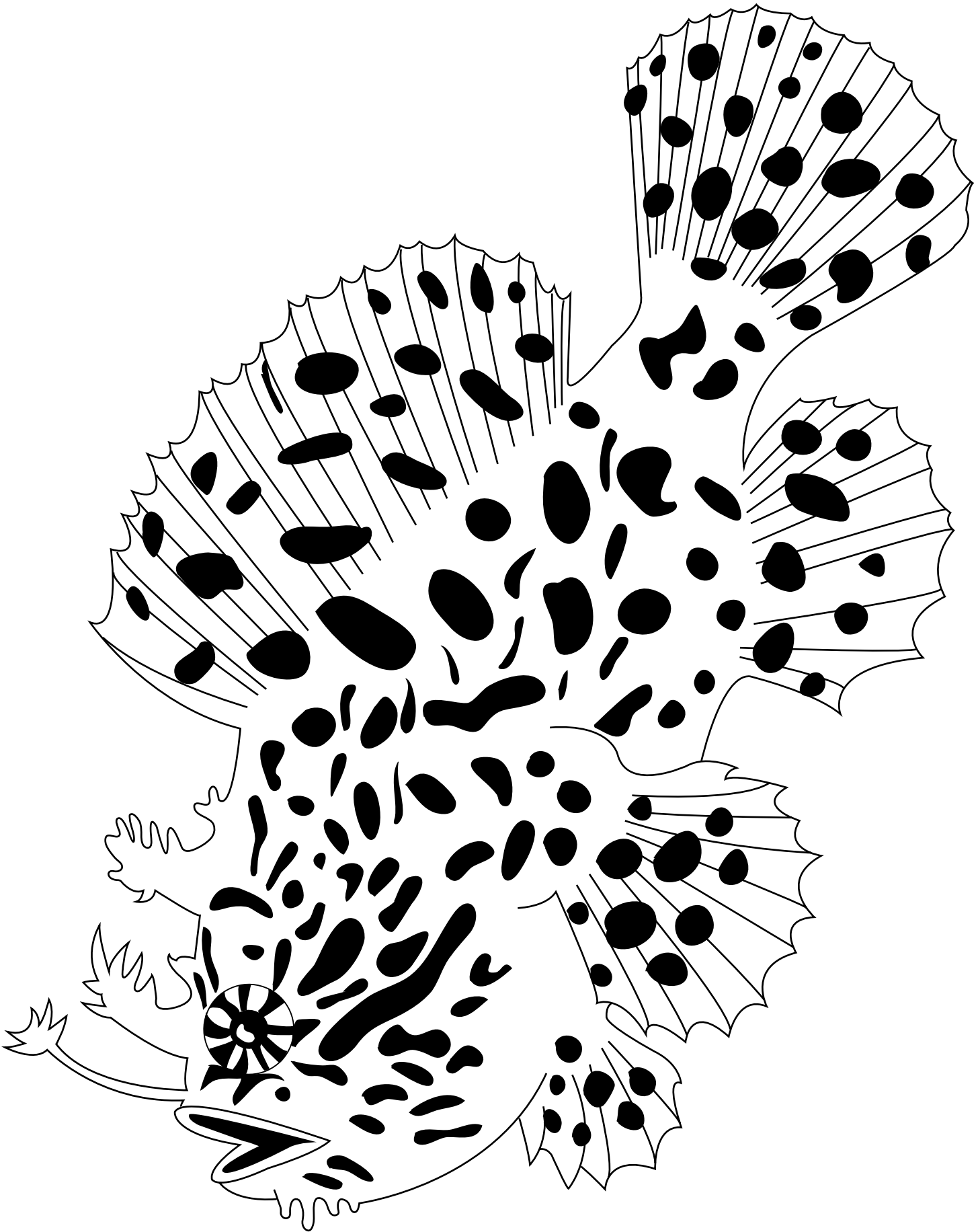
OCEAN ANNIE'S SUPER SCUBA CHALLENGE

Using objects of equal size such as paper clips, pennies, etc., see how many of each you can fit inside the space of your frogfish shape if you lay them side by side. Which objects could you fit the most of? What about the least?



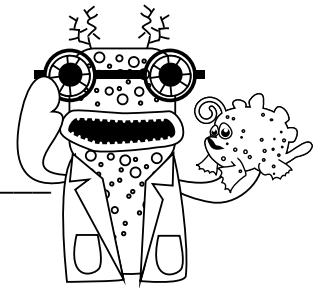


WHAT MAKES A FISH, A FISH? D6 - MYSTERY FROGFISH DICHO TOMOUS KEY 1



WHAT MAKES A FISH, A FISH? D6 - MYSTERY FROGFISH DICHOTOMOUS KEY 2

Mystery Frogfish Dichotomous Key

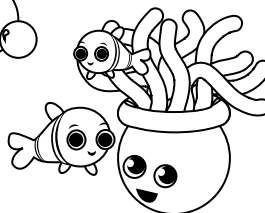
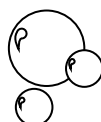
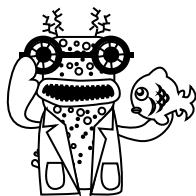
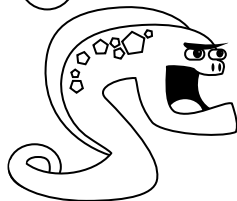
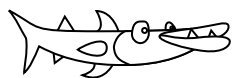
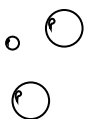
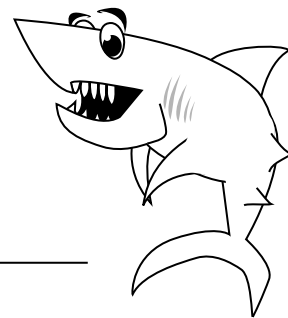
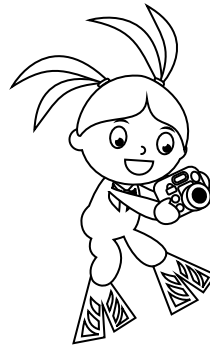
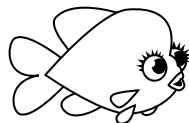
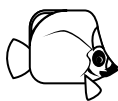


Name _____ Date _____

Directions: Follow the steps after each observation of your frogfish.

1. a. If specimen has long, thin illiciumgo to 2
b. If specimen has short, wide illicium with finger-like projectionsgo to 3
2. a. If the specimen has 18 rays in its dorsal fingo to 6
b. If the specimen has 23 rays in its dorsal fingo to 4
3. a. If the specimen has 12 rays in its dorsal fingo to 5
b. If the specimen has 15 rays in its dorsal fingo to 6
4. a. If the specimen has a spotted pattern on its skingo to 5
b. If the specimen has a banded pattern on its skingo to 6
5. a. If specimen has stripes around the eyego to 6
b. If specimen has no stripes around the eyego to 8
6. a. If specimen has fleshy bumps on the skingo to 7
b. If specimen has smooth skingo to 8
7. a. If specimen has appendages at the end of its escago to 8
b. If specimen has finger-like appendages in front of its escago to 9
8. a. If specimen has a wedge-shaped escago to 9
b. If specimen's esca has 5 tear-shaped projectionsgo to 10
9. a. If some of the specimen's caudal fin rays have splits in them *Histrio*
b. If the specimen's caudal fin rays have no splits in themgo to 10
10. a. If the specimen's mouth comes to a perfect point at the corner *Striatus*
b. If the specimen has no fold of skin at the corner of the mouth *not yet identified*

Today I learned...



Bath Time for Fishes



E

Bath Time for Fishes

CONCEPT / TOPICS TO TEACH



Animals stay healthy in the ocean through cleaning stations, which are cooperative relationships between animals also known as symbiotic relationships. Just as humans brush their teeth and perform other cleaning rituals to stay healthy, animals in the ocean perform similar cleaning rituals to promote health, remove parasites, and even repair injuries.

Objectives:

- » Students will learn about ocean cleaning stations and use creative writing and art exercises to relate what they have learned about cleanliness in the ocean to their own hygiene rituals.
- » Students will utilize their knowledge of fractions by color coding animal body parts corresponding to a series of fractions.
- » Students will use the scientific method of inquiry to carry out an experiment to determine where germs are found in everyday environments.
- » Students will evaluate the importance of water and its every day uses utilizing Think, Pair, and Share knowledge about water consumption.
- » Students will build vocabulary through a crossword puzzle pertaining to cleaning stations on the reef.
- » Students will learn about bioremediation by using the scientific method of inquiry to perform an experiment analyzing and comparing how various natural fibers clean or contain an oil spill.

Character Education: CLEAN and HEALTHY

All animals in the world need to stay CLEAN in order to be HEALTHY including human beings. There are germs and bacteria all around. In order to stay HEALTHY, we need to stay CLEAN. Have your students think of “*cleaning stations*” they visit at home and at school. These “*cleaning stations*” might include bathrooms, sinks, showers and bathtubs. Include tasks such as brushing and flossing teeth; visiting the doctor or dentist; washing our clothes and toys. Discuss with students different ways we can stay CLEAN, such as how we need to wash our hands before we eat or how we brush and floss our teeth a few times a day. Discuss how we prevent getting sick by washing our hands throughout the day or covering our mouths when coughing. Have students brainstorm about their unique cleaning rituals including showers or baths; cleaning and cutting nails; brushing or combing hair; cleaning clothes or play areas. Our bodies are wonderful and we need to take care of them by staying CLEAN, HEALTHY and taking care of our environment too.

Ocean Annie and Scuba Divers CLEAN and HEALTHY!

Scuba Divers need to be HEALTHY and our equipment needs to be CLEAN. We cannot go scuba diving if we are sick or if we do not care for our equipment. When we go scuba diving underwater we explore coral reefs and dive with sharks, dolphins, manta rays and many other fantastic animals. Scuba divers like to find fish cleaning stations on the reef because at these stations you can get really close to the animals. When we find a cleaning station, we have to practice patience, breathing really slowly so we can observe the fish getting cleaned. If we breathe fast and loud, we might scare the animals

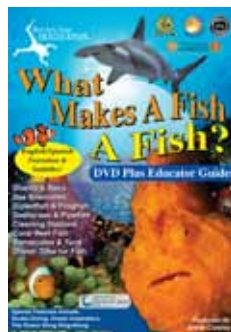
away. Fish like us, need to stay CLEAN and HEALTHY.

After we finish scuba diving, we have to CLEAN and rinse our equipment in order to maintain it. This includes our mask, snorkel, fins, wetsuit, regulator, BCD and tank. Underwater photographers need to maintain all of their camera equipment too. As scientists using instruments when scuba diving, these need to be CLEANED and maintained too. Discuss with students what equipment they use during the week that needs to be cleaned in order to maintain it for use. Use imagination techniques and have students become scuba divers when caring for and cleaning their environment.

Getting Started

Required Materials

- DVD "What Makes A Fish, A Fish?" by Dive Into Your Imagination
- Large Dry Erase Board/Easel and Markers



TREASURE CHEST

- Algae
- Bacteria
- Bioremediation
- Clean
- Cleaning Station
- Healthy
- Hygiene
- Naturalist
- Parasite
- Scientist
- Symbiosis

Anticipatory Set Lead-In

- ✧ Watch and become familiar with chapter five "Bath Time for Fishes" from the DVD "What Makes A Fish, A Fish?"
- ✧ Discuss with students things they do every day requiring help from another person such as tying shoes, taking a bath, or getting dressed.
- ✧ Explain to students in nature, when two organisms work as a team, it is called *symbiosis*. Animals in the ocean form partnerships requiring *symbiosis* and form *symbiotic relationships*.
- ✧ Ask students to imagine they are naturalists, meaning they are scientists who make observations and study animals in their natural surroundings. Have them work with their team to collect information while viewing the chapter "Bath Time for Fishes" about cleaning stations on the reef.

Here are some questions and answers you can use to build a brainstorming session:

KWL

LGL

AG

WP

Questions for Students	Answers for Educators
Why do fish visit cleaning stations?	<i>Fish visit cleaning stations in order to get cleaned. They need wounds cleaned out, dead skin or parasites removed, and these stations also promote the health of the fish.</i>
What kinds of fish visit cleaning stations?	<i>All kinds of fish including big sharks living in the open sea, to regular reef fish such as groupers, cod, clownfish and parrotfish.</i>
How do cleaning stations help fish stay healthy?	<i>Cleaner fish and shrimp pick off dead skin, parasites and other irritants, and clean wounds for the fish visiting cleaning stations. This is like a bath and hospital all in one.</i>
How do fish benefit by visiting cleaning stations?	<i>If they are sick, visiting a cleaning station helps wounds heal faster. When healthy, a cleaning station is a way to get rid of bad skin and irritants that over time can make a fish sick.</i>

Video Review

- ✧ After watching the clip about cleaning stations once or even a few times, discuss and write down additional facts, questions, and information students gained from the video for further research and discussion.
- ✧ Ask students to write a reflection in their journal about cleaning stations.
- ✧ Ask students what symbiotic relationships they have with people in their lives. How do they work as a team with friends and family? What is the importance of being clean and healthy and how do they do it?
- ✧ Ask students what else they want to know about cleaning stations and write down those questions for later research.

Imagination Values

Before the activities begin, use this as an imagination exercise with your students. You can use this as a movement activity and have them act out what you are saying, or have them be silent and use only their minds. By having them focus and gain a connection to the animals, they will attain critical elements of imagination play. You can read this script or use your imagination and create your own! Imagine you are a fish on a coral reef needing to visit a cleaning station. What kind of fish are you? You have to find a cleaning station to be clean and healthy. On the count of three, say the magic word: 1, 2, 3...IMAGINATION!

"What do you do to stay clean and healthy? You wash your hands, take a bath, brush your teeth, and wear clean clothes. You go to the doctor for a check-up and the dentist to clean your teeth. Fish need to stay clean too by visiting cleaning stations. On the count of three let's say the magic word and pretend we are fish. 1, 2, 3...IMAGINATION! What color fish are you? Where do you live? Do you have big eyes? What does your mouth look like? Where are your fins? Do you swim or crawl? If you were a fish, how would you brush your teeth? Would you let a shrimp crawl in or have other small fish scrub and clean your teeth. The cleaner fish and shrimp remove dry skin, germs, parasites and dead scales off other fishes' bodies. Imagine you have shrimp and cleaner fish crawling on your skin and in your mouth! Imagine what this might feel like. It feels really good! It kind of feels like a tickle, gently run your fingers up and down your arm.

If you were a scuba diver and scientist exploring the reef studying the cleaning stations, you would look for fish being still and staying in one place on the reef. Scuba divers also look for cleaner shrimp. Cleaner shrimp use their white antennae by waving them back and forth to attract other fish on the reef to be cleaned. Imagine your arms are antennae and wave them to attract other fish into your cleaning station! As we do our activities, let's continue to use our imagination as scuba divers exploring the reef!"

CLASSROOM ACTIVITY STATION E1 SEA BATH!



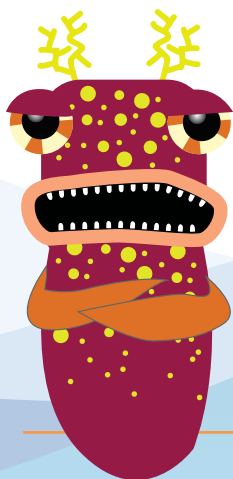
Overview

Students will design a picture of what their own bath time might be like if it happened in the ocean. Students will write words, sentences, or stories to accompany their images. Participating in this activity will help students develop *artistic skills, creativity, creative writing, literacy and vocabulary*.

Materials: Photo of each child, Scuba diver cut out, bath tub cut out, Crayons or Colored Pencils, Wildlife magazines for cutting clippings, “My Sea Bath” comic sheet (optional), Scissors, Glue sticks

Talking Points

- ✧ One important way animals survive in their environment is to help one another stay clean. Cleaning stations are examples of symbiotic relationships.
- ✧ Can you remember what symbiotic relationships mean from the chapter about sea anemones and clownfish?
- ✧ Cleaning stations are where fish go to get clean and to have wounds cared for, these behaviors are important for people too.
- ✧ What kinds of animals visit cleaning stations? Replay the video as needed to help recall.
- ✧ If your students took a bath in the ocean, what animals would clean them? Have students imagine what a bath would be like in the ocean.



You might not like taking a bath, but it is good for you! I have to take a bath because Ocean Annie and Makaio think I stink. HA! It is good to get the parasites off of me.

Lesson Procedure

1. Provide each student with a bathtub and/or a copy of “My Sea Bath” comic sheet.
2. Set up a workstation with the items from the materials list above.
3. Have students cut out a photo of themselves to place into the tub on an animal body or on the scuba diver.
4. Provide students with magazines or internet access so they can collect pictures of sea animals they would like to add to their cleaning station collage.
5. Encourage students to draw or trace animals as they build their cleaning station bath time.
6. Alternatively, students can use “My Sea Bath” worksheet to guide them through creating a story in small steps about what a bath in the ocean might be like.
7. Assist students as needed with writing in words, sentences, or narratives about the importance of staying clean and healthy.
8. Compile the pages into a class book or have students add completed work to their “What Makes a Fish” journal.

CLASSROOM ACTIVITY STATION E1 (Continued)

SEA BATH!

Extension Ideas

- » Brainstorm a list of words associated with being clean and write them on the board. Challenge students to come up with antonyms for those words.
- » Discuss how important it is to wash our hands to prevent the spread of germs. Students can make posters for the school advertising the importance of staying CLEAN and HEALTHY.
- » Talk about protocol your class or school has for dealing with illness and prevention measures. For example, many schools perform lice checks to prevent epidemics or widespread exposure and subsequent infestation. Tell students that germs and pests are a natural and a normal part of the environment, and at some point we all come into contact with them.

Notes

I can stay in a cleaning station all day long. Cleaning stations are like spas in the sea!



CLASSROOM ACTIVITY STATION E2

CLEANING UP THE FRACTIONS



Overview

Students will identify animals in the cleaning station and color in the correct fractional percentage of their bodies as specified. Participation in this activity will provide students with an opportunity to become familiar with the basic idea of *fractions*, enhance *reading comprehension*, and review basic *animal biology* learned from the DVD.

Materials: "Cleaning up the Fractions"

Talking Points

- ❖ Our planet, Earth has one big ocean with many features. Different parts of the ocean have different names associated with basins, South Pacific, Atlantic, Arctic, Indian, etc. All the different parts are connected to each other because water in the ocean moves from place to place. The ocean covers about 70% of the surface of our planet. Challenge students to think of this model mathematically, fractionally what does 70% ocean represent?
- ❖ Ocean water has unique properties and is salty, making it more dense than freshwater and allows for different animals and ecosystems to flourish.
- ❖ As students uncover the meaning of the problems and work through solutions, have them also analyze givens, constraints, relationships and goals. Can they create a pathway to the solution rather than just achieve the goal. can they draw a pie chart or make a bar graph to illustrate the same points.
- ❖ Imagine you have a class of ocean loving mathematicians. What can they discover, model or strategize about?

Lesson Procedure

1. Provide each student with a copy of the "Cleaning up the Fractions."
2. Students will work individually or in small buddy teams to complete the color page and associated fraction questions.
3. Add completed work to the "What Makes a Fish" journals.

I can get all my wounds and injuries healed here. I stay as long as I need to get well again.



CLASSROOM ACTIVITY STATION E2 (Continued)

CLEANING UP THE FRACTIONS

Extension Ideas

- » Ask students to design their own fraction fish. Students can draw their favorite fish, color in a fraction of the fish of their choosing, and then write what the fraction is numerically.
- » Use a ruler to teach students about fractions in the context of measurement. Find objects around the classroom for students to practice measuring.

Notes

A leaky faucet can leak hundreds of gallons a year with only one drip a minute! Get all your leaky faucets fixed to save water. Check out the water calculator here! <http://ga.water.usgs.gov/edu/sc4.html>



CLASSROOM ACTIVITY STATION E3 MARVELOUS MICROBES



Overview

Students discover where germs and bacteria are found in the environment by making predictions about every day places and even parts of their own bodies where microbes, bacteria, and germs can be found. Participation in this activity will help students become familiar with the *scientific method of inquiry*, understand the *relationship between cleanliness and health*, provide students with an opportunity to exercise *observation skills, logic, deductive reasoning, share ideas, review vocabulary*, and practice *literacy skills*.

Materials: Nutrient plates (these are simple inexpensive petri dishes prepared with agar that can be purchased through scientific supply companies pre-made and ready to use), Cotton swabs, Autoclave (optional) or warm space near a radiator or space heater, Paper, Pencils

Talking Points

- ✧ Where in the environment do you think germs and bacteria can be found?
- ✧ A: Germs and bacteria are found everywhere in the environment including but not limited to on and in the human body, countertops, student desks, etc. and while some are harmful, many are beneficial and help to fight off “bad” or more harmful germs.
- ✧ Examine your own hands. Can you see any germs or bacteria? Have students hypothesize whether there are germs and bacteria on their hands even if they can’t see any. (No, they are usually microscopic!)
- ✧ Explain to students that they will have a chance to test their hypothesis and see whether there is bacterium on their hands.

Lesson Procedure

1. Organize class into groups or buddy teams, and instruct teams to choose one member of the group as a “test subject” and the other as the writer.
2. Members of the group will use a cotton swab to run across the test subject’s hands, and then touch the swabbed area to the agar in the petri dish. Alternatively, students can put their handprint directly in the agar in the hope that they will create a hand-shaped print of bacterial growth.
3. Make a grid on a board to collect predictions and results from each group. Have each team record the hypothesis and procedure in a journal.
4. Replace the covers on the dishes and place them in a warm place to incubate. Within 24-48 hours areas that have changed color in the petri dish indicate bacterial growth.
5. Depending on skill level of the group, you can ask students to test other surfaces around the school to compare findings (sinks, desk tops, the floors, etc.) and chart out the results.
6. Have a comparison group with a student who has washed their hands with anti-bacterial soap and see if any bacteria or germs will culture.

CLASSROOM ACTIVITY STATION E3 (Continued)

MARVELOUS MICROBES

Tips for Educators

- ❖ Seal petri dishes in plastic wrap or ziplock bags during incubation to prevent them from drying out.
- ❖ Cover the dishes with cloth or a brown paper bag to keep out light while they incubate.
- ❖ If you are not using an autoclave to heat the dishes, try to place them in a spot that is close to human body temperature (98.6°F) to incubate.
- ❖ If you see changes in texture, such as fuzzy spots, it is probably mold and not indicative of bacteria. Look for darkening color change as the indicator of bacteria.

Observations are a great way to study animals. Look at the shape of our mouths, teeth, bodies and fins to see what you can learn!



Extension Ideas

- » As a class, discuss ways people can prevent the spread of harmful germs and bacteria.
- » List products people use at home or school to kill germs and bacteria, and research alternatives to chemical cleansers. There are many cleaners that are now environmentally friendly. We want students to recognize, everything we do on land affects our ocean and our environment, including the products we choose to use for cleaning, therefore we want them to know about and choose environmentally friendly cleaners.
- » Ask students to write a reflection about what they learned from the activity, skills they used, and the importance of what they learned. Re-introduce the character education points about why it is important for all of us to be clean and healthy.

Notes

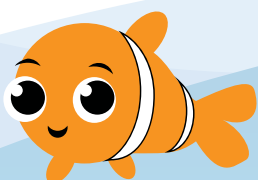
CLASSROOM ACTIVITY STATION E4**GETTING CLEAN: THINK, PAIR & SHARE!****Overview**

Students will reflect on what they have learned about cleaning stations in the ocean and relate it to the importance of cleaning and hygiene rituals in their own lives and those of their classmates. Participation in this activity will help students understand the *relationship between cleanliness and health*, provide students with an opportunity to *share ideas*, review *vocabulary*, and practice *literacy skills*.

Materials: Writing paper, Pencils

Talking Points

- ✧ List everything you use water for every day.
- ✧ Where does the water you use comes from?
- ✧ No matter where the water in the tap came from (well, lake, watershed, etc.) it is part of a cycle that begins in the ocean. Most rain that falls on land comes from the ocean.
- ✧ Water travels between the ocean, sky, and land. Most rivers flow into the ocean.
- ✧ Our ocean holds 97% of the water on our planet, and without a healthy ocean, life as we know it could not exist.
- ✧ Tides move water higher and lower covering and uncovering the shoreline. Tides change about every 6 hours from high to low and low to high. The gravitational pull between the earth, moon and sun affects the tides.
- ✧ Wind moves huge amounts of surface water from one place to another on the ocean. Moving ocean water transports living things and non-living things (pollution) around the world.

**Lesson Procedure**

1. Organize class into buddy teams, and instruct teams to come up with ways they use water to keep themselves, their homes, and even their pets clean. Write their ideas in their journals.
2. Once buddy teams have brainstormed ideas, ask them to share their lists with the group.
3. Buddy teams should circle cleaning tasks they have in common with others. What items on the lists are the same? What were the most common tasks? What cleaning activities were unique? You can use your school as an example and discuss the importance of maintenance staff to the cleanliness of the school.
4. Ask students what they think the school might be like without the help of a great maintenance team. Consider writing a class thank you note to your school maintenance team telling them all the things the class appreciates about the services they provide to make the school a healthy and safe place to be. What are students expected to do in school to help keep it healthy and clean? Can they create other ways to help?

CLASSROOM ACTIVITY STATION E4 (Continued)

GETTING CLEAN: THINK, PAIR & SHARE!

Extension Ideas

- » As a class, see how many categories you can group all of the different cleaning tasks into such as personal hygiene, house cleaning, pet grooming, etc. Have students write a "How To" paragraph describing a chore from the list. Encourage the use of sequence words such as first, then, last, etc.
- » Challenge students to write about a chore on their list they do now or would like to do at home or in your classroom. Encourage them to follow-through after writing about their idea and do the chore.
- » Ask each student to pick their favorite chore on their list, and illustrate what it might look like if they were doing the chore in the ocean! What animals might help them? You can put all of the student pages into a class book and use it as a way to review ideas about cleanliness, hygiene, and cleaning stations.

Notes



Fish come in every color of the rainbow!

CLASSROOM ACTIVITY STATION E5

PICK IT CLEAN CROSSWORD



Overview

Students will review key vocabulary from the lesson on cleaning stations and build reading skills as they work the “Pick it Clean Crossword Puzzle.” Participation in this activity will provide an opportunity for students to review new vocabulary, use *deductive reasoning*, build *logic*, and enhance *literacy skills*.

Materials: “Pick it Clean Crossword Puzzle”

Talking Points

- ✧ Ask students what kinds of things they do to take care of themselves when they get hurt or sick. Affirm their answers, which may include: taking medicine, using bandages to care for wounds, or visiting the doctor. Let them know positive thoughts matter in their healing too. Have them visualize themselves healthy.
- ✧ Discuss in the ocean environment there are no doctors or hospitals, so fish rely on one another for medical care and health. This is a specialized or symbiotic relationship called a cleaning station. Review the film clip as needed to help students review facts about cleaning stations in the ocean.

Lesson Procedure

1. Provide students with the “Pick it Clean Crossword Puzzle.”
2. Have students work as a class, individually, or in buddy teams to use the clues and find the solutions to fill in the blanks with the correct vocabulary words.
3. Add completed crosswords to their “What Makes a Fish” journals.

Many sea animals have eyes especially adapted to their particular environment.



CLASSROOM ACTIVITY STATION E5 (Continued)
PICK IT CLEAN CROSSWORD

Extension Ideas

- » Ask students to choose 5-7 of their favorite words from the puzzle and work them into their own crossword puzzle.
- » Have students do a research project on comparing a cleaning station in the Ocean to one on land for either people or another land animal.

Notes

*Cleaning stations
are the way fish stay
healthy in the Ocean.*



CLASSROOM ACTIVITY STATION E6 BIOREMEDIATION



Overview

Students will experiment with an important kind of cleaning activity performed in nature by living things called bioremediation. Small organisms like bacteria can be grown in lab conditions and introduced into certain kinds of pollution in order to consume it. Students will make predictions about, and experiment with how well certain living material can clean up a simulated oil spill in water. Participation in this activity will help acquaint students with the *scientific method of inquiry*, applying *logic* and *deductive reasoning*, increase *vocabulary* and *literacy skills*, and introduce students to the important scientific concept of bioremediation.

Materials: Several bowls filled half way with water for 3-4 students to share, Vegetable oil, Cotton balls (a few for each bowl), Wood shavings, Moss (or leaves collected from trees or shrubs), Paper towels, Fishnets (available at a pet store), Stop watch or watch with a second hand, "Bioremediation"

Talking Points

- ✧ Cleaning stations are how animals look after their personal health.
- ✧ Living things also look after their homes, similar to how you might wash the windows or floors to keep your own home clean.
- ✧ Living things that help clean the environment are part of a process called bioremediation.
- ✧ Many kinds of living things are bioremediators including: microorganisms, green plants, fungi, and enzymes.
- ✧ Bioremediation is important to keep the planet healthy because it helps keep pollution in check.
- ✧ In May of 2010 there was a devastating oil spill in the Gulf of Mexico (show location on a map). Though there are many ways people worked to clean the catastrophic mess, bioremediation is one of the ways workers used.
- ✧ Today we will have a chance to be scientists and test how bioremediation works!

Lesson Procedure

1. Set up stations around the room with all items from the materials list. Each station will require the complete list of materials.
2. Pour enough oil into each bowl so there is a visible film covering the surface layer.
3. Provide each student with a copy of "Bioremediation".
4. Break class into buddy teams of 3-4 and assign them to a station.
5. Explain each of the items beside the bowl originated from plants and are biological.
6. Tell students they will be testing how effective each of the three items are at cleaning the oil from the bowl of water.
7. Ask students to work carefully through the questions on their sheet, following the procedure in order.
8. Teacher will provide additional oil for the students as needed.

CLASSROOM ACTIVITY STATION E6 (Continued)

BIOREMEDIATION

Extension Ideas

- » During an outdoor class break, ask students to collect other materials such as pinecones, leaves, or grass they can use to test bioremediation oil removal techniques. Record and compare the results.
- » Try a simple experiment! Make a loop from string and float it on the surface of the water. Pour a little oil inside the circle. Does the string contain the oil and help prevent its spread? This simulates another method used in oil spills to contain and prevent spreading. Have a variety of strings with different thicknesses and types of fibers students can use.
- » Challenge students to see if they can come up with other ideas about how to clean up an oil spill. Ask students to illustrate and write about their ideas.

Notes

Scuba divers continue their education with extra classes. It is fun to learn new things!



CLASSROOM ACTIVITY STATION E7 BOOKSTALL



Overview

Students will have an opportunity to build independent reading skills and strategies. Providing a reading or computer area where students can look through books and other supplemental materials will help to build literacy. Even if children are not reading yet, looking at images to build dialogue around pictures is helpful to *developing vocabulary and language skills*.

Materials: the book "If You Give a Moose a Muffin" by Laura Joffe Numeroff.

Lesson Procedure: Character Education, CLEAN and HEALTHY

1. As a class, read the book "If You Give a Moose a Muffin" by Laura Joffe Numeroff. Discuss with the class what a circle story is, pointing out how the story began with what might happen if you gave a moose a muffin, and although many things happened during the story, it ends with the muffin. Instruct your students to work individually or in buddy teams to write their own circle story titled "If you Give a Fish a Bath".
2. Alternatively, you could construct the story as a class, asking each student to add a step to the story, and then have students provide illustrations for the part he/she provided.



Scuba divers carry underwater slates so they can write messages to one another.

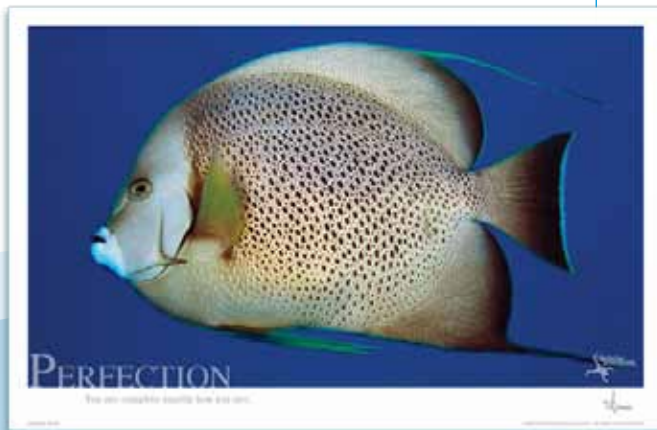
Poster: PERFECTION

"You are complete exactly how you are."

Fine Art Prints, posters, greeting cards and other products are available to decorate your classroom or school while inspiring your students with real ocean animals and environmental scenes. Contact us to learn more.

One way to classify angelfish is by the hook near their gills. Have students find images of these animals and find the hook. How else do we classify fish?

Grey Angelfish, Belize



Book Suggestions

- » Coupe, Robert. *Coral Reefs: Top Readers*. Stage 3, Reading by Myself. Sydney, New South Wales: Weldon Owen, 2008. Print. Grades 1 - 3.
- » Graziado, Stephanie. *Sea Splash. Groovy tube book*. Illus. Russell Benfanti. Norwalk,
- » Connecticut: *Innovative KIDS*, 2000. Print. Grades 1 - 2.
- » Johnson, Jinny. *Children's Guide to Sea Creatures*. New York: Simon and Schuster, 1998. Grades 1 - 3. Print.
- » Numeroff, Laura Joffe. *If You Give a Moose a Muffin*. Illus. Felicia Bond. New York, New York: Scholastic, 1992. Print. Grades K-3.
- » Nyquist, Kate Boehm. *Maggie's Coral Reef Adventure*. Illus. Kathleen Garry-McCord. Monterey, California: Monterey Bay Aquarium, 2000. Print. Grades 1 - 2.
- » Parker, Steve. *Fish. DK Eyewitness Books*. Illus. Dave King, et al. New York: DK Children, 2005. Print. Grades 3 - 5.
- » Priddy, Roger. *Big and Busy Ocean*. New York: Priddy Books, 2009. Print. Grades Pre-K - 1.
- » Rabe, Tish. *Clam I Am*. Illus. Aristedes Ruiz. New York: Random House, Inc., 2005. Print Ages 4-8.

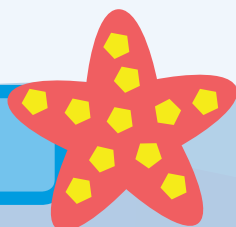
Closure and Follow Up

- ❖ Once students have had a chance to experience the learning stations, spend time reviewing new facts learned from participating in the activities and correct any earlier statements with new, correct information.
- ❖ Spend time reviewing how fish depend on one another to stay healthy.
- ❖ Ask students if they can think of reasons people need the ocean to be healthy?
- ❖ Ask students why they need to be clean and healthy?
- ❖ To reinforce learning, you can review the vocabulary from the "Sea Bath" activity or "Pick it Clean" crossword and talk as a class about getting clean in the sea together.

Plan for Independent Practice

- » Students can use what they learned to extend the activity and simulate a cleaning station through creative movement and interpretive dance either outside or inside. Use recorded ocean sounds to help create atmosphere.
- » Review the words CLEAN and HEALTHY with students and discuss how it relates to their character and their lives. Encourage them to use their imagination and think of all the ways they can be cleaner and healthier both with their bodies and their environment, like making sure they always clean their room or help you clean the classroom or other areas in the school.
- » Ask students to journal about things they do in their daily lives to support cleanliness and good health.
- » Read the DVD script to them and have the students create a drawing about what they hear.

*The ocean creates oxygen,
food, water and energy.*



DVD TRANSCRIPT

Cleaning Stations On The Reef

Splash and Splish. Splish and splash. It is time to take a bath! Scrub a dub, dub, lets have fun in the tub while we make ourselves squeaky clean.

We clean our teeth with toothpaste and a brush...but what would you do if you lived in the sea???

Would you open your mouth and let a shrimp crawl in???

That is what the fish do! Animals in the ocean stay healthy when they are clean, just like you! But instead of jumping into a bathtub or brushing their teeth, they visit a cleaning station on the reef. Some small fish and shrimp are known as "cleaners on the reef."

Other fish swim up to a cleaning station and have to remain absolutely still. Then the "cleaner fish" come and do their work. They pick at parasites and dead skin...cleaning as they go!

Other fish have to wait their turn. They line up like kids at school waiting to go to recess.

There are many, many cleaners on the reef!

Here, butterflyfish are cleaning parasites off the creole wrasse.

This fish is not hurting the turtle. The damsel fish cleans the turtle as it swims along by eating the algae that grows on it's shell!

Even sharks need to get cleaned!!!

Look at these sharks...Can you see something attached to the shark's skin? These are remoras. Remoras are sucker fish. They stick themselves to the sharks and get a free meal as the sharks swim around.

Sometimes when fish are wounded or sick, they go to a cleaning station and stay for periods of up to 23 hours a day! Cleaning stations are like hospitals for fish!

Could you imagine taking a bath all day long?

In order to stay healthy we need to stay clean. In order for fishes to stay healthy they need to stay clean too!



Go Blue! Ocean Annie's Tips to Help Our Environment

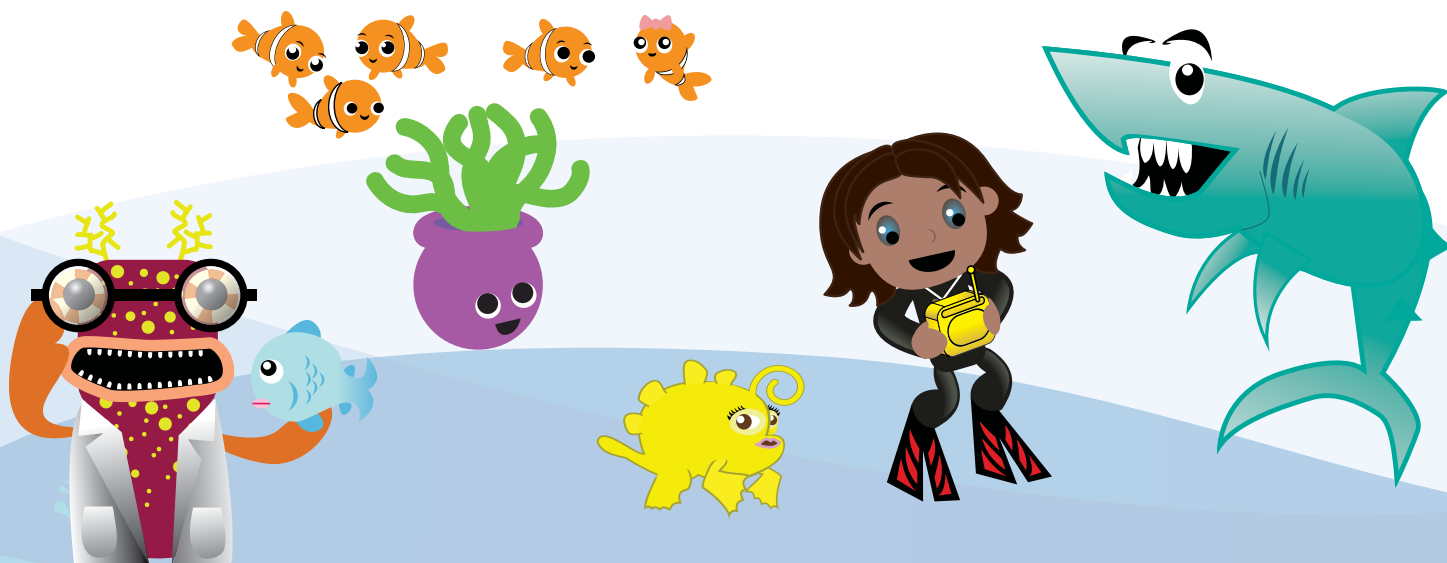
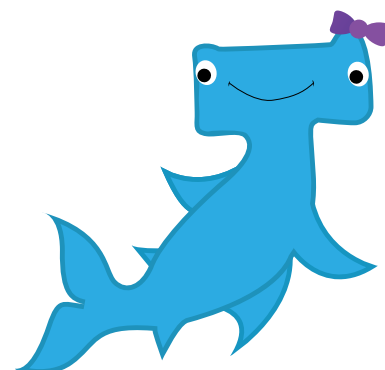
Do you think about the container or cup you use before you drink? Are you using single use paper, plastic, or styrofoam when you could be using a reuseable cup or drink container? We need you to be the leader to stop single use waste. Decades ago these materials were created for convenience, yet now we need to think more environmentally friendly and act in ways we reduce the amount of waste we create. We often talk about the three "R's": reduce, reuse, and recycle. Introduce a fourth "R" and recreate the mantra as refuse, reduce, reuse and recycle.

Did you know that at this very moment there are five massive garbage patches made mostly of plastic debris and pollution drifting in the ocean? The largest known as the Great Pacific Garbage Patch covers a mass of our ocean greater than twice the size of Texas floating in the Pacific Ocean between California and Japan. More than 80% of pollution in the ocean comes from run off from rivers and land.

Annie Crawley spent a month documenting the SEAPLEX cruise with graduate students from Scripps Institute of Oceanography for Project Kaisei. Arrange a "movie night" to find out what the team learned and watch the playlist on Annie Crawley's youtube channel. Annie Crawley gives dynamic presentation on this and other ocean related topics. Contact her to find out how you can bring her to your school for an assembly!

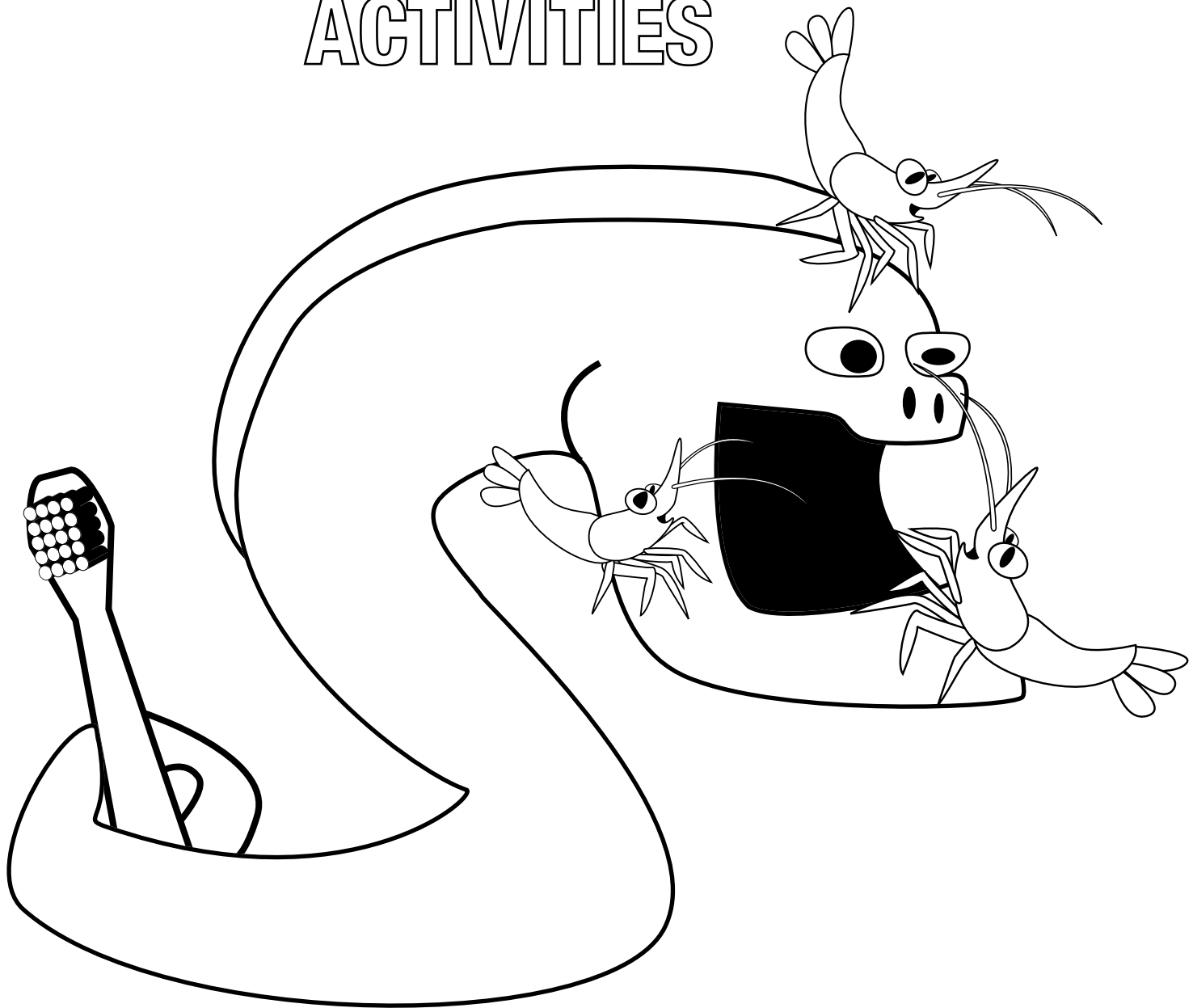
<http://www.youtube.com/anniecrawley#p/c/93615C0CBE9D7ACA>

Meet Ocean Annie's challenge and make your school and homes a no single use zone. What are ways you can reduce the amount of waste you create? As good citizens of the world, we want to live at one with nature and always support the health of our Ocean. By doing this, we GO BLUE and LIVE BLUE!

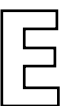


Bath Time For Fishes

ACTIVITIES



Name _____ Date _____





Chest of Words

Treasure

algae

bacteria

clean

cleaning station

healthy

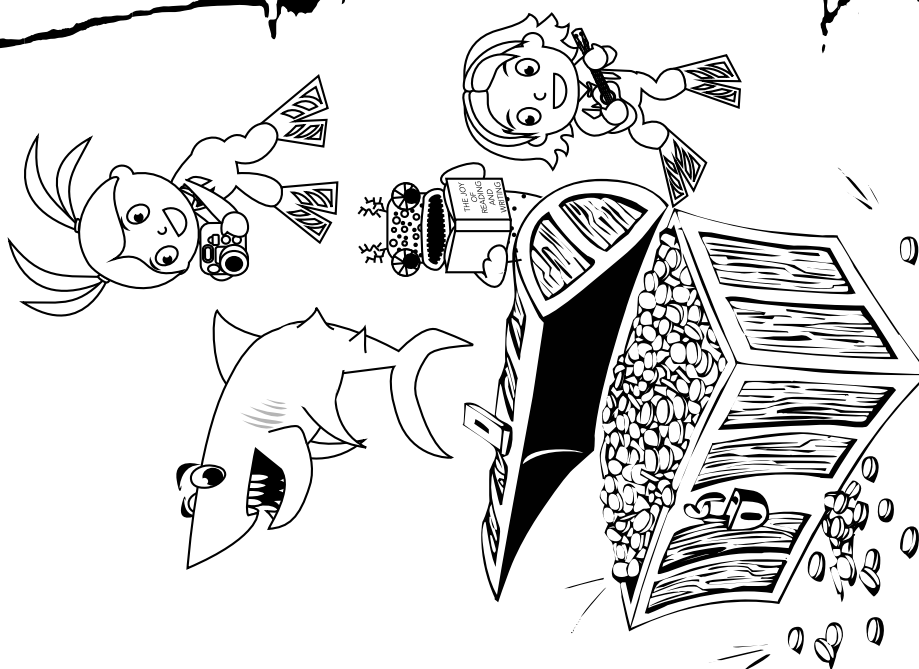
hygiene

naturalist

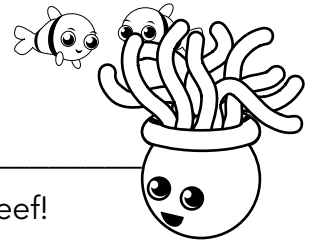
parasite

scientist

symbiosis



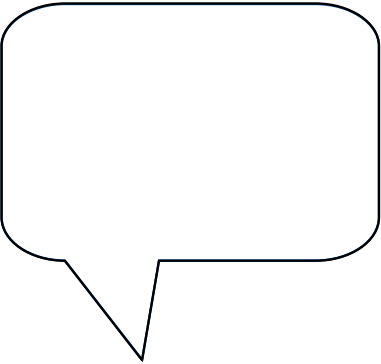
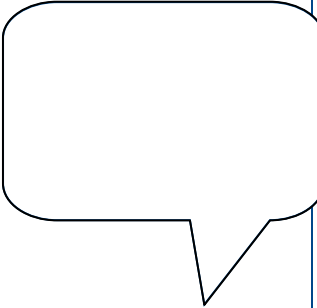
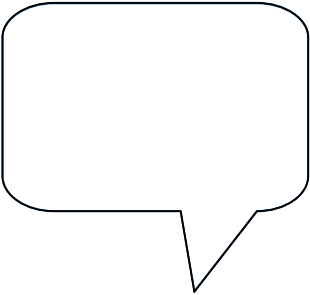
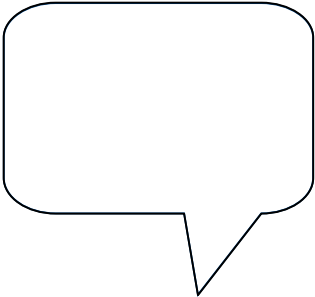


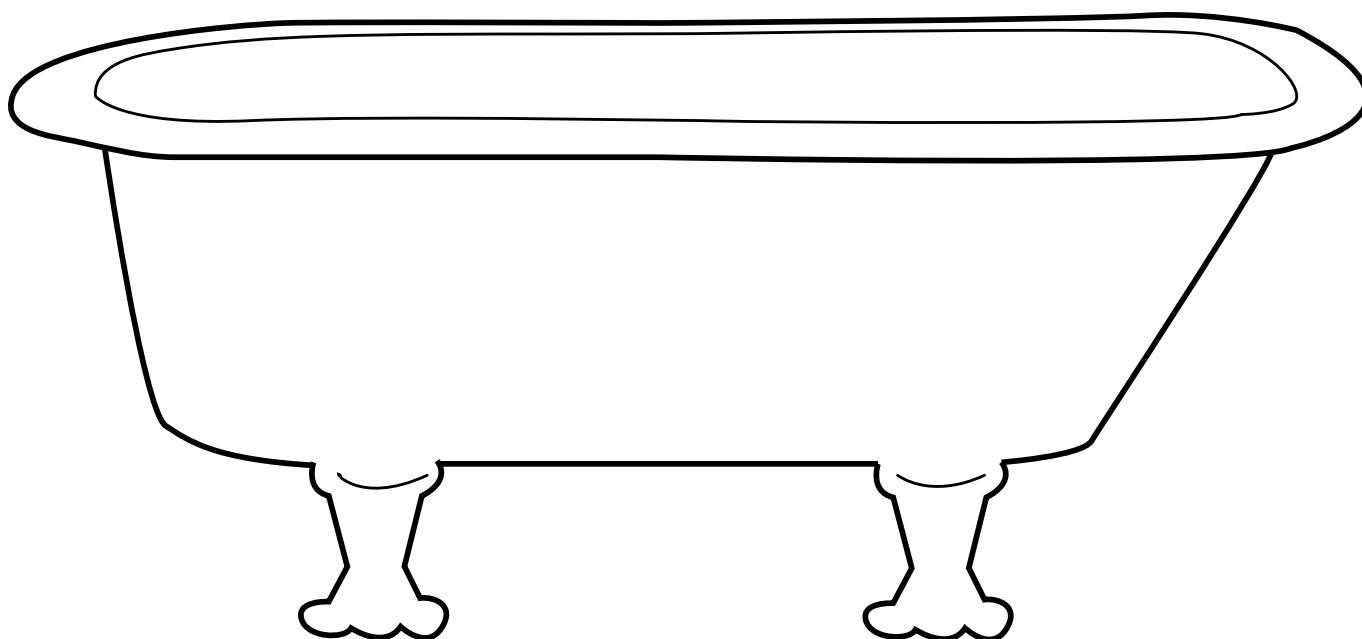
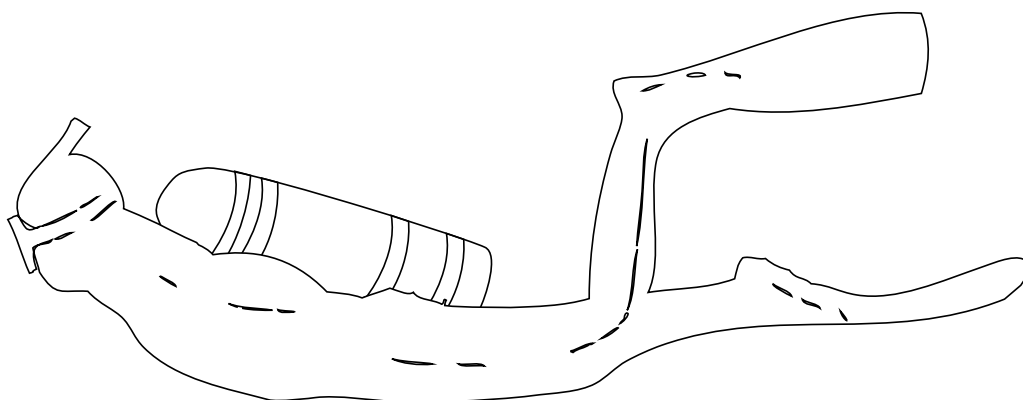
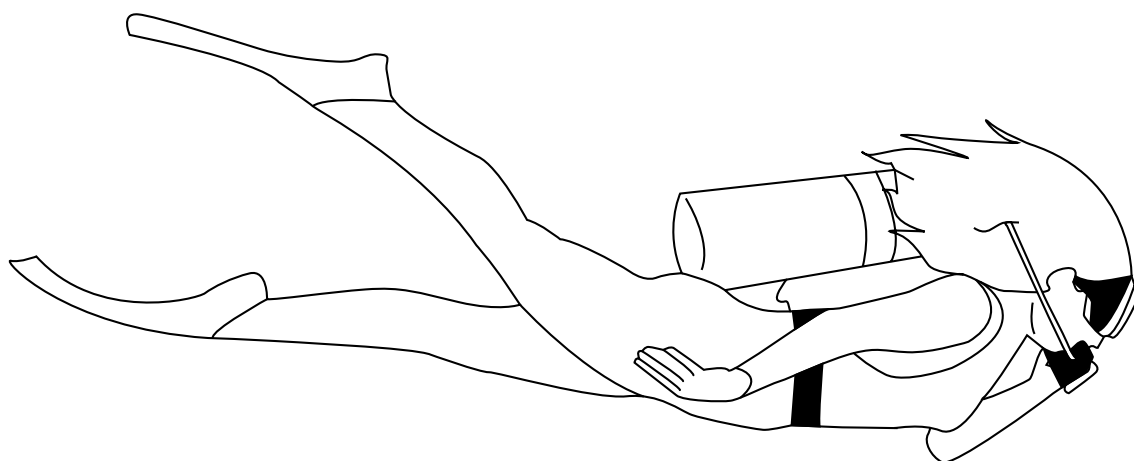
My Sea Bath

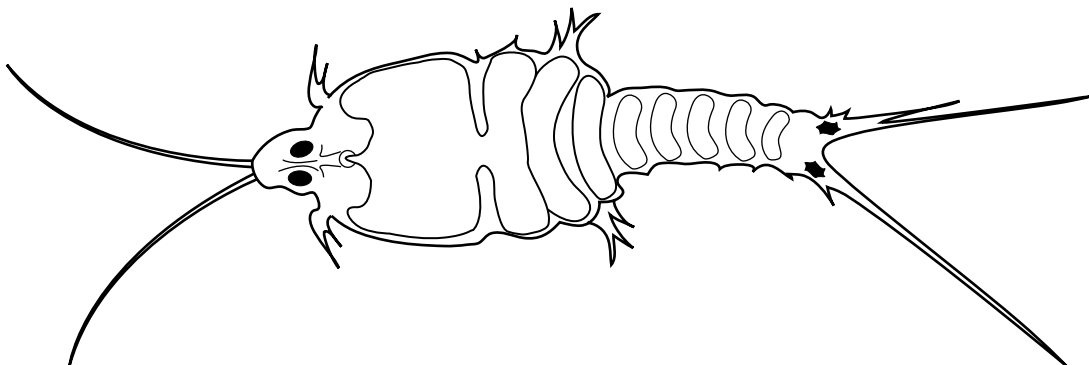
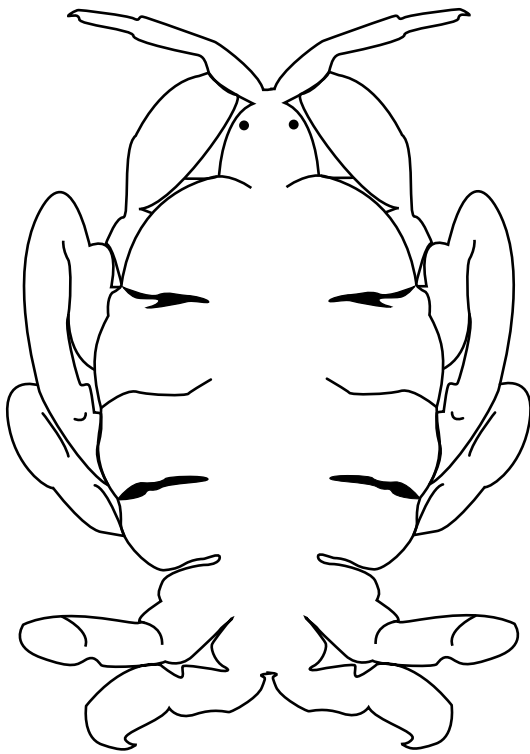
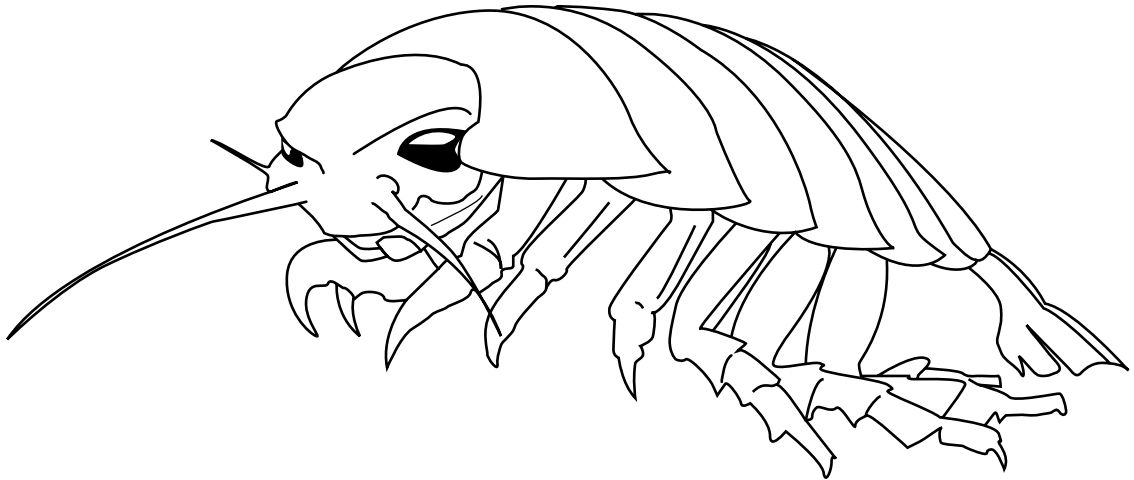


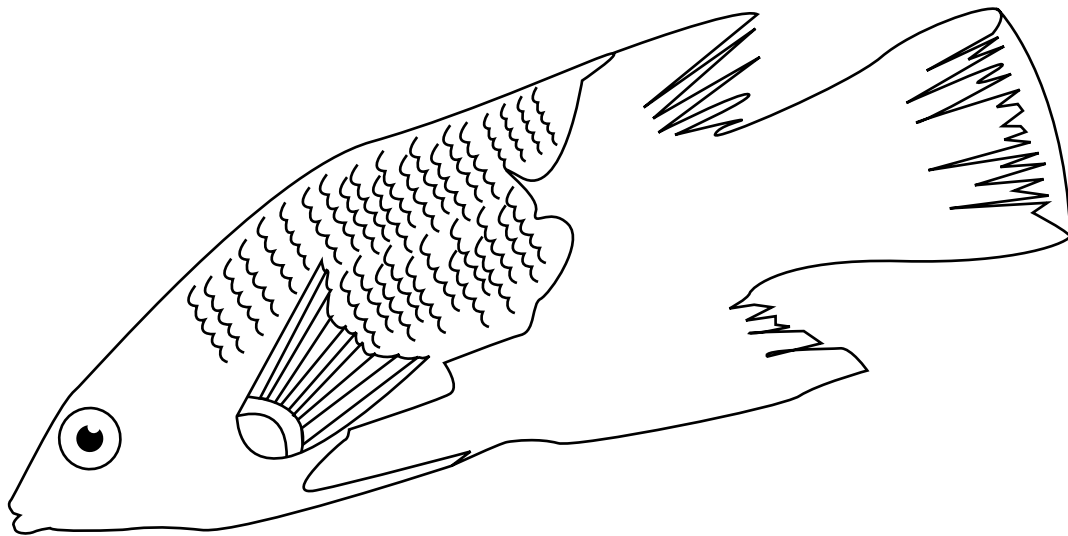
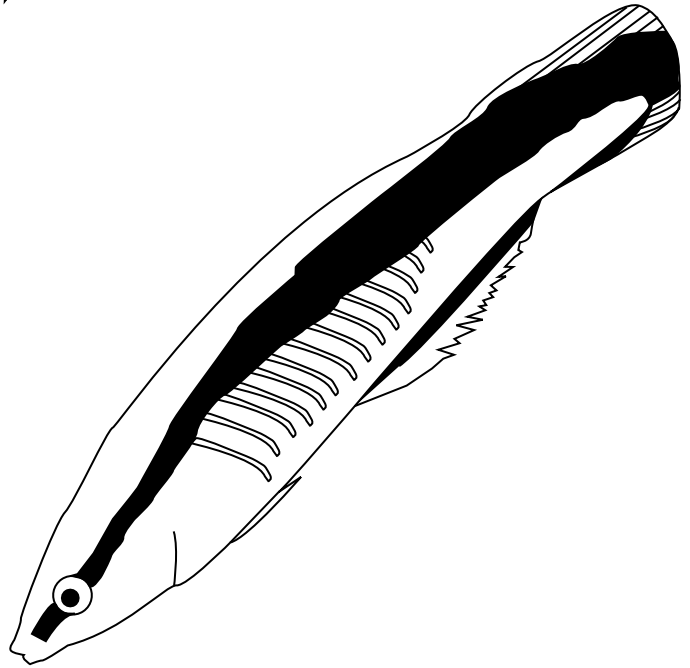
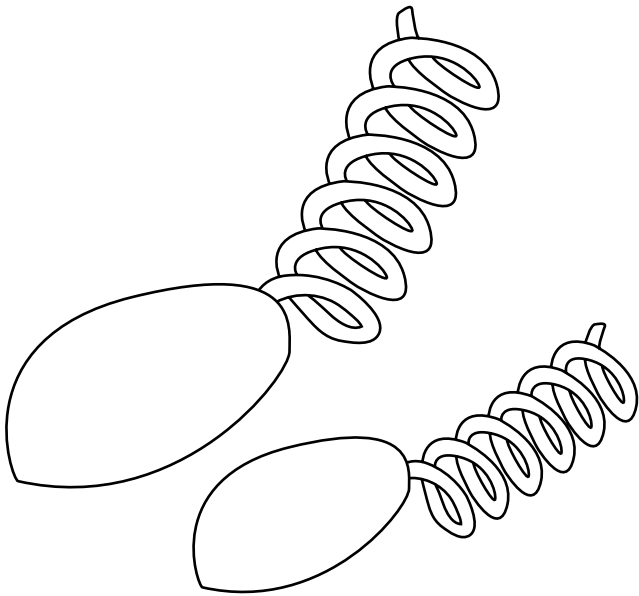
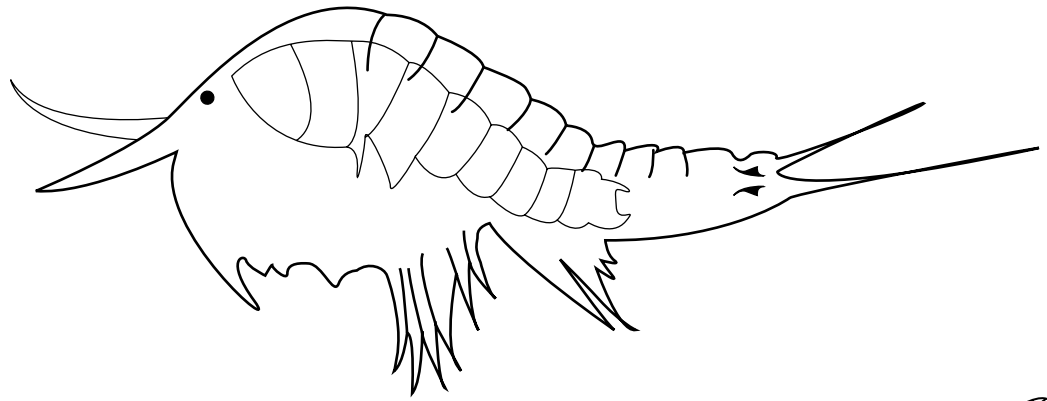
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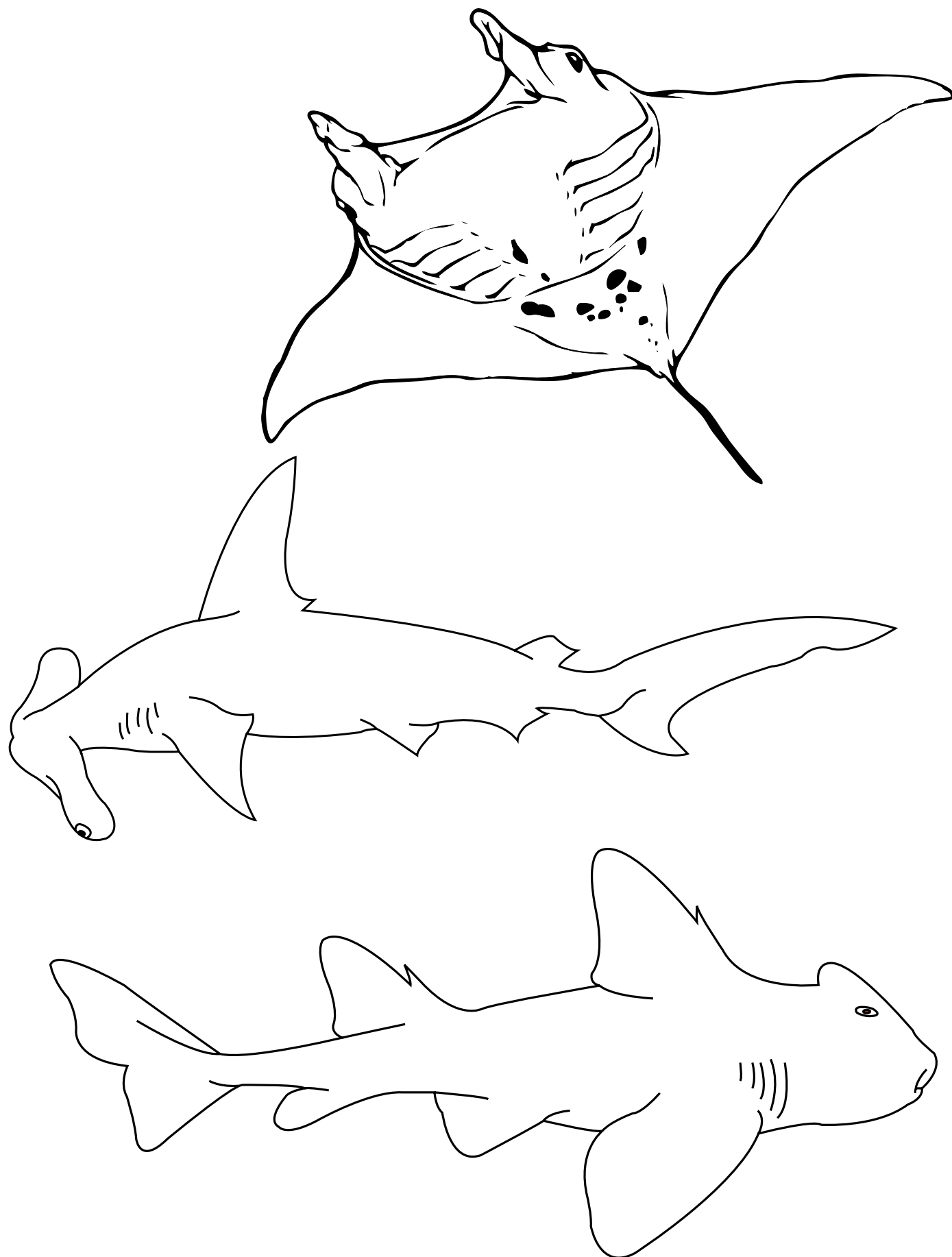
Directions: Write and illustrate a comic about a fish you find camouflaged on the reef!

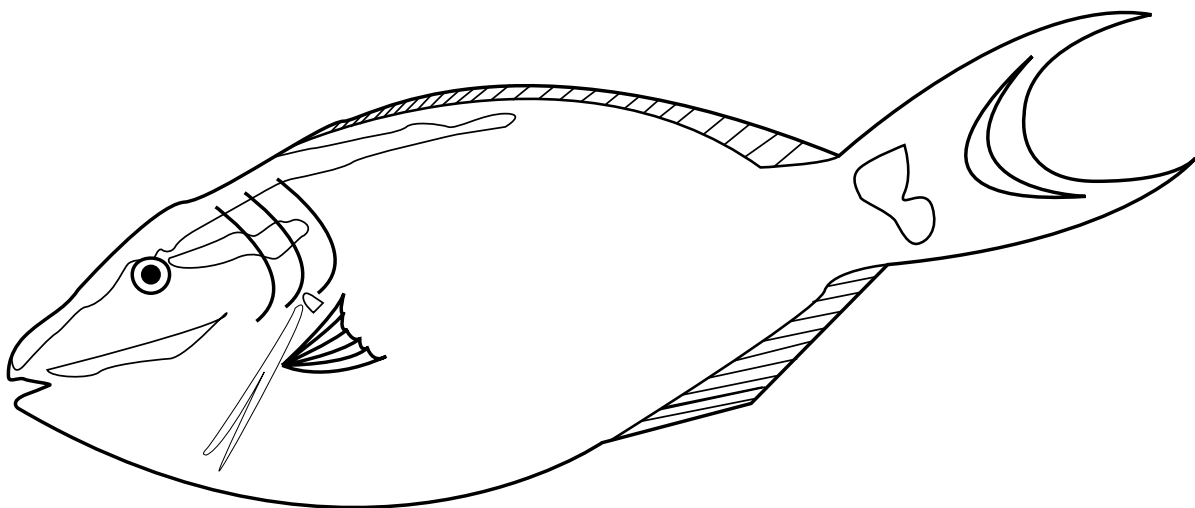
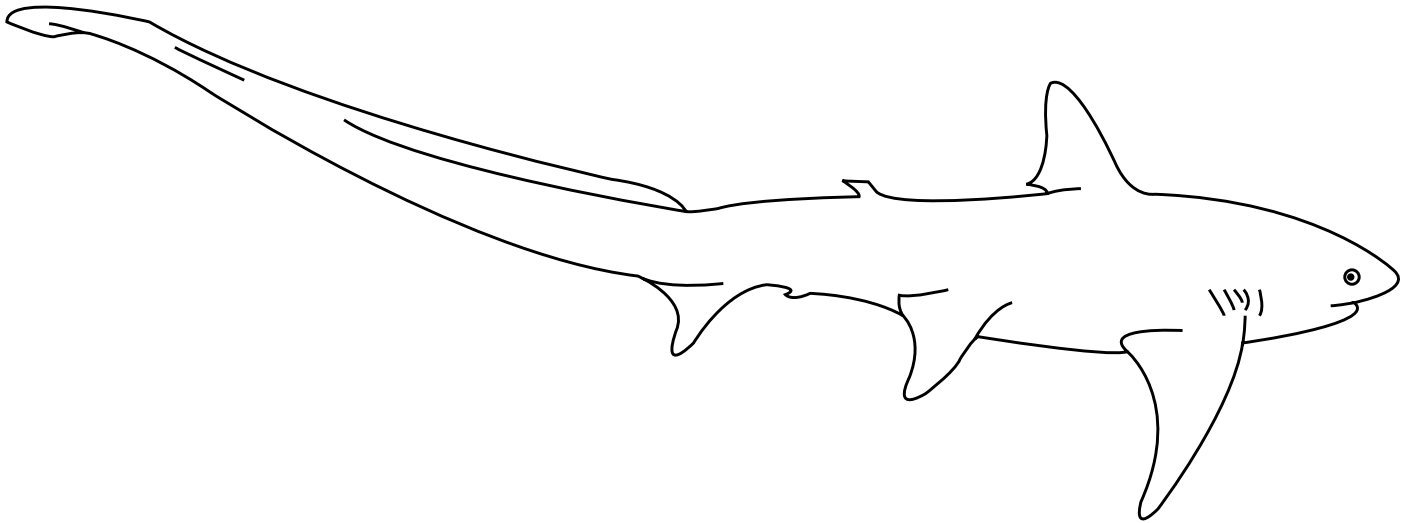
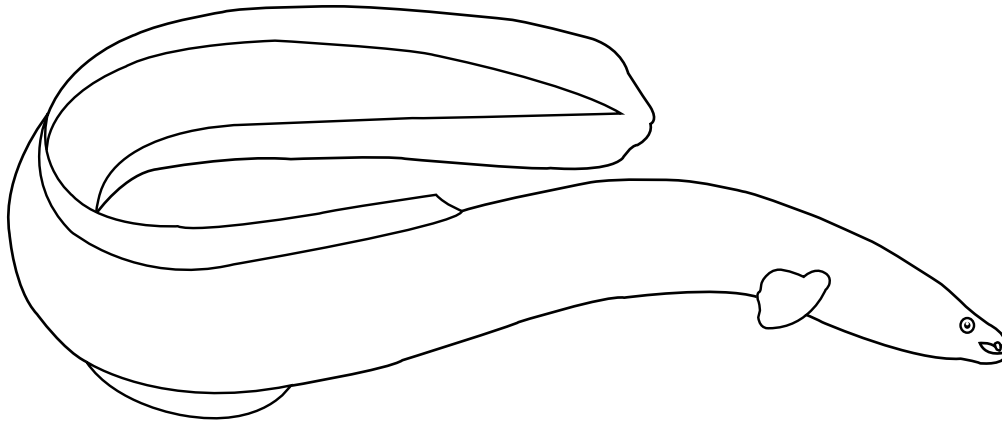
	
	
	

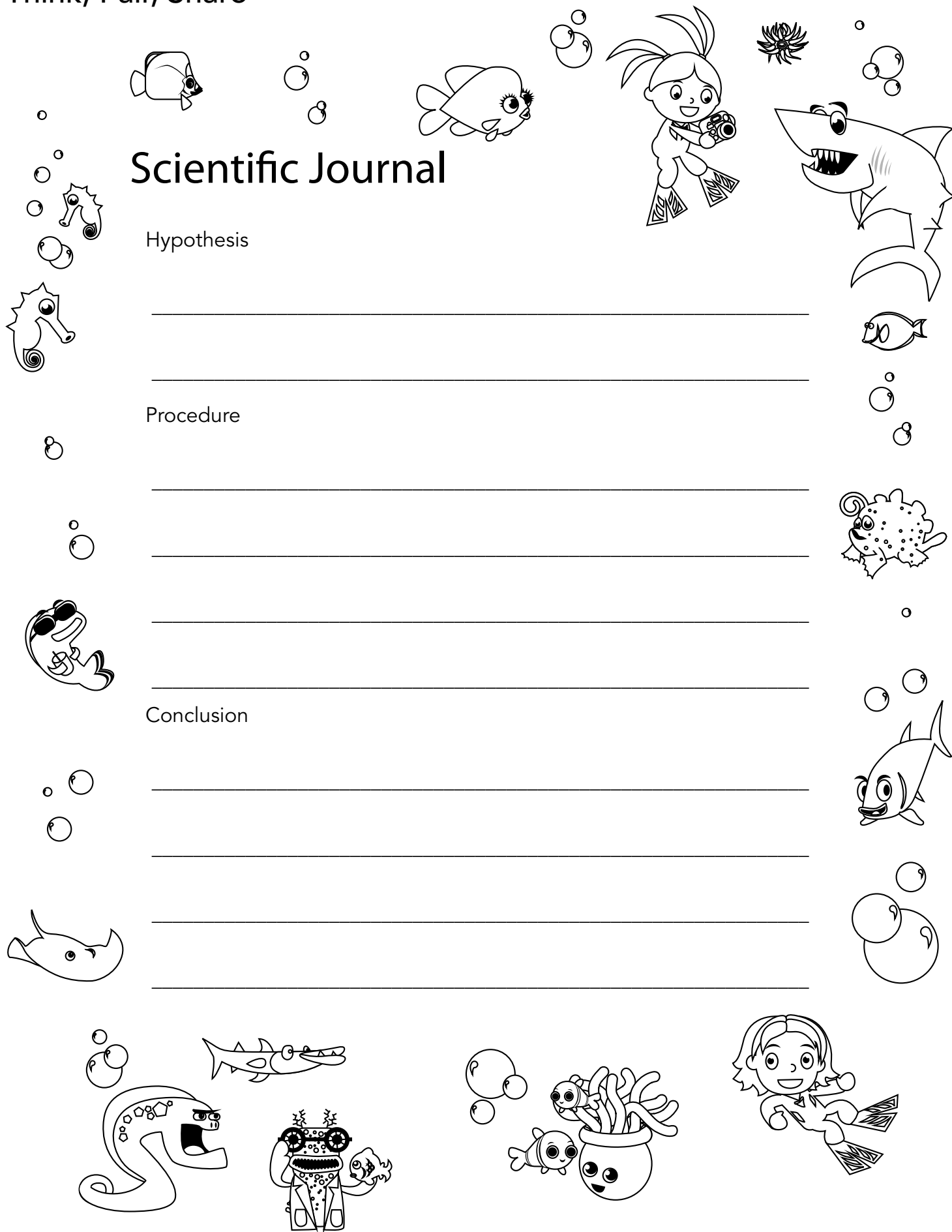












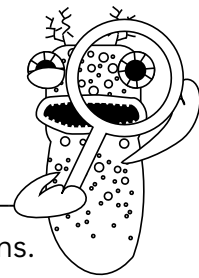
Scientific Journal

Hypothesis

Procedure

Conclusion

Color Fractions



Name _____ Date _____

Directions: Color each fish on the color fraction page carefully to represent these fractions.

1. Seek out the spotted pufferfish, color in $\frac{1}{2}$ of his body blue and $\frac{1}{2}$ of his body green.

2. Find the sea star and color in $\frac{3}{5}$ of his arms purple, $\frac{1}{5}$ yellow, and $\frac{1}{5}$ orange.

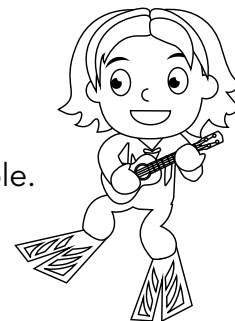
3. Look for the crab and color in $\frac{1}{2}$ of his legs red and $\frac{1}{2}$ of them brown.



4. Locate the spotted sting ray and color in $\frac{1}{3}$ of his spots blue and $\frac{2}{3}$ orange.

5. Pinpoint the old, wise turtle, and color in $\frac{1}{4}$ of the scutes (shapes) on his shell green, $\frac{1}{4}$ black, and $\frac{1}{2}$ yellow.

6. Find the sea anemone, and color in $\frac{3}{5}$ of her tentacles green, and $\frac{2}{5}$ purple.

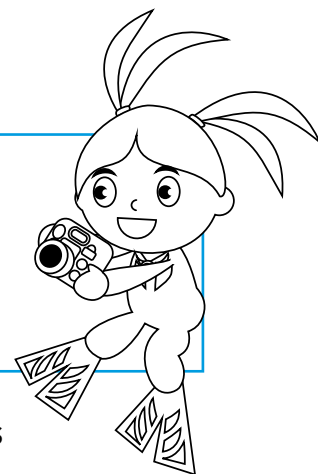


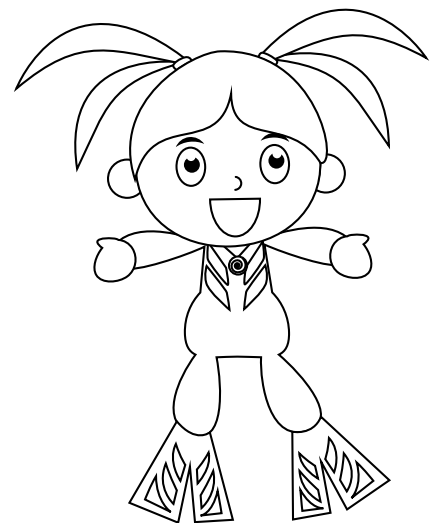
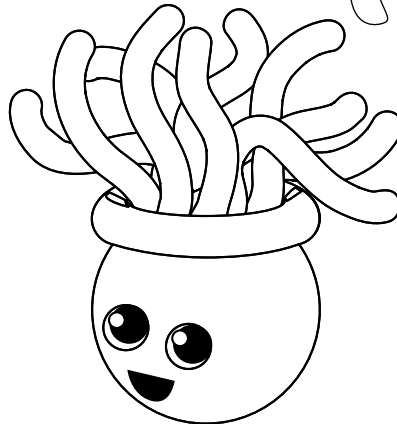
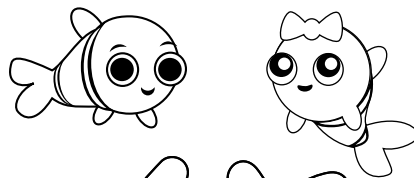
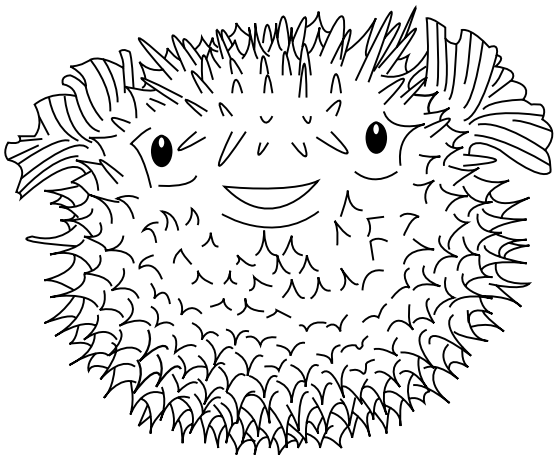
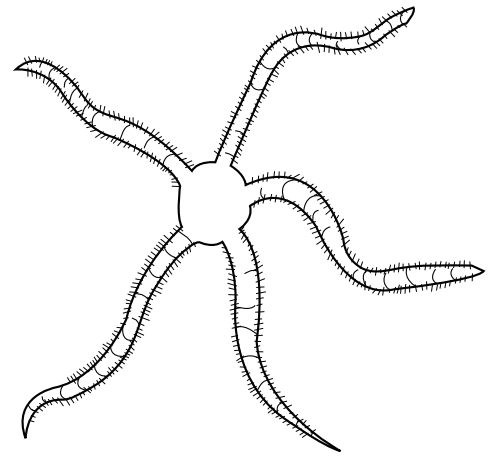
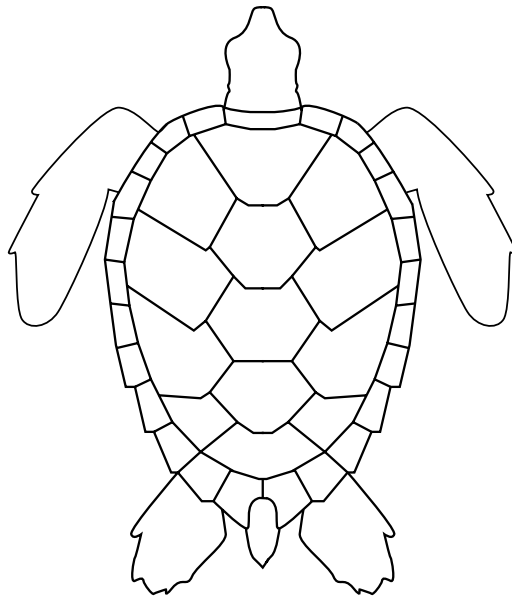
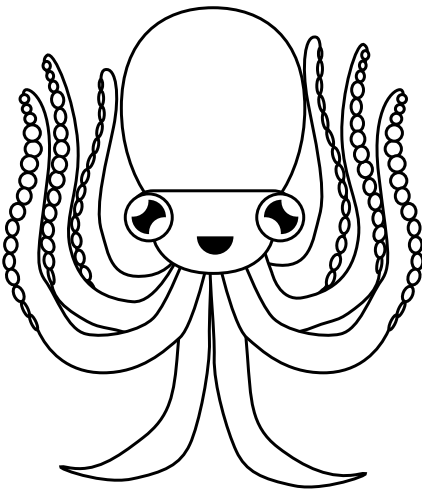
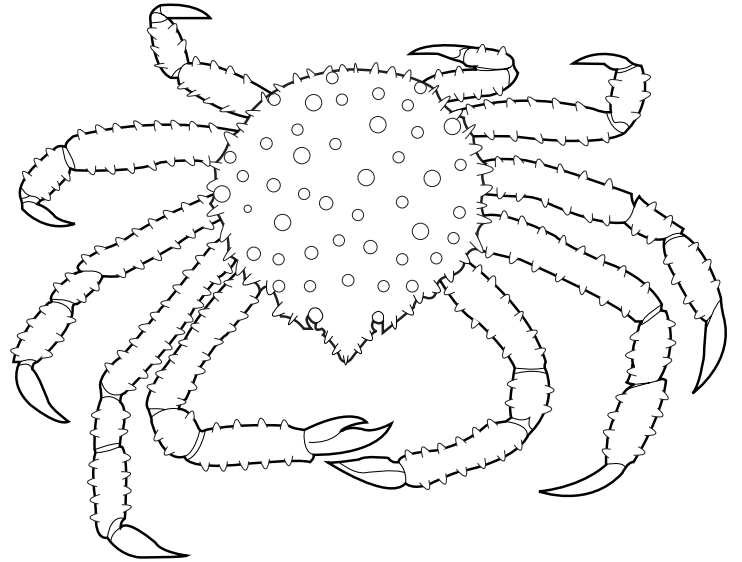
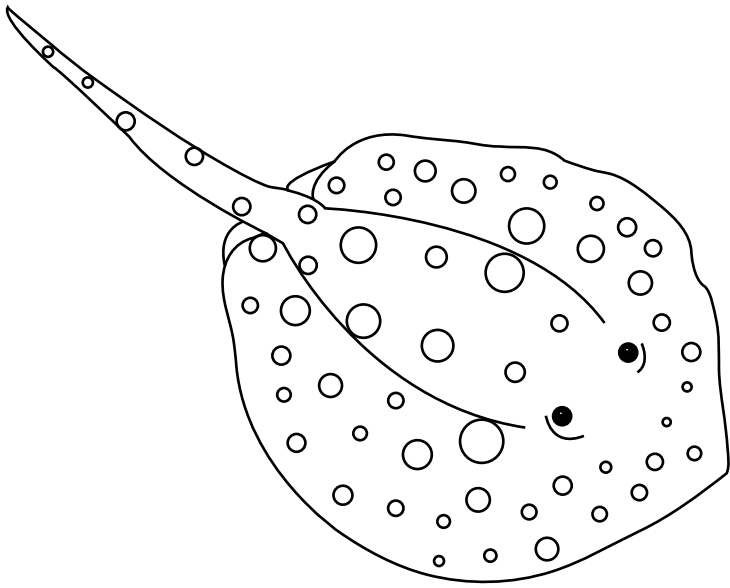
7. Search for the sneaky octopus and color in $\frac{5}{8}$ of his arms blue, and $\frac{3}{8}$ orange.

8. If you can see Ocean Annie, color in $\frac{1}{2}$ of her pig tails pink, and $\frac{1}{2}$ green!

OCEAN ANNIE'S SUPER SCUBA CHALLENGE

On a separate piece of paper, Draw and color a unique reef fish. As you color your fish use fractions. Label your design when you are done!





Date

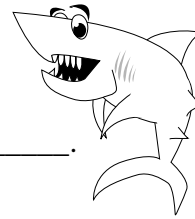
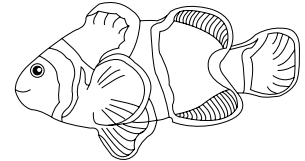
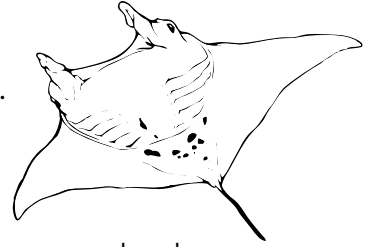
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Pick It Clean Crossword Puzzle - Clues

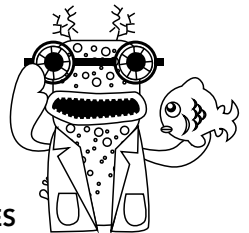
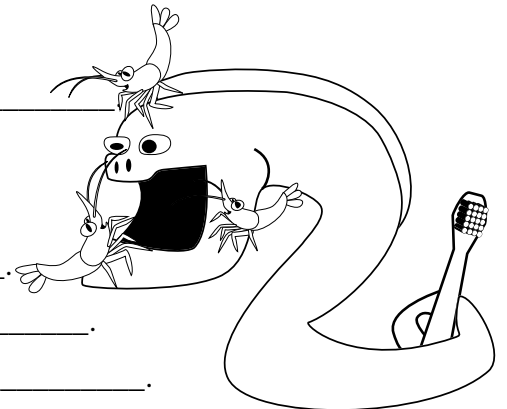
ACROSS

1. A _____ is the place in the ocean where fish go to get washed or healed when they are sick.
2. _____ is green stuff that sometimes grows on a turtle's shell.
3. Just like people, fish need to be _____ in order to be healthy.
4. Fish must always wait for their _____.
5. At a cleaning station, the cleaners help to remove _____ when it's loose or dead.
6. Being clean contributes to good _____.
7. The _____ fish can often be seen swimming with sharks.
8. All kinds of _____ visit cleaning stations.
9. _____ might look like a snake, but is really a long fish that visits cleaning stations.
10. A _____ is a person who is an expert in the study of plants or animals in their natural homes.
11. To _____ is another word for wash or clean.
12. While being cleaned, fish must hold themselves _____.
13. Cleaning fish often remove _____.
14. If you participate in _____ you might see a cleaning station for yourself.
15. Although these _____ don't have wings, they can still flutter along and delicately clean.



DOWN

1. Cleaning stations are special places _____.
2. A way of living together is called _____ and means animals live in close dependence on one another.
3. The four letter word for a fish's breathing apparatus is _____.
4. _____ scurry around on their many legs cleaning.
5. You go to the dentist to get your _____ cleaned.
6. If you were sick you might need to go to a _____.
7. Cleaner fish work to remove annoying pests called _____.
8. Animals are often seen waiting at the cleaning station in a _____.
9. A _____ is a person who has specialized knowledge in one or more areas of science.
10. Cleaners can often be seen picking algae off the shell of a _____.
11. There is no question that _____ are the top predators on the reef.



Pick It Clean Crossword Puzzle Treasure Chest of Words

cleaning station

butterflyfish

hygiene

hospital

still

parasites

sharks

scuba diving

sympiosis

scientists

eels

naturalist

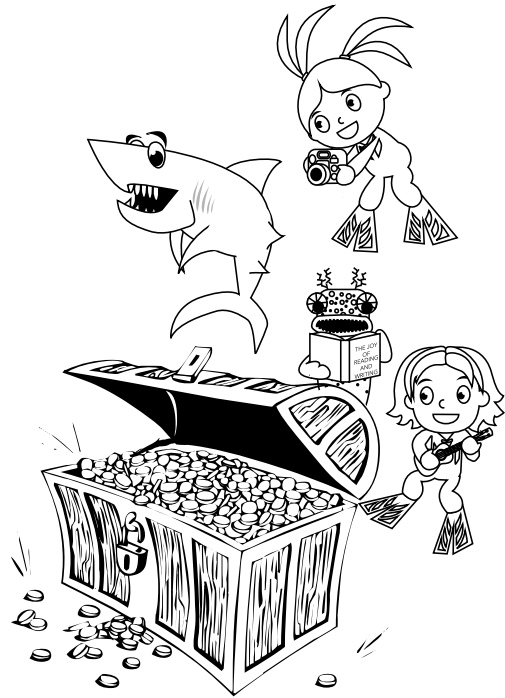
remoras

coral reef

bacteria

turtle

clean



algae

shrimp

skin

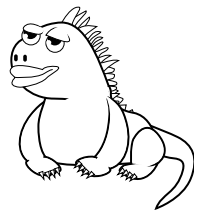
linescrub

gills

teeth

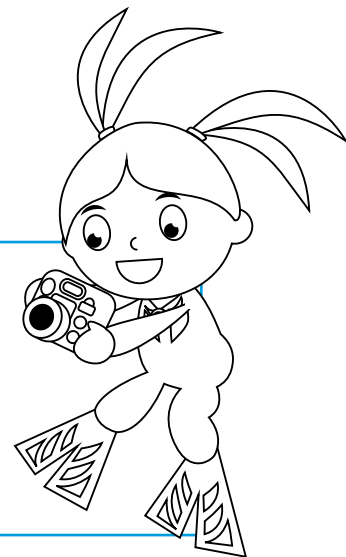
fish

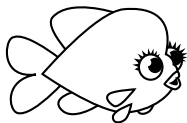
turn



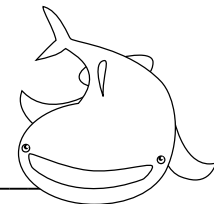
OCEAN ANNIE'S SUPER SCUBA CHALLENGE

Now it is your turn to create your own crossword puzzle on being clean and healthy! On a separate page, build and create hints to include at least three to five words down and three to five words across.





Bioremediation Observations



Name _____ Date _____

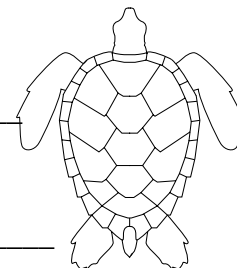
Critters help keep our oceans clean! Bioremediation is a process in which living things help clean our environment. Many things found on our earth are bioremediators such as microorganisms, green plants, fungi, and enzymes. These animals literally consume and filter wastes and other harmful materials from the water. Let's explore and find out how bioremediation works to help keep our planet healthy!

Directions: We will be working today to clean up an oil spill. Follow the questions below carefully and help clean up our environment!

1. There are materials including cotton, moss, and wood at your station that you will use to try to clean the oil spill in your bowl. Which of these items do you think will soak up the oil best? Why do you think so?

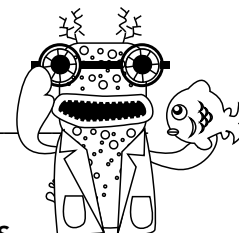


2. Which of the items at your station do you think will be least helpful at cleaning up the oil? Why do you think so?



3. Start with the cotton. Gently touch the cotton to the surface of the oil and see how much of the oil you can soak up from the top of your bowl for one minute. Squeeze the oil you collect off on a paper towel. Is there much oil left in the bowl? Was the cotton helpful at skimming the oil off the surface?

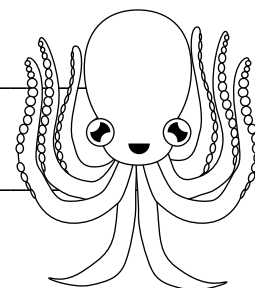
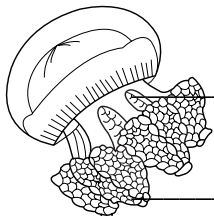
4. Scatter moss or leaves over the surface of the water. See how much of the oil you can soak up from the top of your bowl for one minute. Use the fishing net to skim the moss off the surface at the end of a minute. Is there much oil left in the bowl? Was the moss or leaves helpful at skimming the oil off the surface? Did you get oil on the fishing net?



5. Now scatter wood shavings over the surface of the water. See how much of the oil you can soak up from the top of your bowl for one minute. Use the fishing net to skim the wood shavings off the surface at the end of a minute. Is there much oil left in the bowl? Were the wood shavings helpful at skimming the oil off the surface?



6. Were your starting predictions correct? Which tools were most effective at cleaning up the oil? Which were the least? Why do you think this is so?

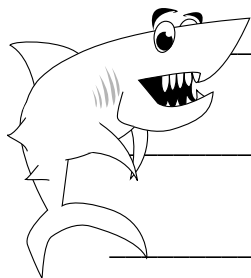


7. Was oil left on the surface of the water even after you tried to clean it all up?

8. What other kinds of living material can you think of to test to clean up an oil spill?

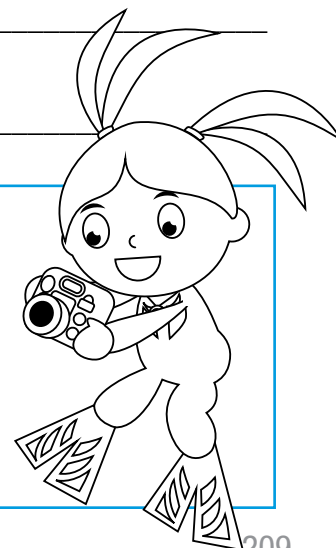


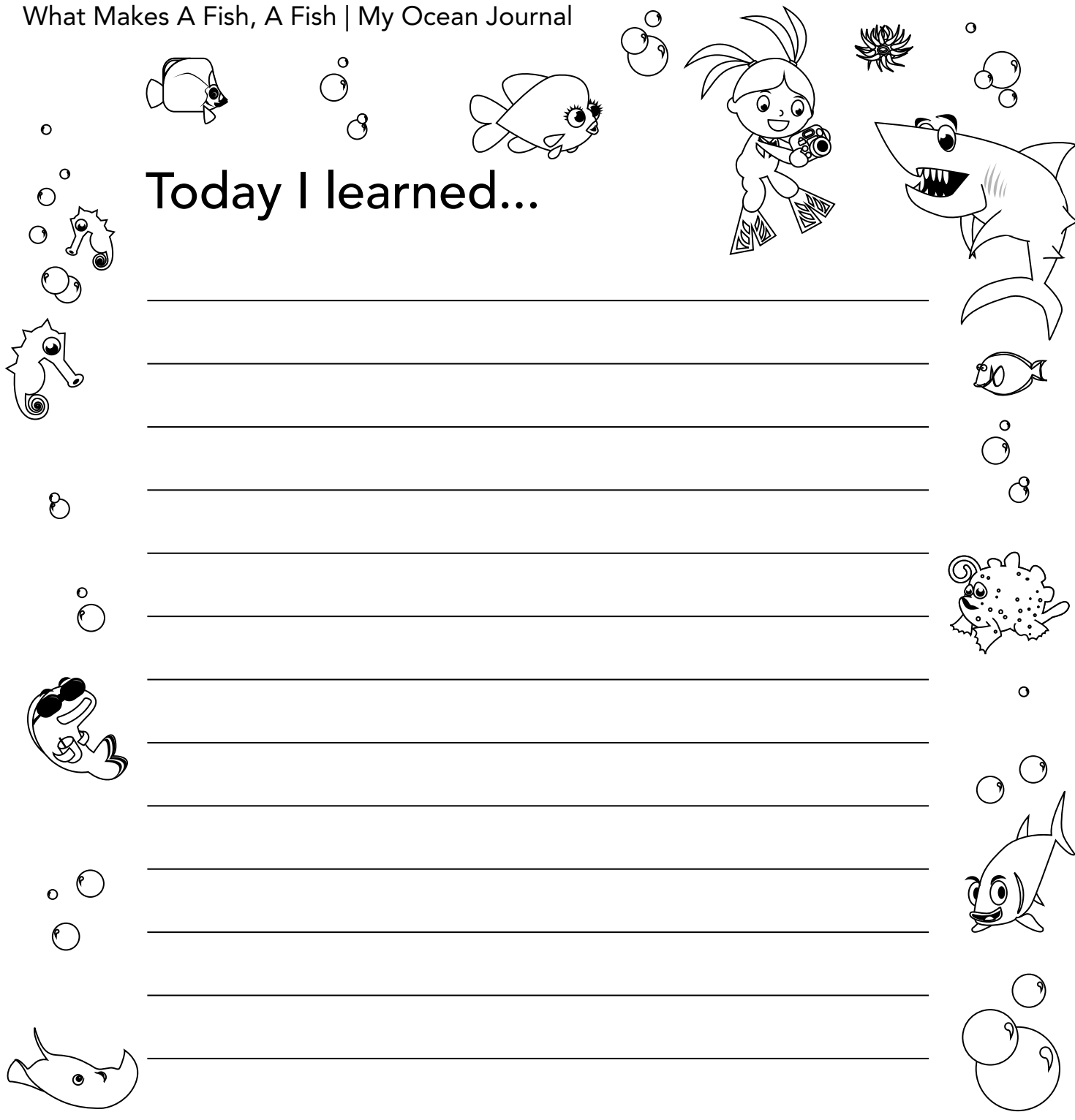
9. Based on this experiment, what challenges do you think people face when oil spills happen in the Ocean? Think of ways to prevent oil spills or safety measures so they do not happen.



OCEAN ANNIE'S SUPER SCUBA CHALLENGE

Ocean friends, we need your help! Oil is still left after the spill. Use Dawn detergent to clean up the bowls, fishing net, and your hands. After oil spills in nature Dawn detergent is often used to clean up the animals affected by an oil spill. Test and see how well it works to break up oil in your bowl.



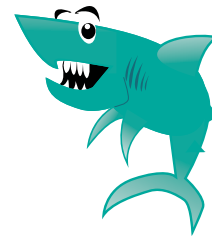


Don't Be Afraid of Sharks



F

Don't Be Afraid Of Sharks



CONCEPT / TOPICS TO TEACH

Sharks are fish living throughout every ecosystem in the ocean. More than 450 unique shark species live in the Ocean, varying in shapes, sizes, and colors. Shark populations around the globe are in decline due to overfishing including the destructive practice of shark finning; sharks need protection from human beings.

Objectives:

- » Students will develop analytical skills and knowledge about general biology to identify and match the correct front and back half of sharks in order to make completed sharks.
- » Students will employ analytical skills to observe a sequence of patterned sharks and complete the pattern sequence by filling in the missing stripes, dots, etc. of the pattern.
- » Students will use analytic thought and fact recall in an activity that requires them to judge statements about sharks that are true and false.
- » Students will build reading comprehension and recognition of context in an activity where they choose and write in words and complete a story about sharks.
- » Students will use the scientific method of inquiry to investigate the mechanics of mouth function in different types of sharks.
- » Students will develop their ability to reason about timing and scheduling through a series of word problems about life in the ocean.

Character Education: COURAGE

Every day, each of us faces challenges and uncertainty. We learn how to adapt to change. Life is forever changing and it takes COURAGE to adapt to change. By introducing COURAGE to your students you will positively help them recognize how courageous they are every day while building their self-esteem. COURAGE can be defined as the ability to face uncertainty without being overcome with fear. For some, fear might be physical such as being afraid when learning a new sport, yet fear can also be mental fear or anxiety, like trying to write when we have a hard time with letters. Each of us have unique fears and we need COURAGE to face our own challenges. Facing any fear or anxiety takes COURAGE. Helping students to recall times in their own lives when they exhibited COURAGE, such as the first day of school, will help them identify with the meaning of COURAGE. Letting students know it is ok to have fears helps them recognize their fears and allows them to face them with knowledge, education, and COURAGE.

Ocean Annie and Scuba Divers face fear with COURAGE!

Many people are afraid of sharks because they do not know a lot about them but they have watched television and movies that portray them as dangerous animals. The more we learn and educate ourselves, the more we are able to fight our fears with knowledge. It takes COURAGE to continue to learn new ideas and changing our old ideas. Many people think scuba divers are courageous to dive into the deep ocean, but scuba diving is a very safe sport, as long as you follow the rules of scuba diving.

It takes COURAGE to go to school. Recognize different ways your students

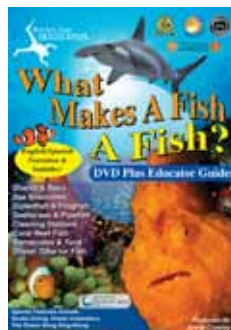
are COURAGEOUS in the classroom and bring COURAGE into their lives on a daily basis.

Students may experience so much fear around water that it may even take COURAGE to go scuba diving in your classroom! Help students fight their fears with knowledge and COURAGE. Education allows us to have freedom from our fears. The more we learn, the more we grow! Building a child's self-esteem is essential in order for them to continue to grow. You can even develop a mantra for your students: I am courageous and always do my best. I face changes in my life by adapting and education. Write mantras down, post them, and read them together everyday.

Getting Started

Required Materials

- DVD "What Makes A Fish, A Fish?" by Dive Into Your Imagination
- Large Dry Erase Board/Easel and Markers



TREASURE CHEST

- Cartilage
- Courage
- Denticle
- Elasmobranch
- Elasmobranchologist
- Gills
- Plankton
- Population
- Scales
- Scientist
- Species
- Sustainable
- Swim Bladder

Anticipatory Set Lead-In

- ✧ Watch and become familiar with chapter six "Don't Be Afraid of Sharks" from the DVD "What Makes A Fish, A Fish?"
- ✧ Before beginning the film, tell students they will have an opportunity to be an elasmobranchologist meaning they are scientists who specialize in the study of sharks. Have students work individually or in buddy teams to collect information about sharks.

Here are some questions and answers you can use to build a brainstorming session:

KWL

LGL

AG

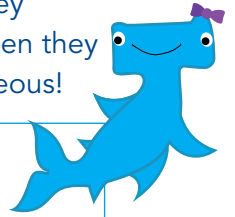
WP

Questions for Students	Answers for Educators
Are sharks fish?	Yes. Like all fish sharks have gills, fins and live in water. Sharks and rays are special because their skeleton is made of cartilage. Most fish have bone skeletons.
Do sharks have rough or smooth skin?	Sharks have skin that is rough like sandpaper because their scales, called denticles, are like sharp little teeth.
How many pairs of gills do sharks have for breathing?	They have 5-7 pairs of gills depending on the shark species.
What special material is a shark skeleton made from?	Cartilage, like the material in our nose and ears.
Why is it important to protect sharks?	People are catching too many of them, and if we do not stop hunting sharks they will become extinct.

Video Review

✧ After watching the clip about sharks once or even a few times, discuss and write down additional facts, questions, and information students gained from the video for further research and discussion.

- ✧ Ask students to write a reflection in their journal about sharks.
- ✧ Discuss courage with students. What does it mean to be courageous? How do they demonstrate it? How do they get it when they need it? Create a mantra, I am courageous!



Imagination Values

Before the activities begin, use this as an imagination exercise with your students. You can use this as a movement activity and have them act out what you are saying, or have them be silent and use their minds only. Your students will first imagine they are sharks and then they will become scuba diving **elasmobranchologists**, scientists who study sharks and rays. You can read this script, or use your imagination and create your own.

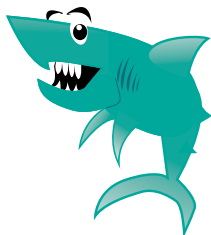
"On the count of three let's say the magic word! 1, 2, 3...IMAGINATION! Now imagine you are a shark. What kind of shark would you be? Touch your nose and ears, this is what a shark's skeleton is made of, cartilage. Sharks and rays are elasmobranchs. Can you say that word? As a shark, your skin would be rough like sand paper because your denticles, are coarse and stiff, very different from other fishes scales. In order to breathe, you pump water over your gills all day long. Do you have 5, 6 or 7 pairs of gills? Whale sharks have five pairs, so do hammerheads and great whites. But there are also six and seven gill sharks.

Sharks and rays sometimes rest on the sea floor, in cracks, crevices and sea caves. Other sharks live in the open ocean. Where does your shark live? Sharks do not swim with their fins like other fish; they move their whole bodies when they swim and use their fins to glide or steer through the water. Sharks have excellent eyesight and a great sense of smell too. Where are your eyes? What kind of teeth does your shark have? We can learn a lot about fish from their mouths and teeth. Some sharks' eyes, like Great White, Tiger, and Hammerhead Sharks, are in front of their mouths. Other sharks like Whale Sharks and Nurse Sharks mouths are in front of their eyes. Sharks also have a very special sense that detects the electrical activity all living things give off. The organ that supports this special sense is called the ampullae of Lorenzini.

Now that you imagined you were a shark, let's now imagine you are a shark scientist. Many people who study animals need to use their imagination so they can guess about what sharks do. These scientific guesses are called hypotheses. Scientists make studies based on their hypothesis. They then do experiments and study animals to find answers known as conclusions to see if what they thought is correct or if it is not correct.

I know you love sharks, yet many people are scared of sharks because of fear based television shows and movies. The more we learn, the more we understand sharks. The more we understand sharks, the more we can help sharks survive. Sharks need your help! Learn all you can about sharks so you can help protect them."

CLASSROOM ACTIVITY STATION F1 SHARK MATCH!



Overview

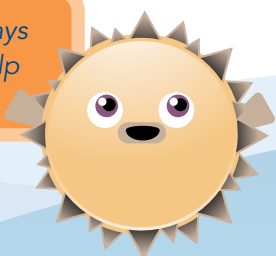
Students will use their knowledge of basic shark biology and shapes to find matching pairs for the front and back half of several kinds of sharks. Students will then choose their favorite front and back end from the set and draw their own version of it, perhaps creating a fictitious shark. Students will then write sentences or a story discussing where they think their shark might live, what it eats, how it moves and so on. This exercise will introduce students to basic shark *biology* and help students *recognize organic shapes* and help them develop *deductive reasoning* skills.

Materials: Shark shapes, Heavy paper or tag board, Scissors

Talking Points

- ✧ How big are sharks and what color are they?
Ask students to give as many descriptive words about sharks as they can.
- ✧ Sharks are very diverse. There are more than four hundred and fifty species of sharks living in all parts of the world ocean. Can you name different kinds of sharks? Nurse sharks, Great White Shark, Hammerhead Shark, Tiger Shark, Whale Shark, Reef Shark, Cookie Cutter Shark, are a few students often know.
- ✧ Have students study different kinds of sharks, as scientists do, to see if they can identify and match shark bodies. Look at the shape of a shark tail or fins, count how many gills or teeth it has, and observe the position of the eyes, body coloration, etc.

Don't eat like a shark! Always chew your food. Sharks gulp their food down!



Lesson Procedure

1. Photocopy the shark shapes to a heavy paper and cut along the dotted line. For long term use, consider laminating the cards.
2. Set the shapes out in a work area where students can match the front to the back halves.
3. Challenge students by giving them half of a shark and then ask them to draw in what they think the other half looks like.
4. Instruct students to choose their favorite front and back half from the set to create an entirely new "fictional shark." Students can make a drawing of their newly imagined shark, and write sentences or a story discussing what they think their shark's lifestyle and environment is like, describing where it lives, what it eats, how it moves, etc.
5. Add completed stories to the "What Makes a Fish" journal.

CLASSROOM ACTIVITY STATION F1 (Continued)

SHARK MATCH!

Extension Ideas

- » Place the cards face down, and have students take turns picking up pairs. When students find a match, they will retain the cards. Players with the most card pairs win.
- » Let students design their own shark inspired by the different styles and body shapes depicted on the cards and write a story about what they learned about sharks.
- » Students can choose their favorite shark from the deck of cards and use the books from the suggested reading list to learn more about their chosen shark. Students can prepare a short story or oral report to share with the class about their selected shark.
- » Have students research shark finning practices causing sharks to become extinct. Have students make a report on how we can help save sharks.

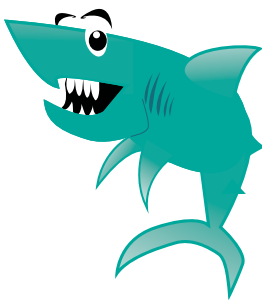
Notes



Watch only age appropriate multi-media. Many movies about sharks scare kids and make them afraid of the ocean. We need your help in protecting us!

Many people are afraid of sharks because of media, but scuba divers help protect sharks.





CLASSROOM ACTIVITY STATION F2 SHARK JAWS

Overview

Students will look at charts of shark jaws and a variety of teeth. Arrange teeth in each jaw, and observe the shapes of the teeth to try and guess why different kinds of sharks have uniquely shaped teeth. To help students understand this concept, ask them to look at their own teeth to see if they are all shaped the same way. This game will help reinforce the facts learned about sharks and aid students in developing the ability to *identify sequence, build deductive reasoning and logic skills.*

Materials: Jaw Charts, Sharks Teeth, Mirror

Talking Points

- ✧ The ocean is a place where people work. How many different jobs can you think of that people might have because of the ocean?
- ✧ People also use the ocean for transportation. Indonesia has 17,000 islands. There are many island nations using boats instead of cars.
- ✧ People inhabit many different areas of the planet, but most live near the coast. Living near the coast has benefits, but as population expands we can affect the ocean negatively. Human activities sometimes pollute the ocean and people fail to use its resources wisely. Resources from the ocean include food, oxygen, water, energy and much more.
- ✧ Many fish stocks are endangered and need protecting including sharks. The majority of sharks are only 3 feet long and not dangerous. Shark nursing grounds have been destroyed along shorelines and many have been over-fished. Sharks need to be protected because they are important in the balance of animals in the ocean.
- ✧ Sharks come in a variety of shapes, sizes and colors.

Lesson Procedure

1. Photocopy and provide each student with one "jaw chart" and set of teeth.
2. Ask students to begin arranging the teeth cutouts into the jaw.
3. Set up a mirror so students can look at the teeth in their own mouths.
4. Ask students whether all of their teeth are shaped the same, and if not why do they think they are different.
5. Help students understand teeth are shaped differently in order to perform different tasks. For example molars are flat in order to crush and grind, while front teeth are sharper and made for pulling foods apart.
6. Ask students to observe how the teeth are shaped in each of the shark jaws and talk about how they are similar or different. Ask students to make predictions about what each jaw might be designed to do.
7. Create bulletin board for the shark jaws or hang them from the ceiling creating a fossil museum.

CLASSROOM ACTIVITY STATION F2 (Continued)

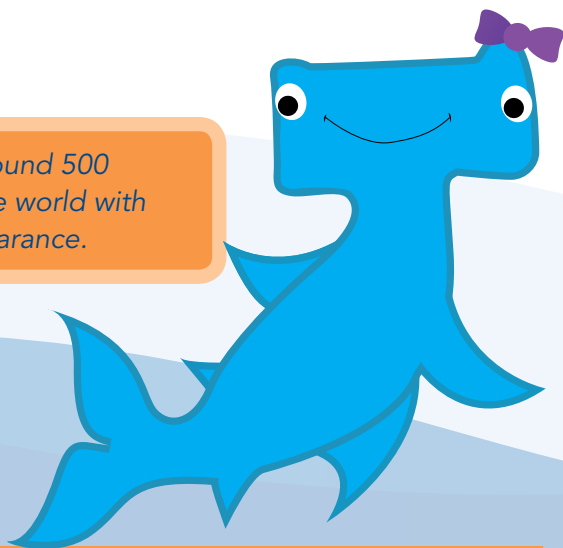
SWIMMING IN SEQUENCE

Extension Ideas

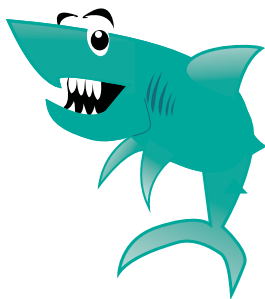
- » Students can use a shark template to design their own unique body pattern. Describe why the body pattern is important to the shark, what it symbolizes, etc. For example, many sharks that spend time lying on the sand exhibit shades of brown color or even spot patterns that look like sand. The banding patterns on tiger sharks look very similar to how light streams through mid-water where they are most commonly found. Many sharks living in the water column have darker dorsal areas, the top part of their bodies, and lighter ventral areas, the bottom part of their bodies. This is called countershading.
- » Challenge students to come up with as many kinds of shark body patterns as they can. Sharks have stripes, spots, and a variety of color patterns.
- » Use templates of the manta ray and whale shark gill rakers to compare and contrast with the shark jaws. What can we tell about what each shark eats by the shape of their jaws?
- » In the fossil record, we often find sharks teeth because cartilage does not easily fossilize. Have students pick one megalodon shark tooth and create their own unique shark necklace.

Notes

Shark species are diverse. There are around 500 species of sharks distributed around the world with different diet, habits and physical appearance.



CLASSROOM ACTIVITY STATION F3 SHARK TRIVIA!



Overview

Students will be asked a series of fact based questions about sharks and decide whether the statements are true or false. This game will help reinforce the facts learned about sharks and aid students in developing *deductive reasoning and logic skills*.

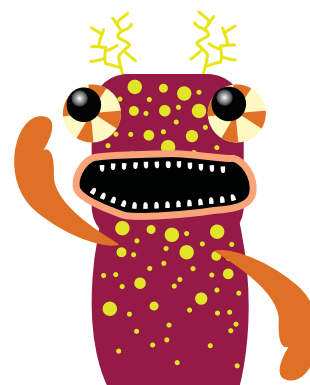
Materials: Trivia Questions, Popsicle sticks, Red and Blue Cups

Talking Points

- ✧ The ocean makes our planet habitable. Life as we know it does not exist without water.
- ✧ Most of the oxygen in the atmosphere originally came from the activities of photosynthetic organisms in the ocean.
- ✧ Some organisms on land and in the ocean use carbon dioxide, water and sunlight to make their own food. This process is called photosynthesis and it releases oxygen. Phytoplankton, together with zooplankton, makes up the bottom of the food web in the ocean.
- ✧ Plankton is the bottom of the food web. Sharks are considered to be at the top of the ocean food web and would not exist without plankton.
- ✧ Explain to students they will hear a series of fun shark facts and will be working together as a group to decide what is true or false.

Lesson Procedure

1. Gather students and provide each with a Popsicle stick and one red and one blue cup.
2. Instruct students to drop their Popsicle stick into the cup colored blue if the statement they are hearing is true, or into the red cup if they think that it is false.
3. After students recorded answers discuss correct answer before going on to the next question.



Baby sharks are called pups.
Sharks do not care for their babies after they are born.

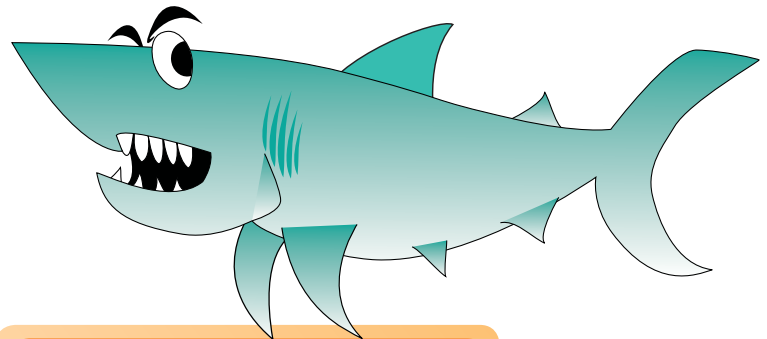
CLASSROOM ACTIVITY STATION F3 (Continued)

SHARK TRIVIA!

Extension Ideas

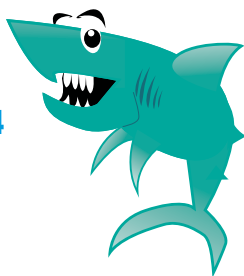
- » Challenge students to find out additional shark facts on their own and share them with the class.
- » Ask students to quiz their family and friends about their shark knowledge. Encourage students to share what they learned about sharks with others.
- » Have students create their own shark trivia game based on the knowledge they have learned.

Notes



Animals would never harm humans on purpose. They act defensively only to protect themselves.

CLASSROOM ACTIVITY STATION F4 SHARK TALES



Overview

Students will work in buddy teams to use facts and vocabulary acquired in this lesson to complete stories about sharks. This exercise will give students an opportunity to practice and review new vocabulary, enhance reading comprehension, and build literacy skills.

Materials: "Shark Tales"

Talking Points

- ✧ Sharks are amazing animals in the sea. In order for them to survive, they need a clean and healthy ocean. How can we keep the ocean healthy and why do we need to do this?
- ✧ People need to keep the ocean healthy because all pollution comes from people.
- ✧ People can keep the shoreline clean by not littering. People can keep the ocean healthy by picking up litter and recycling.
- ✧ People can protect ocean animals and seaweeds by not collecting them and by keeping their habitats safe and healthy.
- ✧ Although sharks are sometimes portrayed dangerous in the movies, we need to understand some movies are fiction, meaning they are not based on facts. Can you imagine you are a scuba diving shark scientist wanting to tell true shark stories? Use your imagination...

Lesson Procedure

1. Pair students into buddy teams and provide each student with one "Shark Tale" story.
2. Ask each team member to take turns reading through the story outloud, asking his/her buddy to come up with words to fill in the blanks that best complete the story.
3. The answers can vary as long as it makes sense in context.
4. Once the first story is finished, buddies change roles and complete the second story.
5. Add completed stories to the "What Makes a Fish" journal.



Sharks have many of our senses: smell, sight, hearing, taste and touch, yet adapted them to the underwater environment.

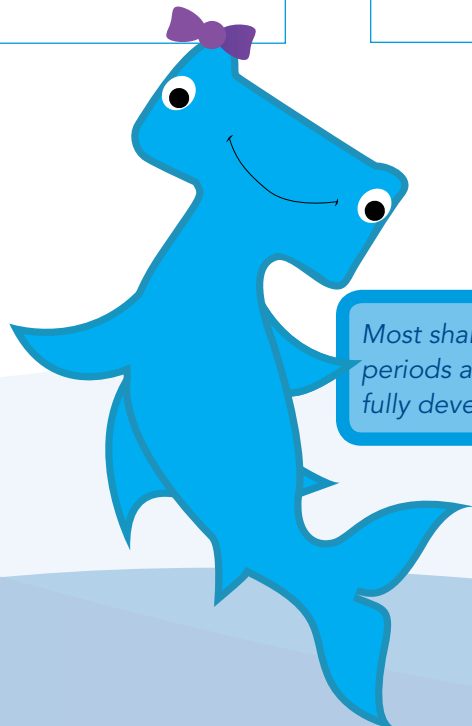
CLASSROOM ACTIVITY STATION F4 (Continued)

SHARK TALES

Extension Ideas

- » Challenge students to illustrate an image or storyline to go along with the narrative they completed.
- » Ask students to research their favorite species of shark or rays and write a report about the shark taking on a role. Are they writing the report as a scientist, photographer/filmmaker, journalist, etc. As their role changes, information they research and present may change.
- » Provide students with the lesson glossary and see if they can make up their own stories about sharks using the words from the treasure chest of words!

Notes



Most sharks have long gestation periods and the mothers give birth to fully developed, independent pups.

CLASSROOM ACTIVITY STATION F5 SHARK MOUTH



Overview

Students will make predictions about how well the different types of shark mouth models work on various food types and test their predictions. Participation in this activity will provide students with a chance to practice the *scientific method of inquiry, logic, and deductive reasoning*.

Materials: Fish nets to simulate the filter feeding style of the whale shark, Spaghetti grabbers to simulate the snaring style teeth of the mako shark, Nutcracker or Pliers to simulate the plate-like molars of the horn shark, 3 Medium bowls, Rice, Graduated cylinder, Scissors, Mostaccioli cooked yet firm, Whole Almonds with shells, "Shark Mouth", Stop watches or watches with second hands

Talking Points

- ✧ The ocean floor has many features similar to those on land with plains, valleys, mountains and volcanoes.
- ✧ The ocean and life in the ocean shape the features of our planet. With a variety of ecosystems in the ocean, there nearly 500 species of sharks. Each shark is different and unique. We can learn about what sharks eat by the shape of their mouths and teeth.
- ✧ Use your imagination and become a shark scientist. As you learn about sharks and what they eat, can you hypothesize and prove where they may live in the ocean?

Lesson Procedure

1. Set up "Station 1" with a bowl half full of water and a cup of rice in it to represent plankton. A graduated cylinder, fish net, spaghetti grabber, and set of pliers will be used to catch the plankton.
2. Set up "Station 2" with a bowl half filled with lengths of cooked pasta suspended in cold water to represent squid. A fish net, spaghetti grabber, and set of pliers or nutcracker will be used to catch the squid.
3. Set up "Station 3" with a bowl half filled with almonds to represent clams. A fish net, spaghetti grabber, and set of pliers will be used to catch the clams.
4. Provide each student with "Shark Mouth."
5. Divide class into small buddy teams, and instruct them to spend time at each station working through the steps testing each mouth type to catch various types of prey.

Scientists believe sharks use their special electromagnetic field to assist with direction connecting them to Earth's magnetic field.



CLASSROOM ACTIVITY STATION F5 (Continued)

SHARK MOUTH

Extension Ideas

- » Ask students to imagine they are sharks. What would their mouths look like for the kind of food they would like to eat? Challenge students to make an illustration or write a description of what their ideal shark mouth would look like according to the food they eat.
- » Have students look at the teeth in their mouth. They have different shapes. What are the different teeth in their mouths used for eating? How do they care for their one set of teeth?
- » Sharks do not eat people. The media reports when there are shark accidents in world news. People are more likely to get hurt from chairs, toasters, bowling, bike riding, etc. than by sharks. Myths are built around sharks but we need to use facts to dispel them. Have students create a report on the truth about sharks.

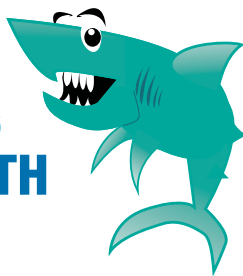
Notes



Some sharks migrate thousands of miles to hunting or pupping grounds, yet other sharks spend their entire lives in one area. Sharks are very diverse.

CLASSROOM ACTIVITY STATION F6

SHARK-A-MANIA MATH



Overview

Students will explore math concepts including timeframes, sequences, and simple operations by solving a series of shark-themed word problems. Participation in this activity will provide students with an opportunity to practice *reading comprehension, deductive reasoning, logic, and basic math skills.*

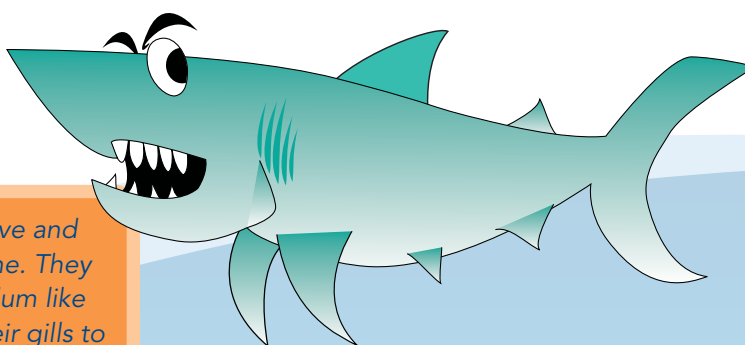
Materials: “Shark-a-Mania Math”

Talking Points

- ✧ While reading and solving “Shark-a-Mania Math”, look at the entire process while attending to the details.
- ✧ What do you have to do to focus on the details in order to problem solve? How can you look for and make use of structure and precision?
- ✧ Scuba divers use mathematics when planning their dive. Can you think of the different ways underwater archeologists, boat captains, or submarine pilots need to use math? Even the cook on a boat has to use math to plan meals for one day, a week and a month when out to sea for extended periods of time!
- ✧ How do you think your parents use math in your household? How do you use math everyday without even realizing it?

Lesson Procedure

1. Provide students with “Shark-a-Mania Math”.
2. Instruct students to work independently or in buddy teams to solve the problems.
3. Add completed work to the “What Makes a Fish” journal.



Sharks have between five and seven gill slits to breathe. They do not have an operculum like many fish. They use their gills to oxygenate their blood.

CLASSROOM ACTIVITY STATION F6 (Continued)

SHARK-A-MANIA MATH

Extension Ideas

- » Challenge students to come up with an extra question of their own design. Compile the extra questions and complete them as a class.
- » Choose one or two questions from the worksheet and see if students can create a way to chart out the answer by using a pie chart, bar graph, grid, etc.
- » Ask students to choose their favorite problem on the worksheet and illustrate a storyline to accompany the events detailed in the problem.

Notes

Dive Into Your Imagination produces fun, entertaining, educational shows about sharks and other animals in the sea! Share these with children to get them to LOVE the ocean!



CLASSROOM ACTIVITY STATION F7 BOOK STALL



Overview

Students will build independent reading skills and strategies through the use of supplemental materials. Providing a reading or computer area where students can look through additional materials on the subject being taught helps to promote literacy.

Materials: The story *The Shark Who Learned a Lesson* by Gill McBarnet.

Lesson Procedure: Character Education, COURAGE

1. As a class, read *The Shark Who Learned a Lesson*. Lead a discussion with students about how the fish on the reef in this story were able to rely on one another and face their fear, which in this case was a bullying shark. Ask students for examples of things that they are, or used to be afraid of.
2. Provide each student with a sheet of paper and tools to illustrate. Fold the page in half to create two sides. On the first half illustrate something they once were fearful of, on the second side ask them to illustrate the COURAGE it took to conquer their fear. Encourage students to write in words explaining how they overcame their fear and found COURAGE.
3. Define COURAGE. Have students create a personal mantra, "I am courageous!"

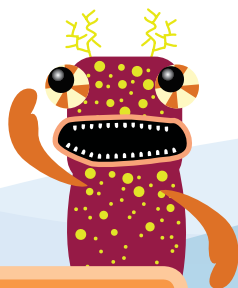
Poster: COURAGE

"Face your fears with knowledge and live with love and understanding."

Fine Art Prints, posters, greeting cards and other products are available to decorate your space while inspiring your students with real ocean and environmental scenes.

The village of Kontu in Papua New Guinea are famous for their traditional Shark Callers. Find Papua New Guinea on a map, research and explore this ancient culture.

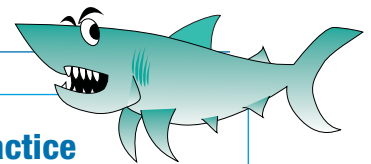
Cowrie shell on soft coral, Papua New Guinea



Some sharks and rays have a spiracle or round hole to help them take water in to pass over their gills.

Book Suggestions

- » Clarke, Catriona. *Sharks*. Usborne Beginners. London: Usborne, 1997. Print. Grades K – 1.
- » Coldiron, Deborah. *Sharks. Underwater World*. Edina, Minnesota: ABDO Publishing, 2008. Print.
- » McBarnet, Gill. *The Shark Who Learned a Lesson*. Puunene, Hawaii: Ruwanga Trading, 1990. Grades K – 2. Print.
- » Rustad, Martha. *Rays. Ocean Life*. Rocheport, Missouri: Pebble Books, 2009. Grades 1 – 2.
- » Simon, Seymour. *Sharks*. New York: Collins, 2006. Print. Grades 2 – 3.
- » Marston, Hope Irvin. *Wings in the Water: The Story of a Manta Ray*. Illus. Steven Petruccio. Soundprints, 1998. Ages 9-12
- » Zoehfeld, Kathleen Widner. *Great White Shark: Ruler of the Sea*. Illus. Steven Petruccio. Soundprints, 1005. Ages 4-8.
- » Lingemann, Linda. *Survival in the Sea: The Story of a Hammerhead Shark*. Illus. Stephen Marchesi. Soundprints, 1999. Ages 4-8



Closure and Follow Up

- ❖ Once students have experienced the learning stations, ask what new facts they learned from participating in the activities, and reflect on how much knowledge has been gathered about sharks. Take time to review and correct any incorrect statements from earlier in the lesson.
- ❖ Share the fact that sharks are endangered and discuss what it means to be endangered. Fishermen are catching too many sharks and so they are starting to disappear from certain parts of the ocean. Also their breeding grounds are being destroyed due to population growth and building. Ask students what they think can be done to help sharks? As a class, create a save the sharks campaign.
- ❖ Ask students to spend 1-2 minutes writing out things they would want the world to know about sharks. Can they think of any ways to get their message across to their family, community or the world? What can they do?
- ❖ To reinforce learning, review facts from the “Shark Trivia” game, or read the “Shark Tales” students wrote aloud as a class.
- ❖ Discuss COURAGE. How have they used courage now or how will they use it in the near future. Just having a student raise their hand and share takes courage!

Plan for Independent Practice

- » Ask students to choose three facts they found most interesting about sharks and illustrate them into a cartoon, comic strip or storybook.
- » Challenge the children during play time to see if they can “move like a shark” based on what they saw in the video.
- » Students can paint their favorite kind of shark and create a class wall mural of sharks.
- » Students can make “save the sharks” campaign posters with facts about why sharks need protection.
- » Have students find out who their Senators and Representatives are. Have them write a letter asking them to ban all shark fishing in your state/country. You can even have them write a letter to the President. The consumption of shark and particularly shark fin soup is still allowed in many places around the world, and it must stop.
- » Review the word COURAGE with students and discuss how it relates to their character and their lives. Encourage students to use their imagination and think of all the ways they are courageous. Ask students about their fears and help them think of themselves full of COURAGE. Develop a mantra, I am courageous and can do anything I set my mind too. My education and hard work ethics will take me everywhere in life!

DVD TRANSCRIPT

Don't Be Afraid Of Sharks

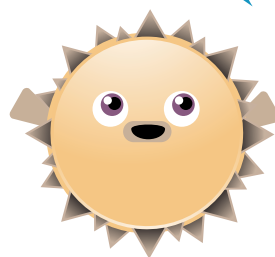
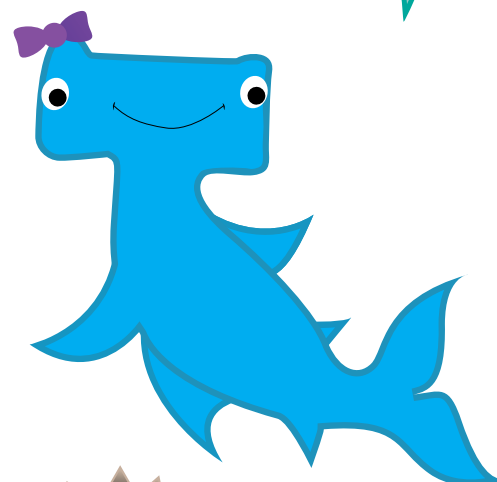
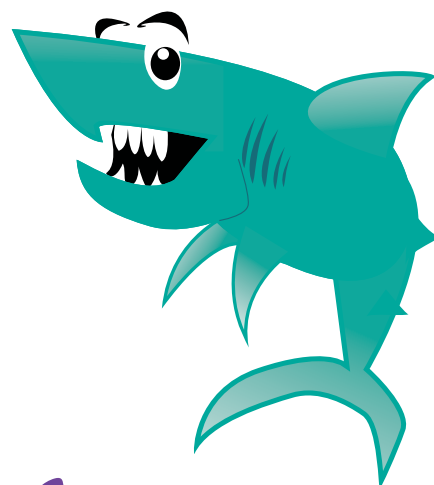
Do you know what makes a shark, a shark? Sharks have been swimming in our oceans since before Dinosaurs walked on earth.

Sharks are a type of fish. They are probably most famous for their teeth. Some sharks can replace their teeth in eight days and have more than 30,000 teeth during the course of their life! Their skin is special and feels like sand paper because they have thousands of tiny tooth-like scales. Just like we like to get our backs scratched, fish will trail behind sharks and rub their bodies against the shark's rough skin! Fish have one set of gills but sharks have between five and seven gills. Can you find the slits on their body? The gills are what the sharks use to breathe!

Sharks don't have hard bones like fish, their bones are much softer, and they are made out of cartilage. Other animals that belong in this family are rays. They are made of cartilage too. There are marbled rays, eagle rays, sting rays and manta rays. And they are all fish!

Sharks and rays are some of my favorite animals to swim with in the ocean. There are many, many different kinds...and every time I get into the ocean I hope to see a shark. There are fewer sharks in the ocean now. We must learn to understand sharks and protect them. Sharks need our help because too many of them have been fished from the sea. It is up to you and me to help these animals survive!

If you use your imagination...where can you go and swim with a shark? I know where I wanna go...

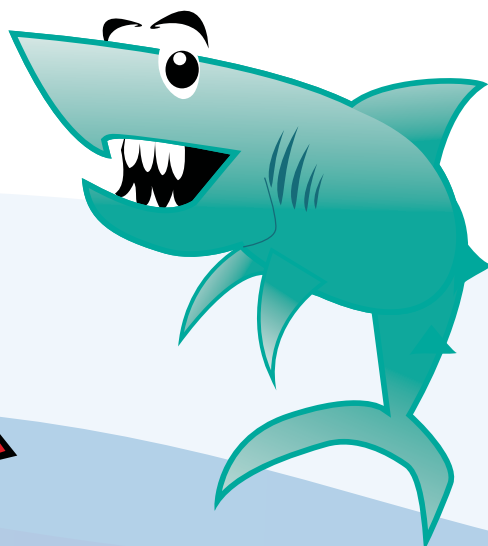
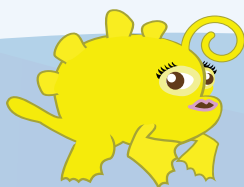
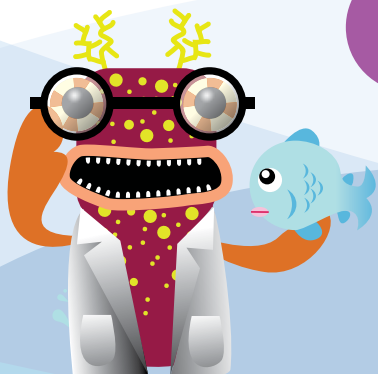
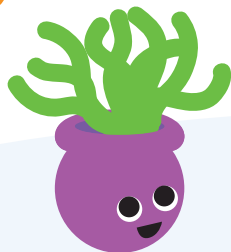
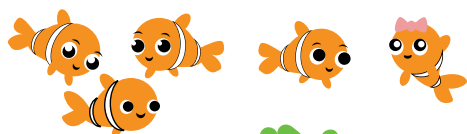
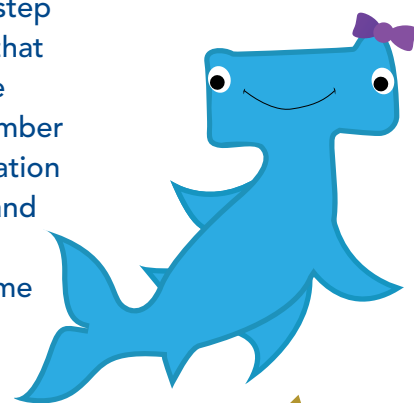


Go Blue! Ocean Annie's Tips to Help Our Environment

When the Disney theme park opened its doors in Hong Kong, management made a very difficult decision to depart from serving shark fin soup at their banquet halls. Although serving shark fin soup is a cultural tradition in some Asian societies, Disney made the determination that because sharks are becoming imperiled in the world ocean it was more important to promote environmental consciousness in keeping with their corporate values. This decision was made in part because thousands of children wrote letters to Disney asking how the company that made such wonderful movies about the ocean could advocate harming sharks!

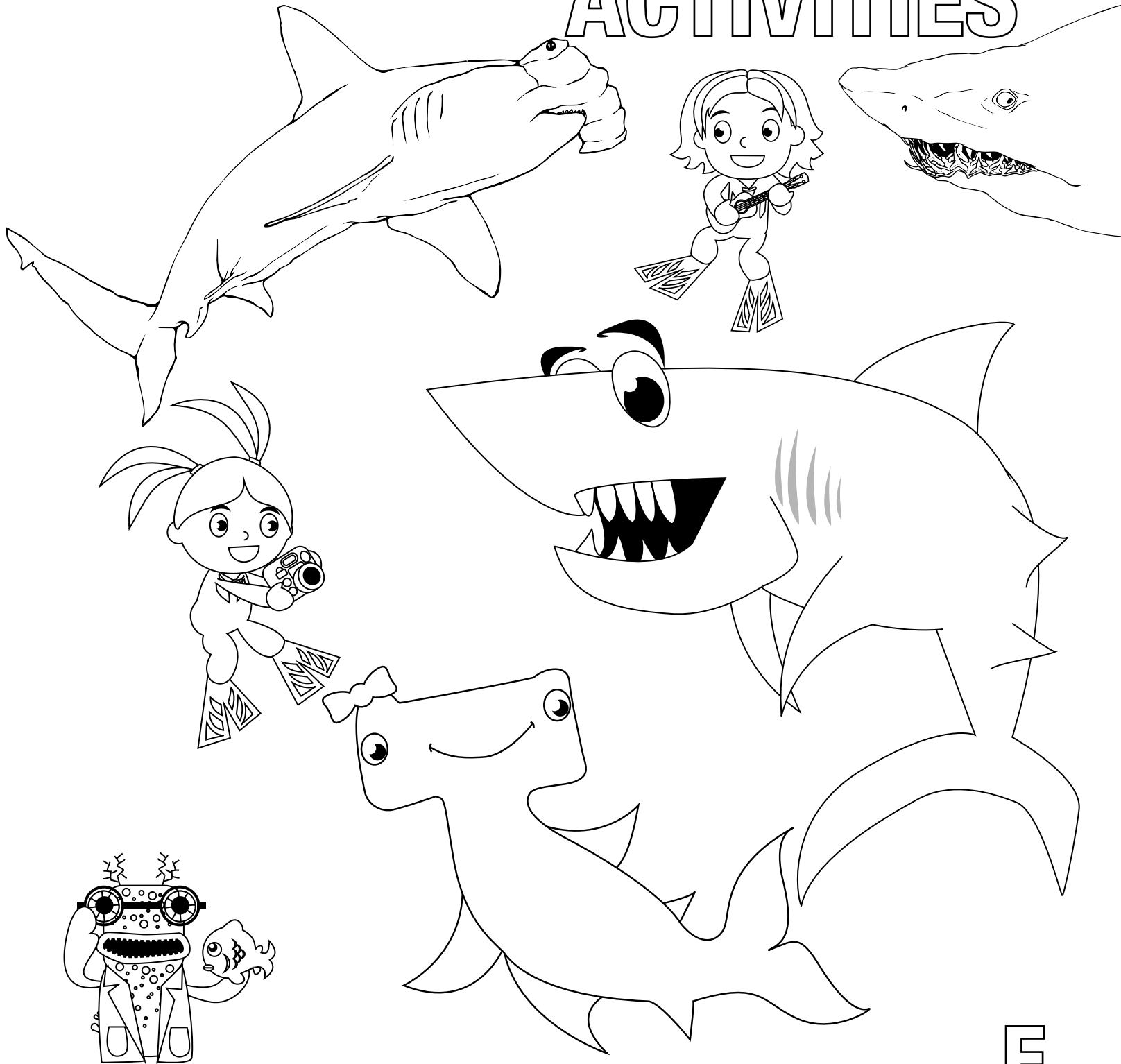
All voices big and small count! Knowing what is on your plate is an important step toward conservation. There are many organizations that provide wallet cards that help consumers choose what seafood is considered sustainable. In order to be sustainable, a population must be harvested in a way that ensures that the number caught does not exceed the number of animals being added within the population from year to year, and that harm being done to other populations of animals and to the environment is minimized. You may have a local restaurant in your area serving shark fin soup or other non-sustainable resources from the sea. Do some investigation and create your own letter writing campaign to create change in your local community.

Many zoos and aquariums now have Sustainable Seafood Cards that you can either pick up or download from their website. Remember, you are what you eat! Email us to find out more about these important issues. As good citizens of the world, we want to live at one with nature and always support the health of our Ocean. By doing this, we GO BLUE and LIVE BLUE!



Don't Be Afraid Of Sharks

ACTIVITIES



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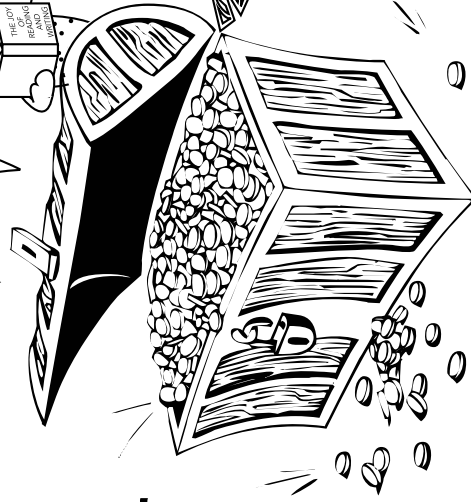
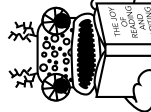
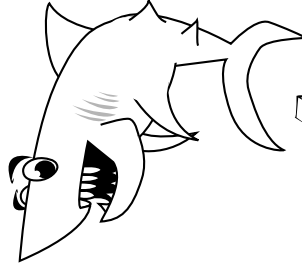
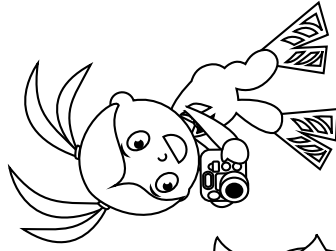
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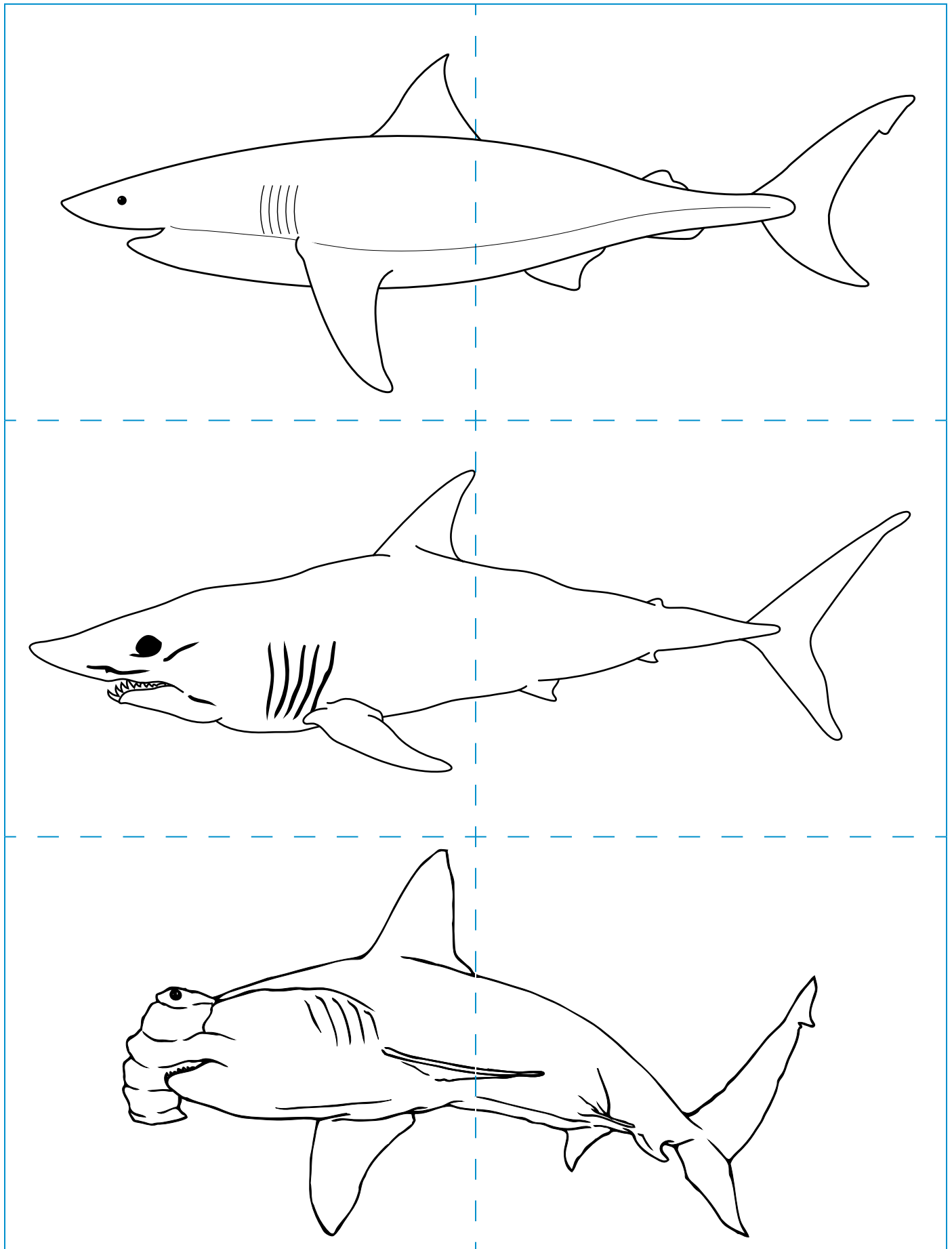
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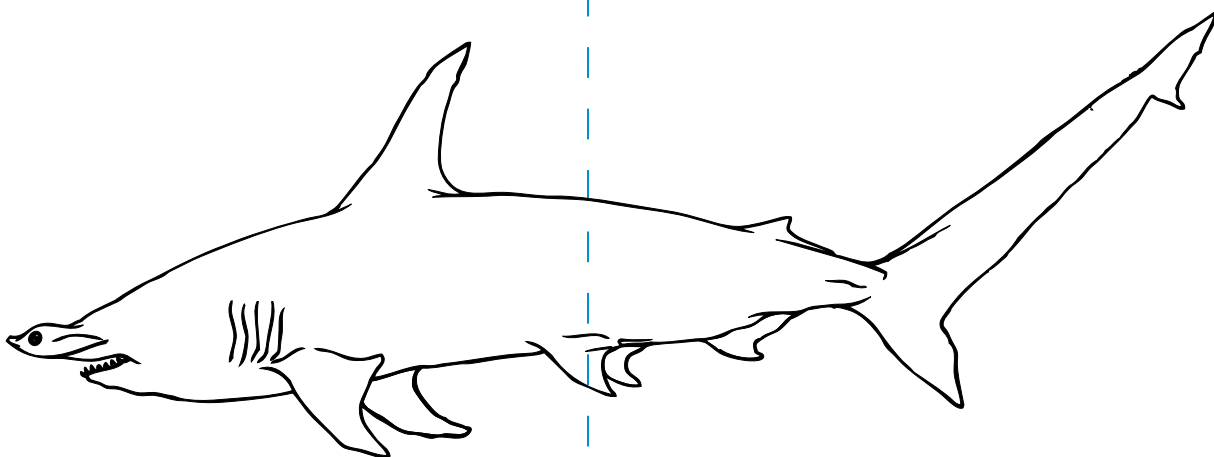
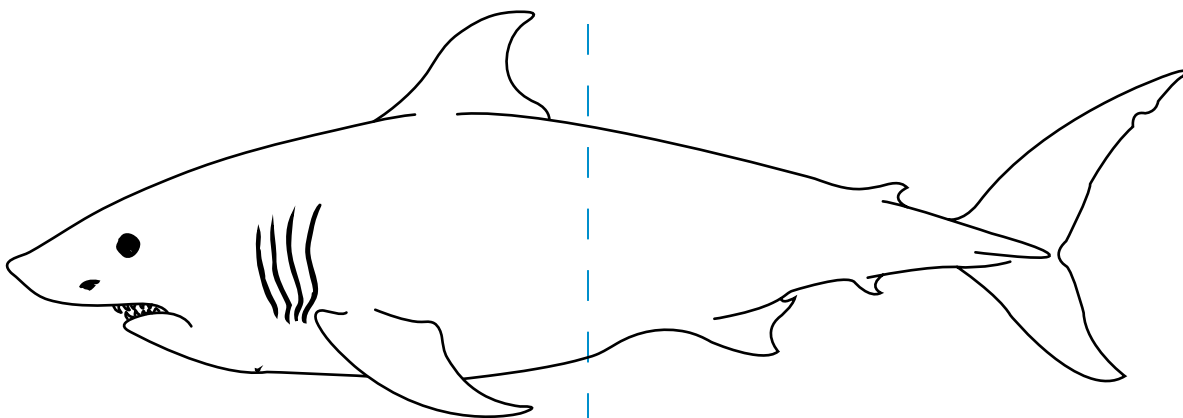
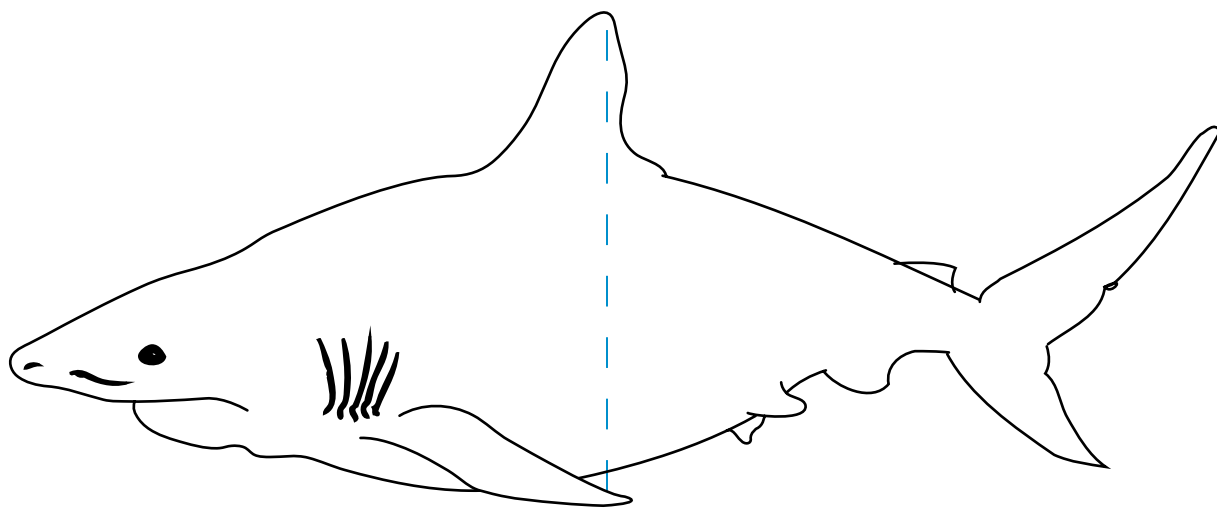
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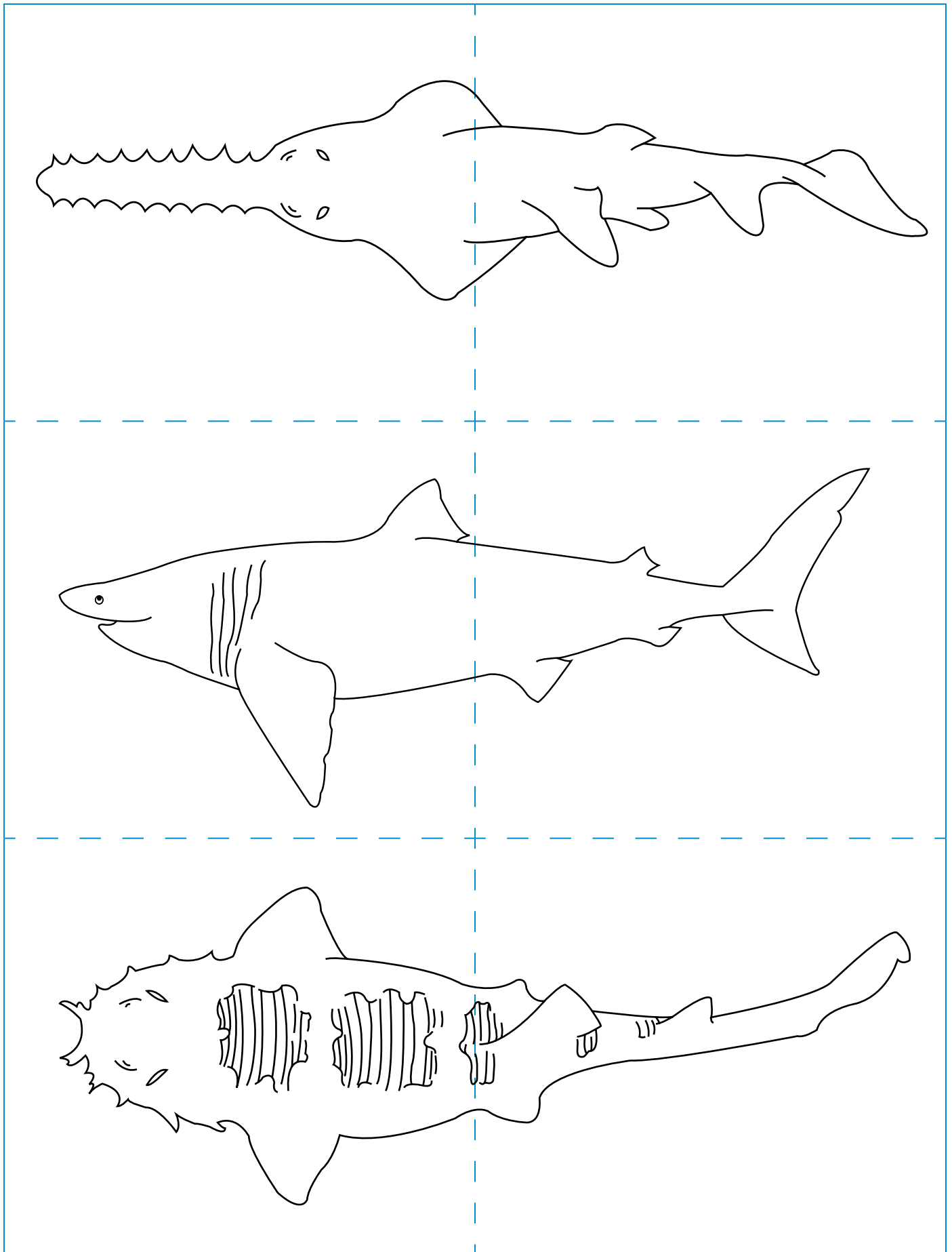
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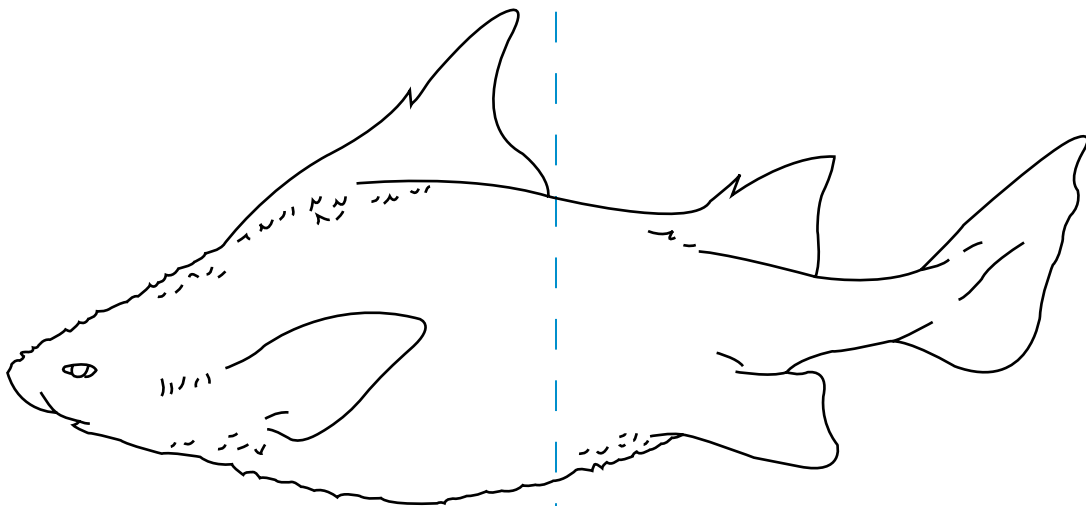
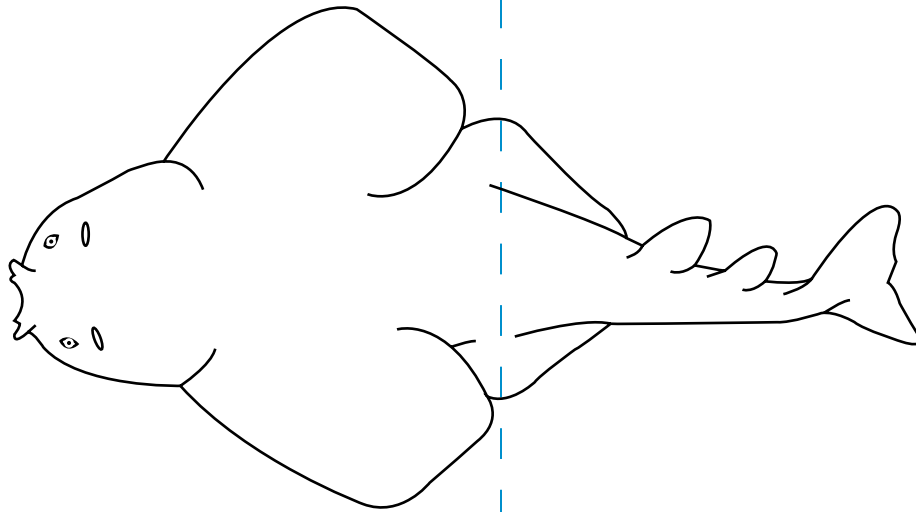
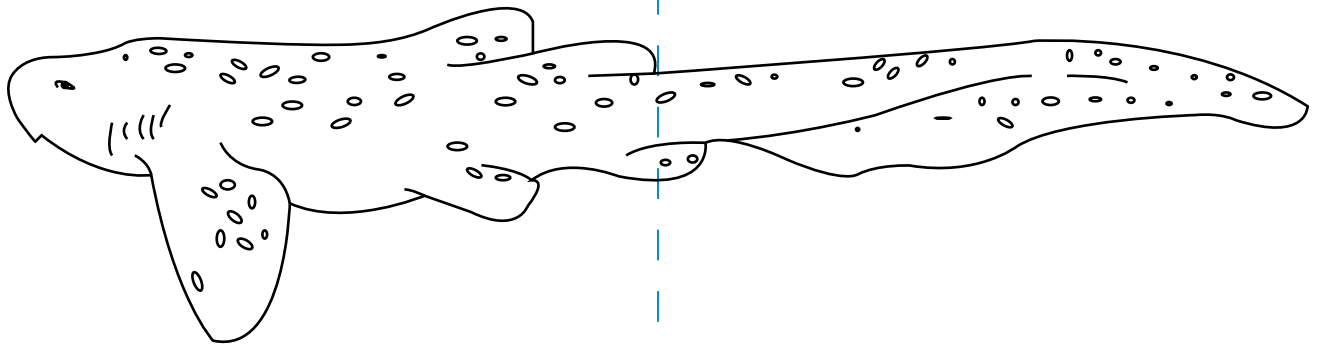
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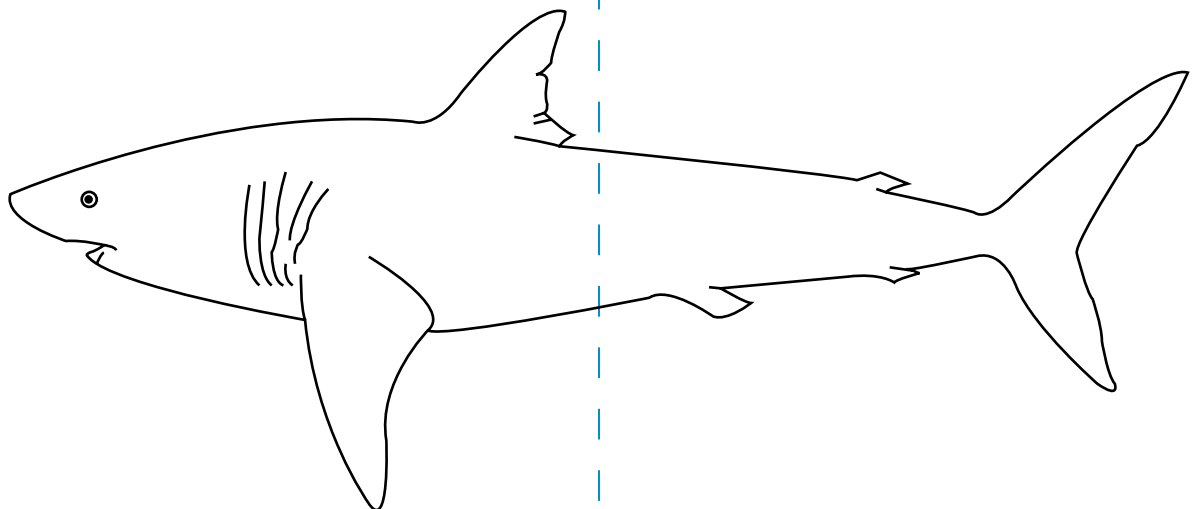
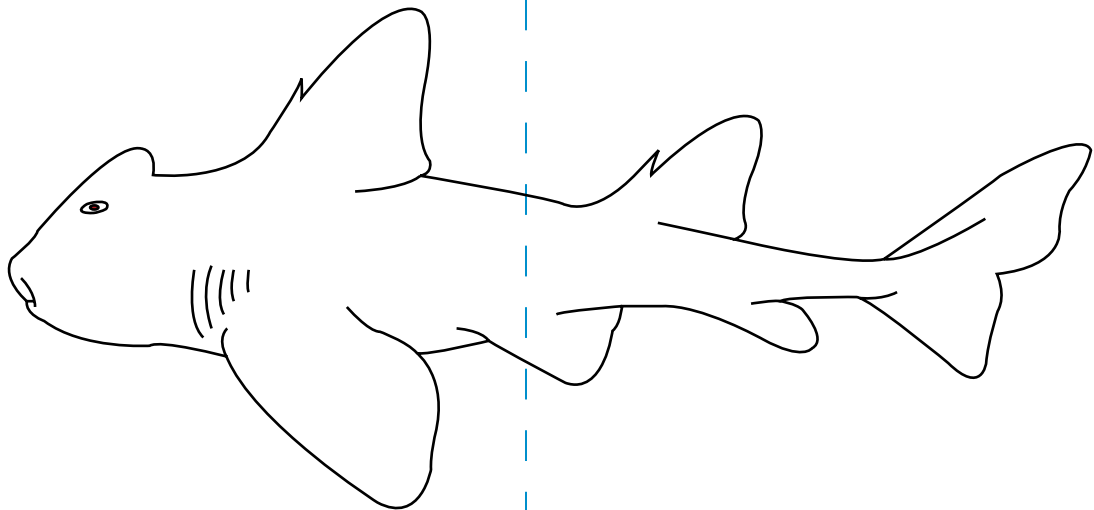
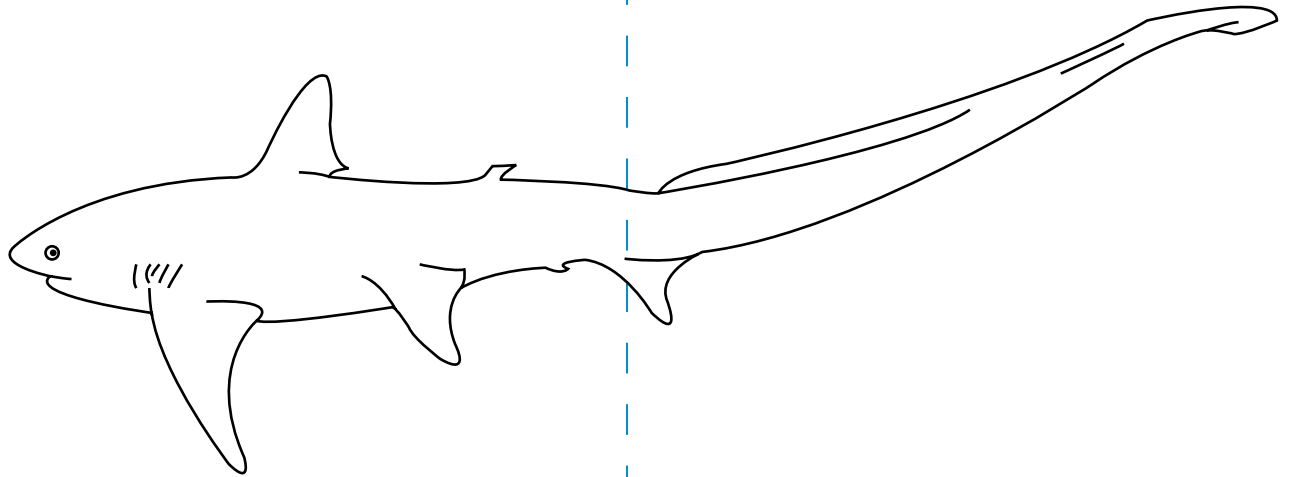




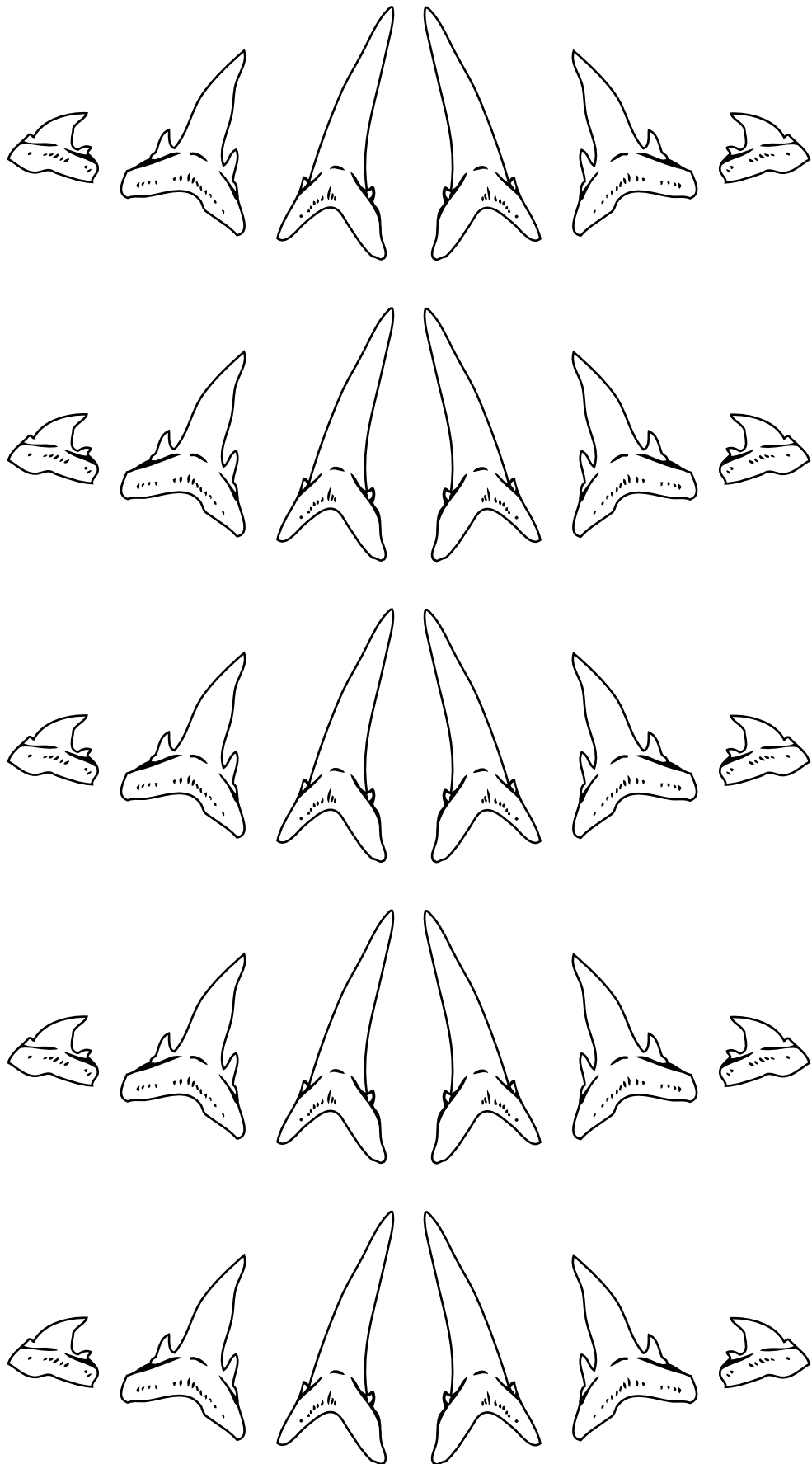


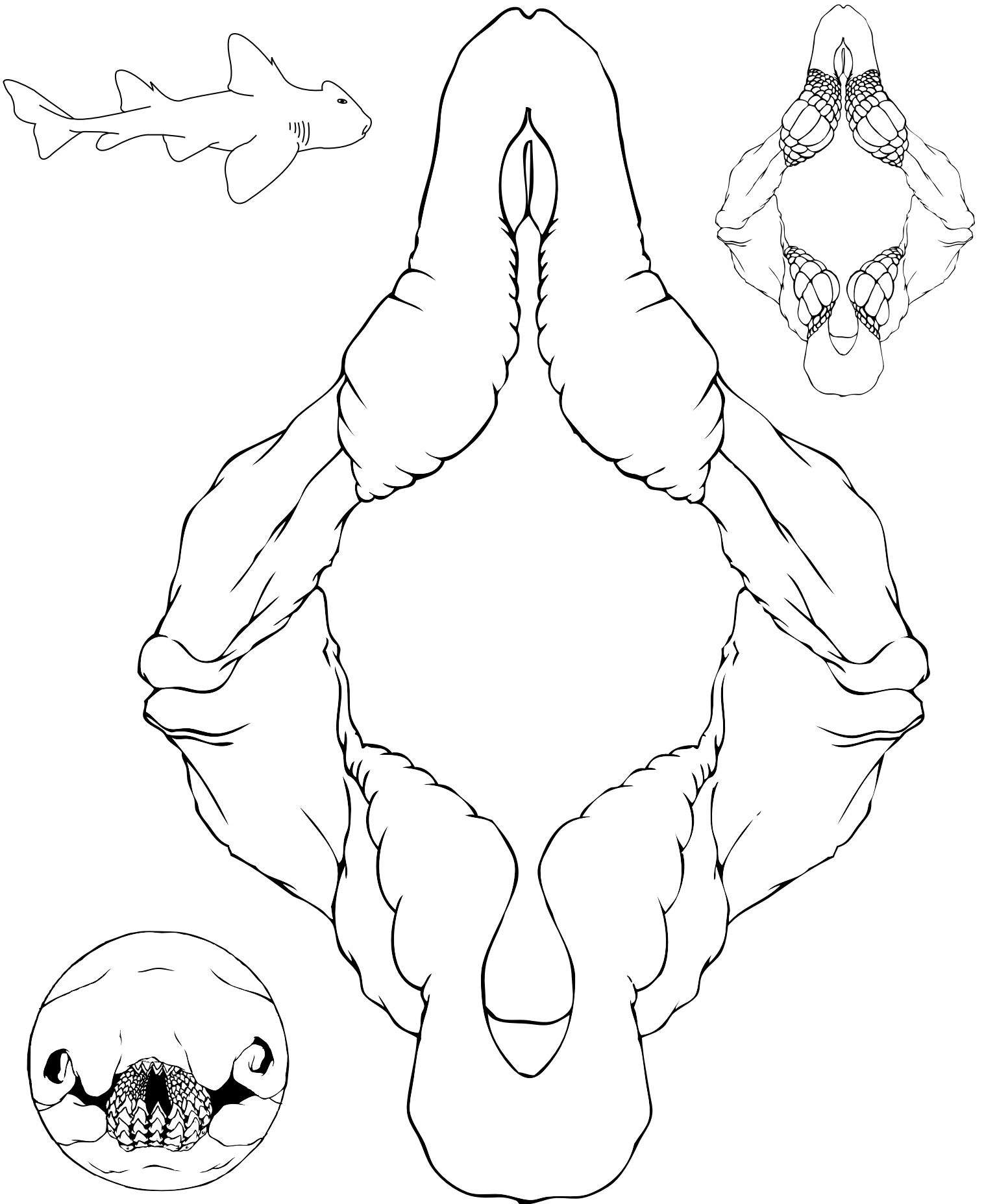


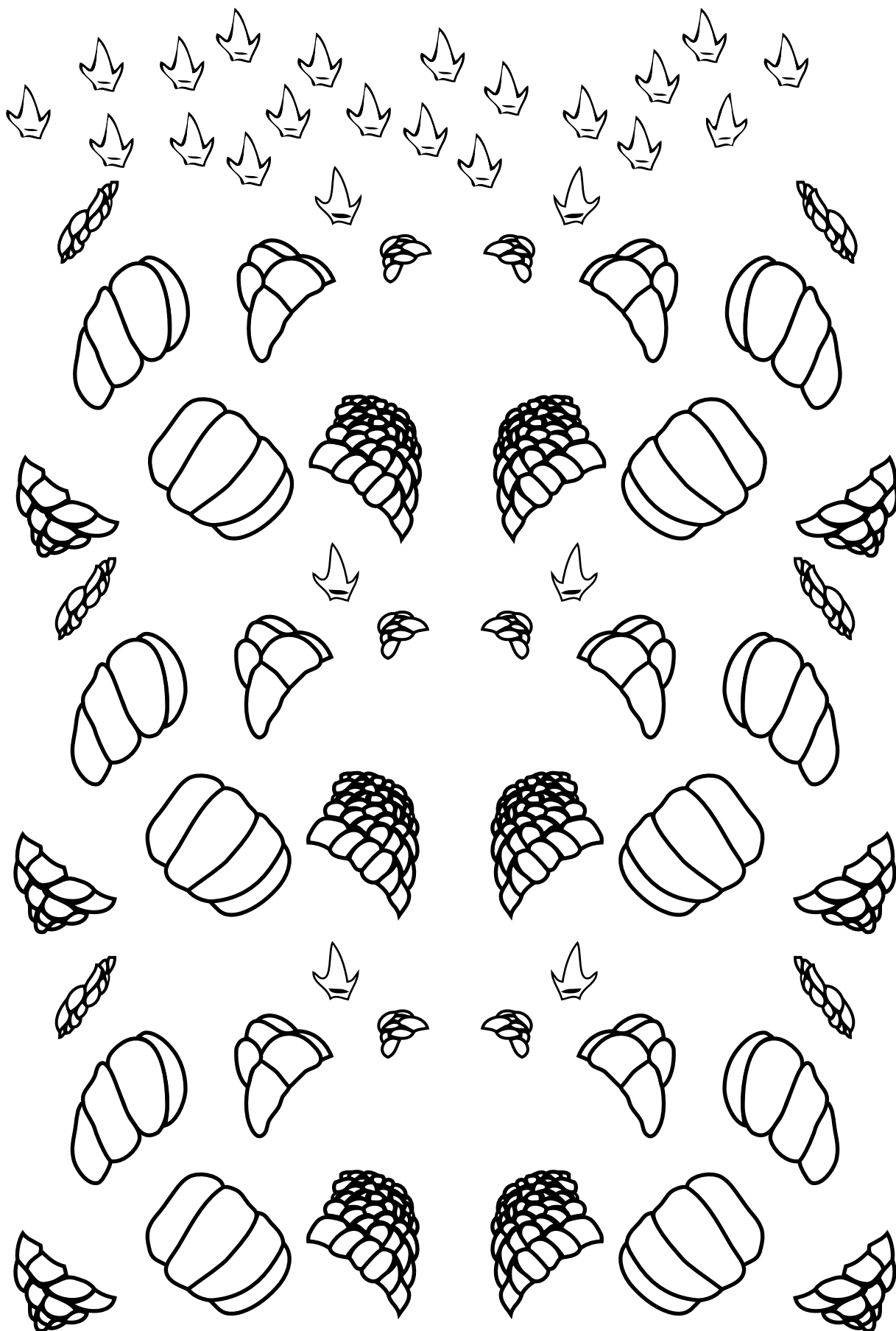


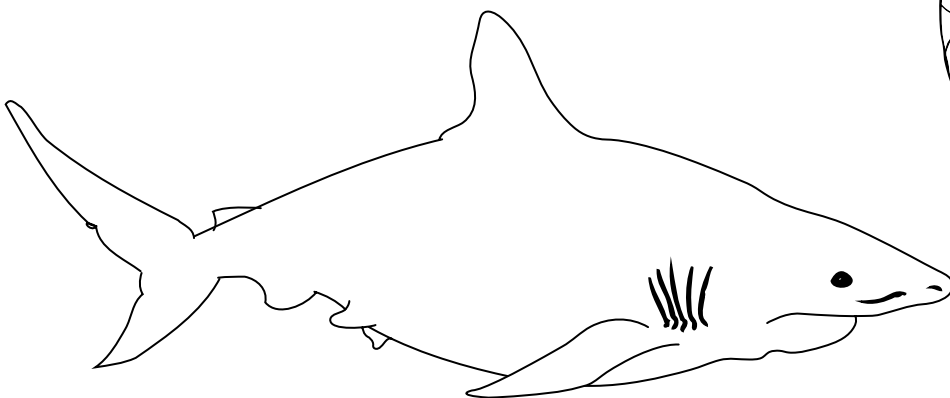
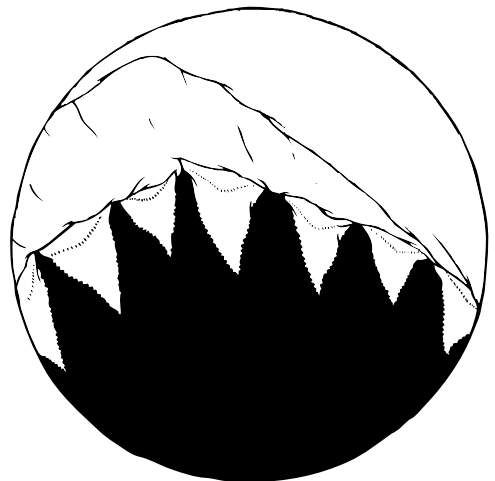
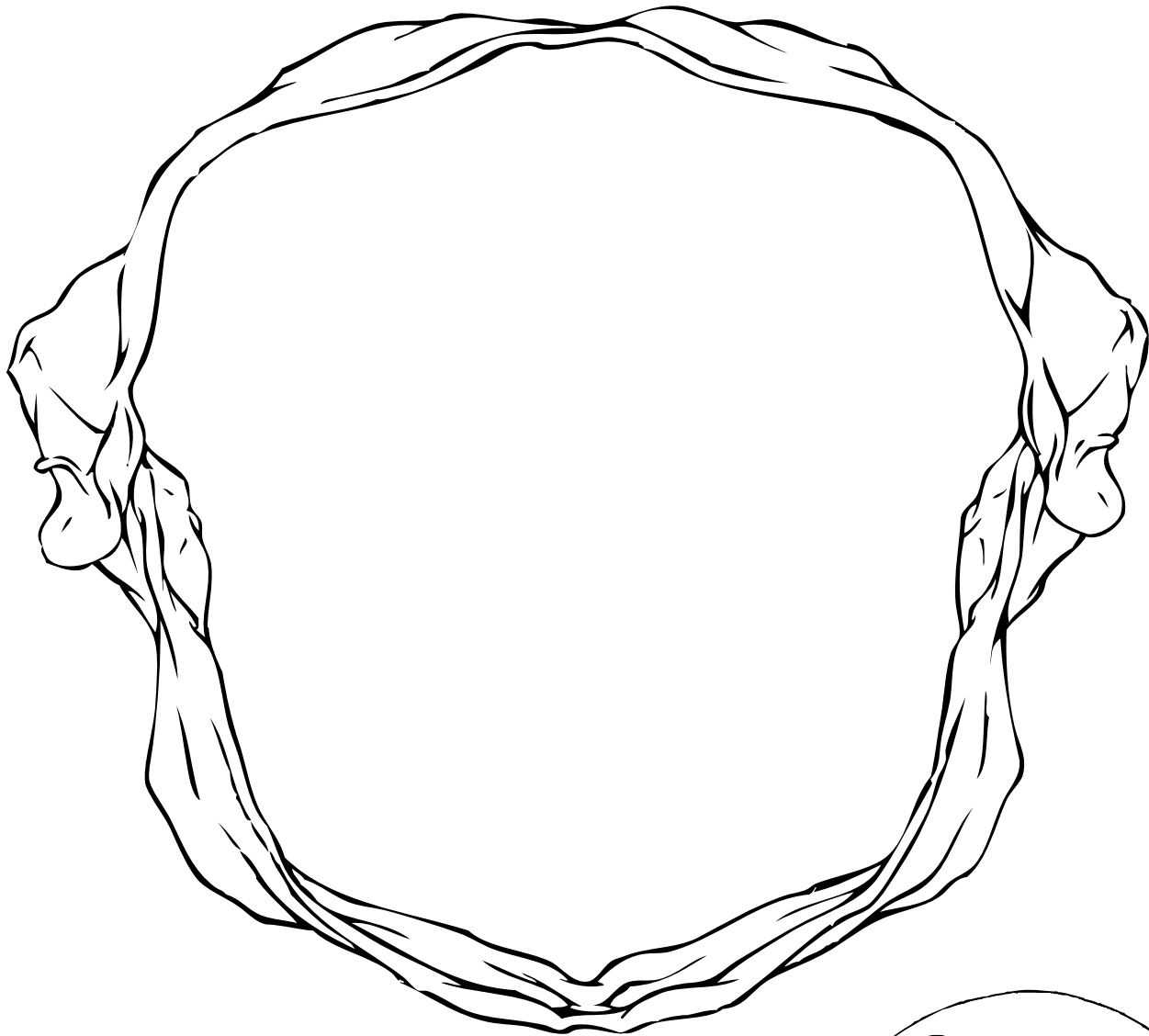


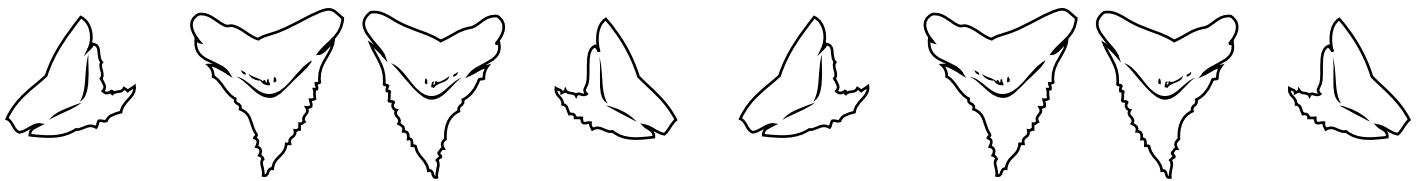
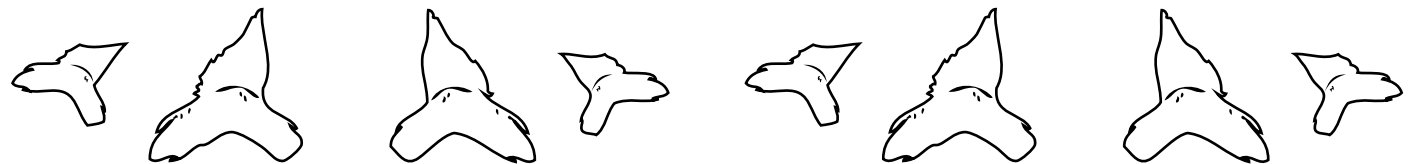
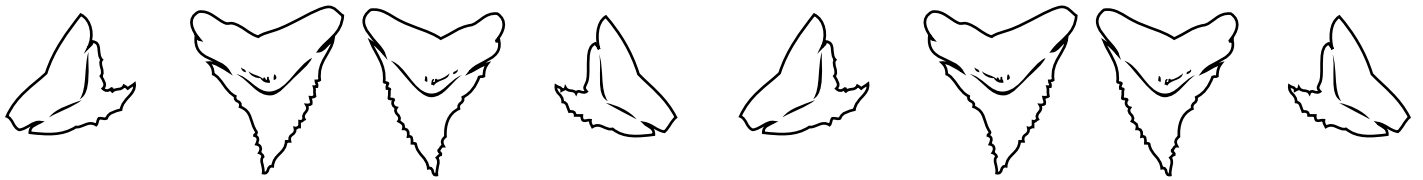
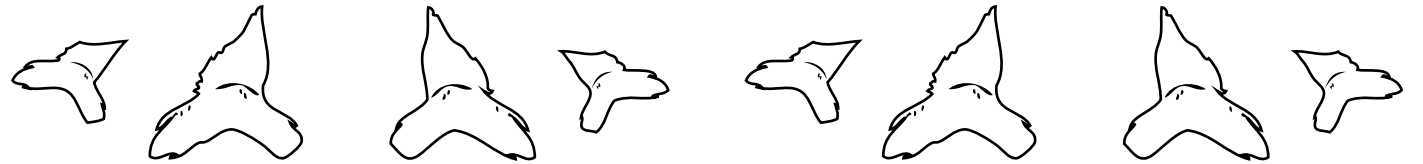
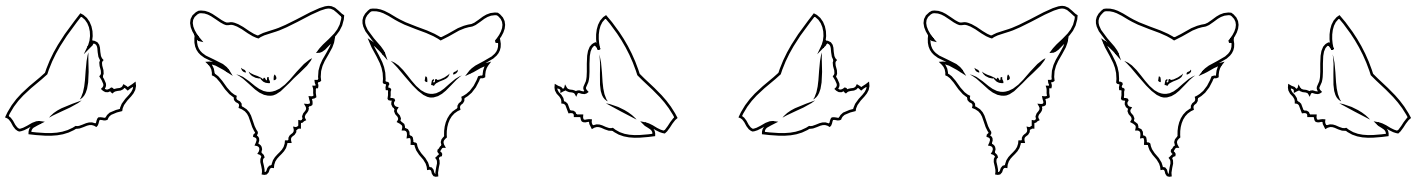


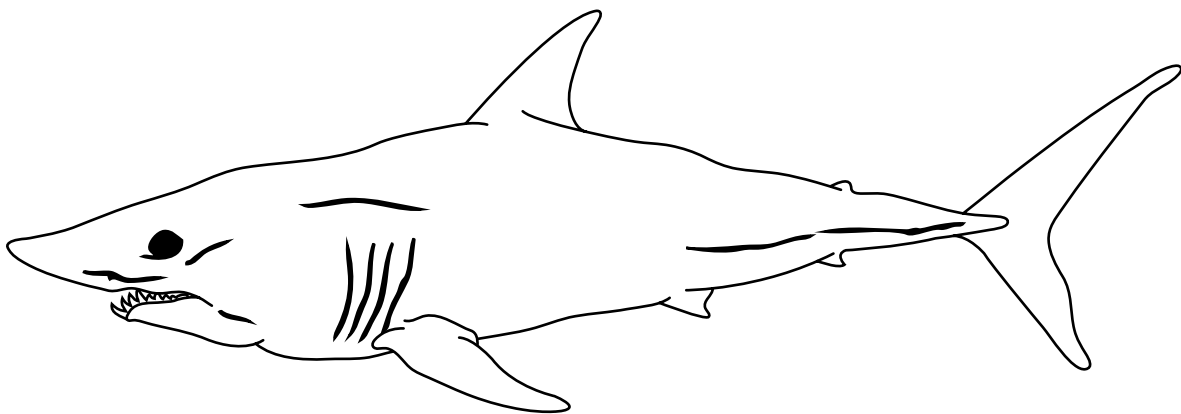
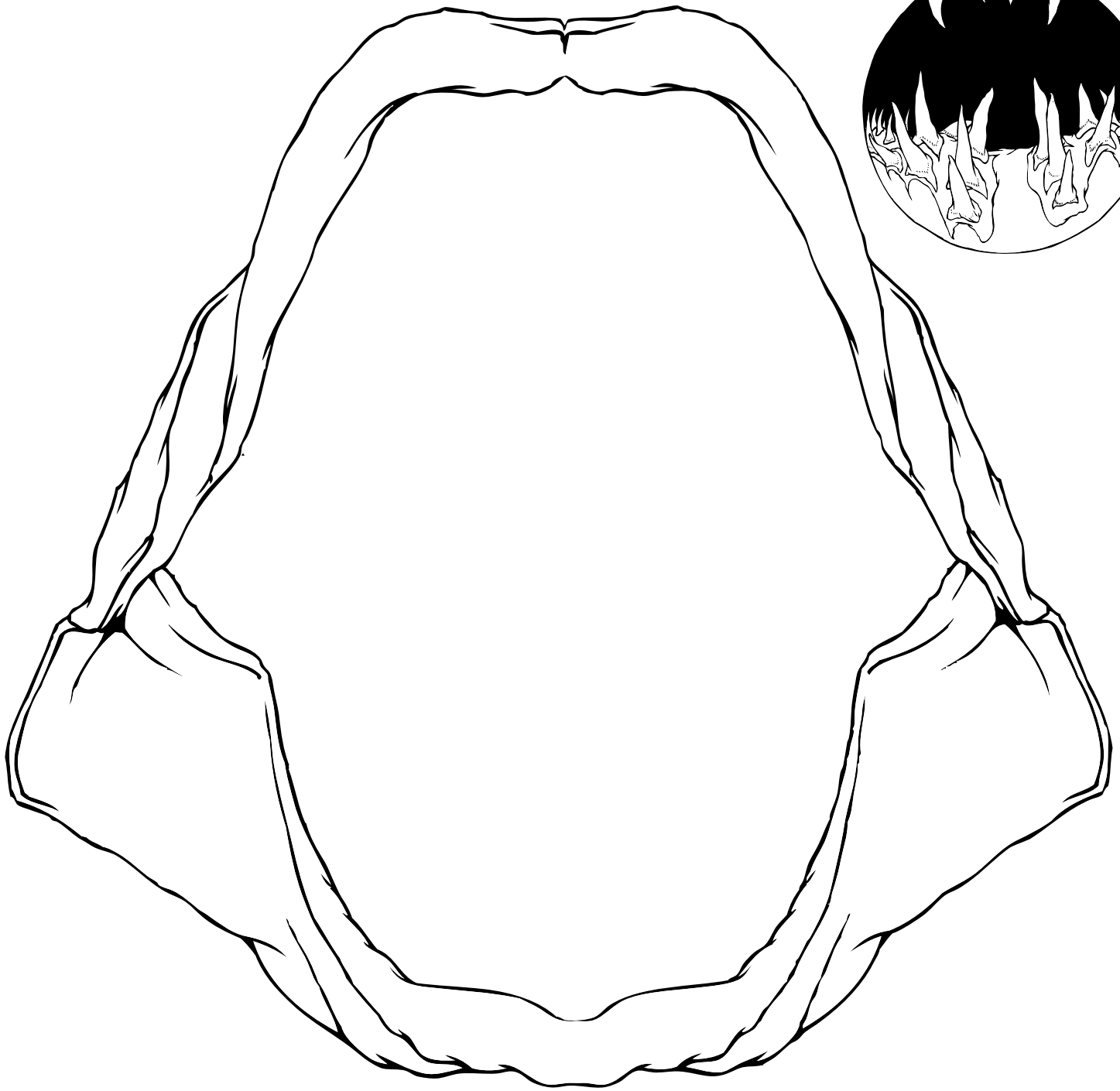


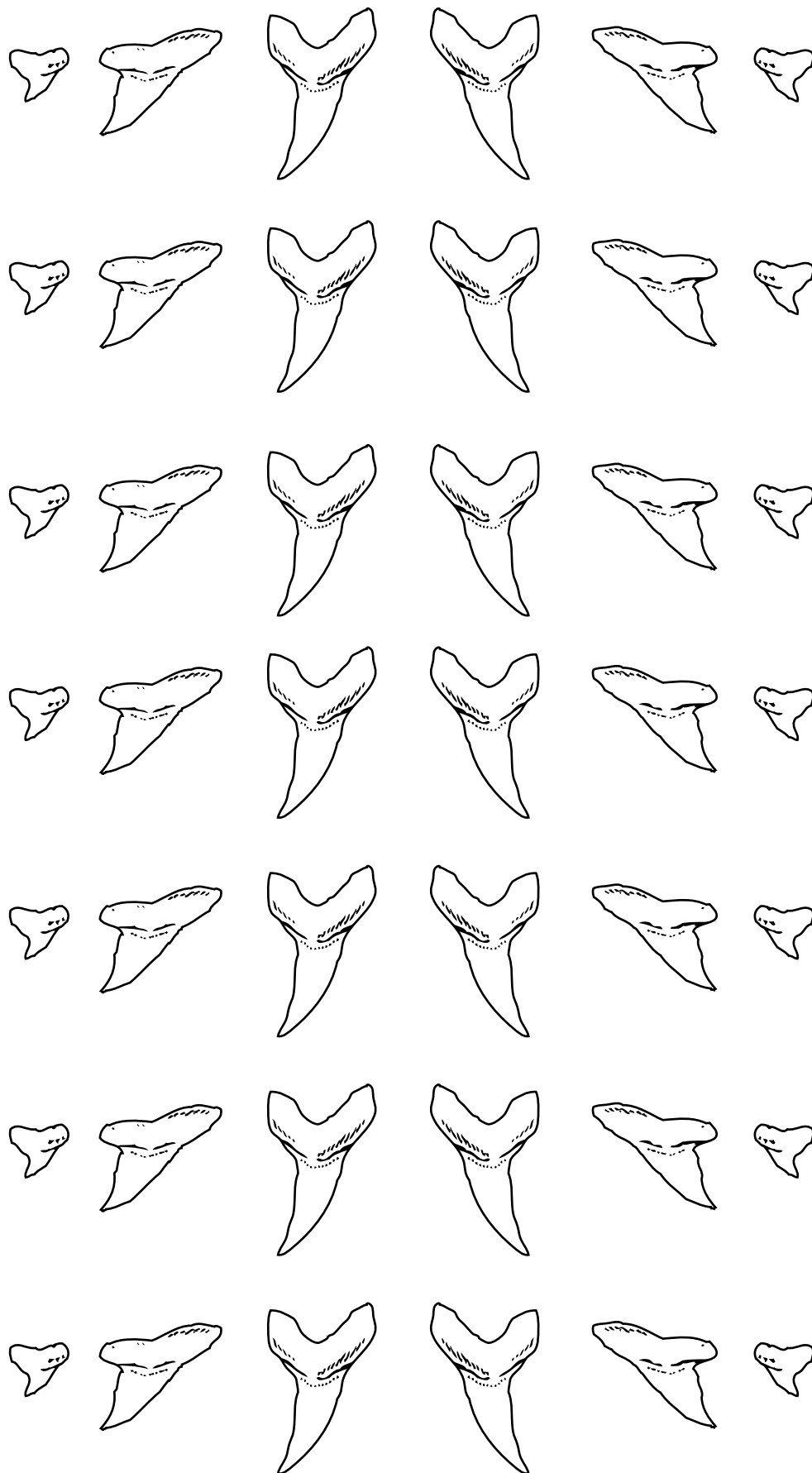


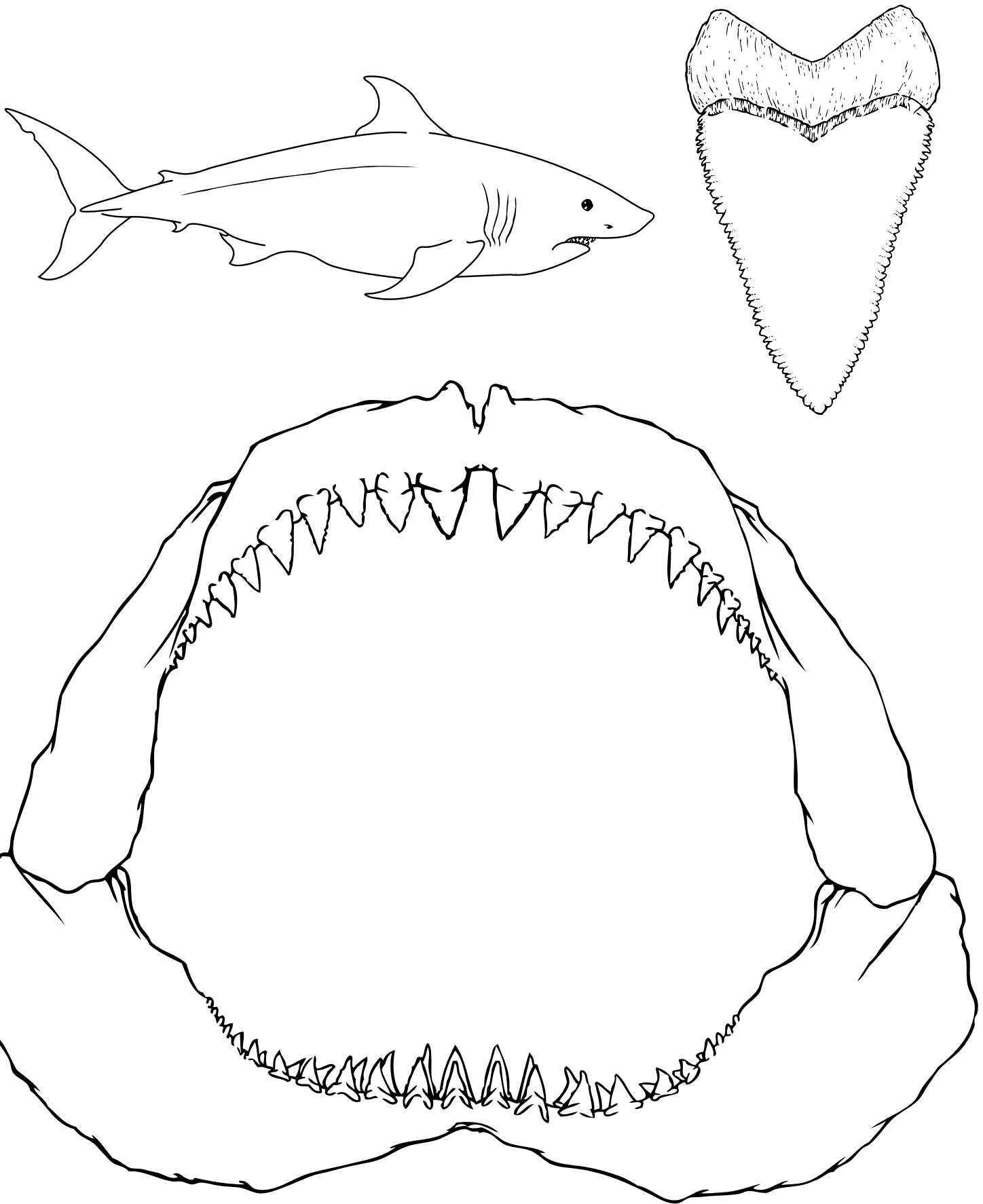


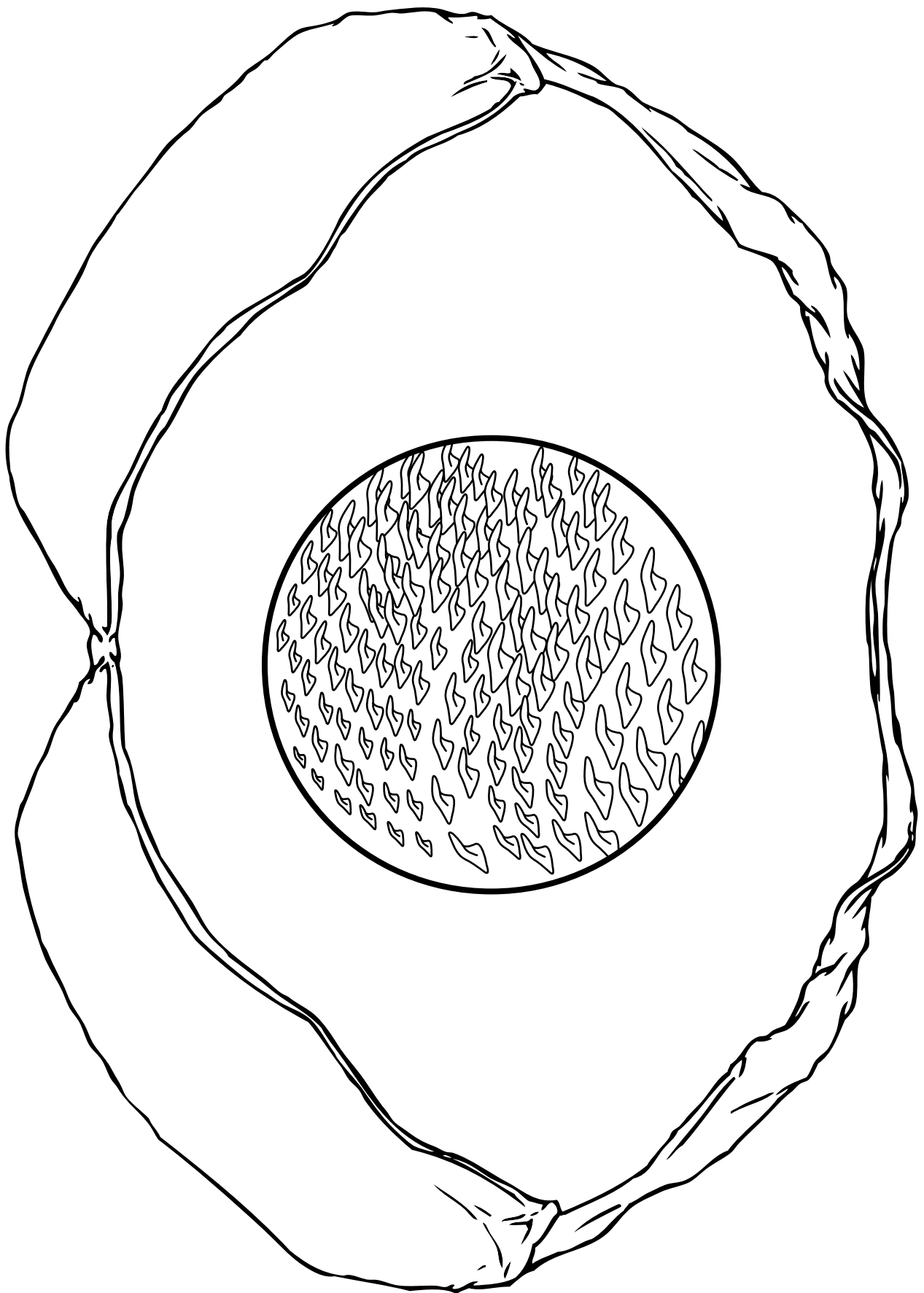


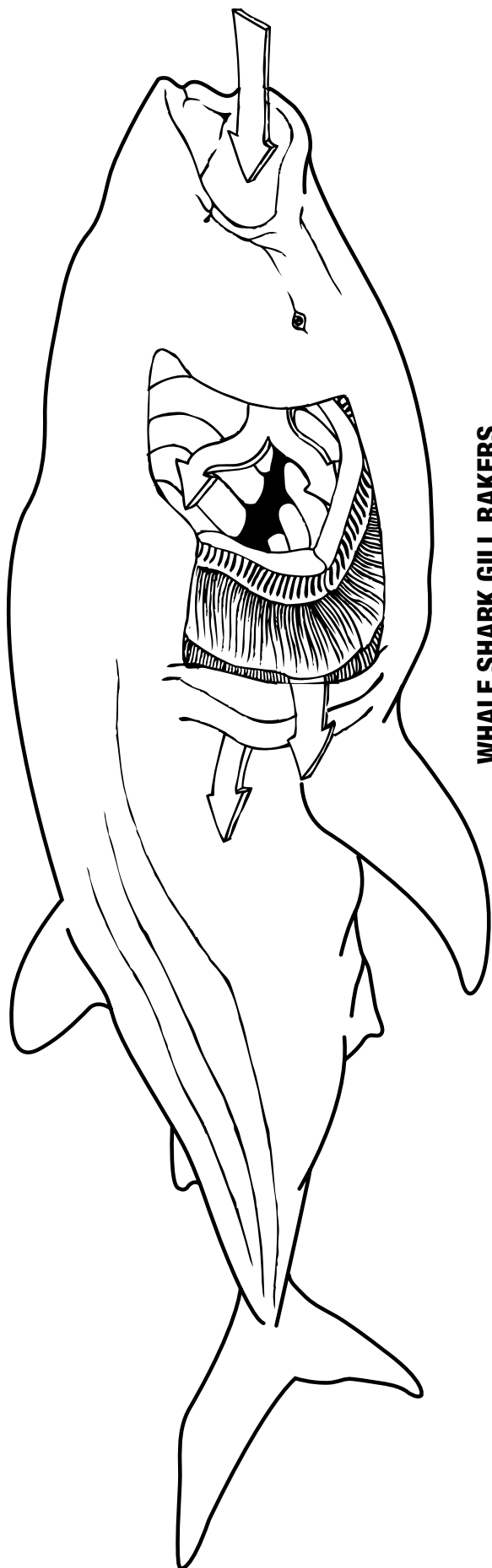




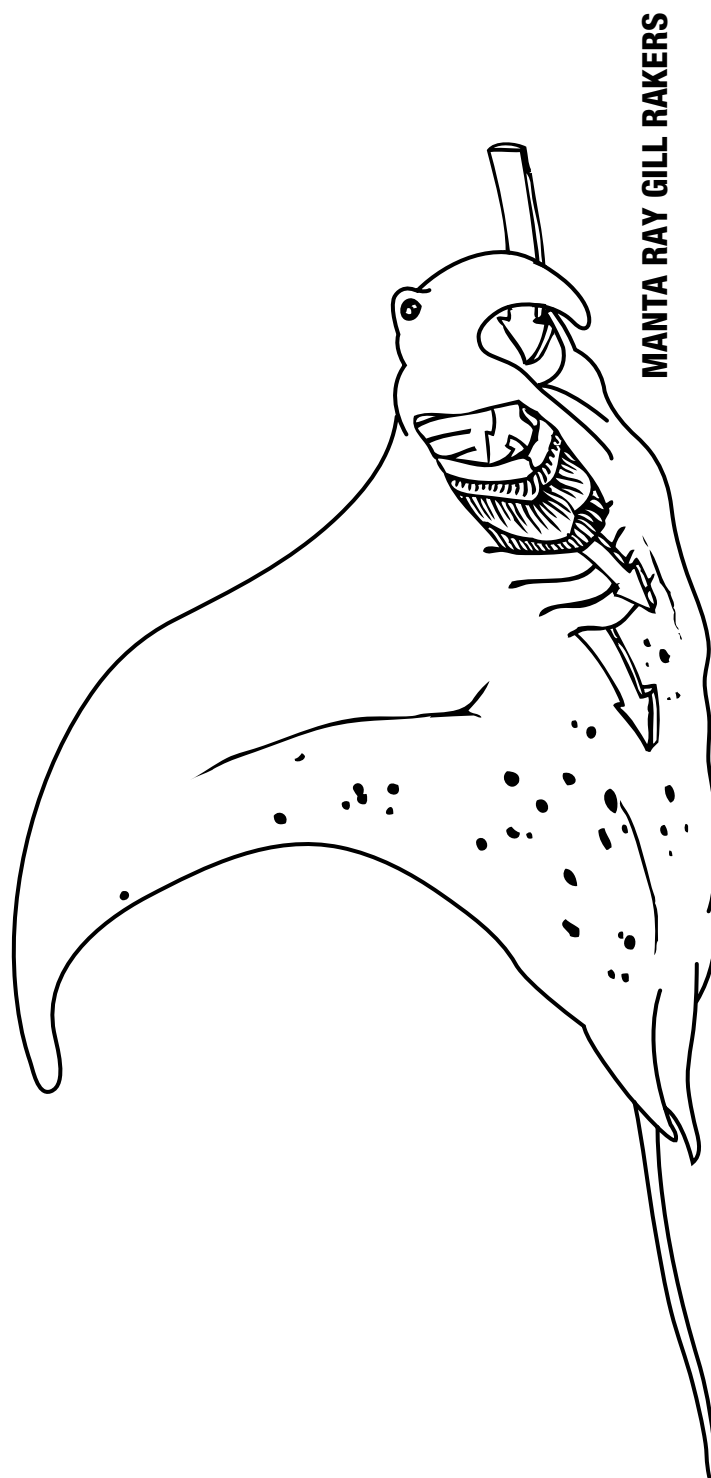




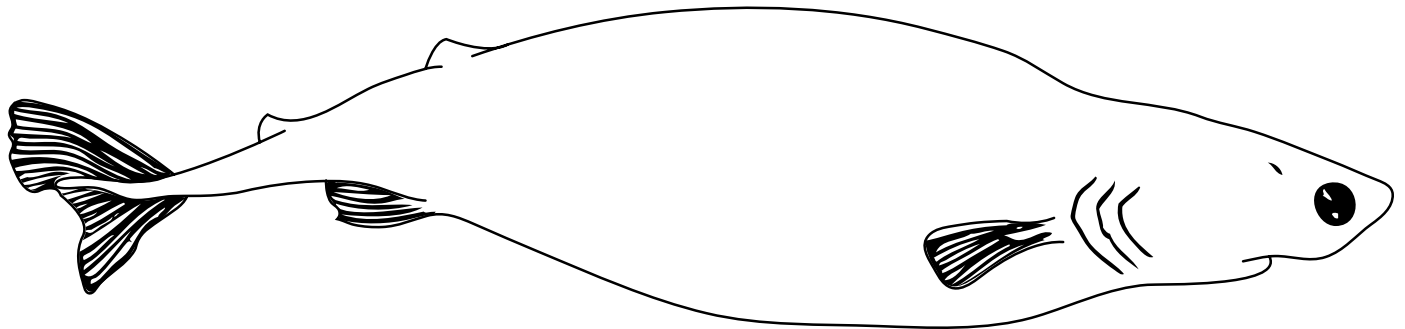




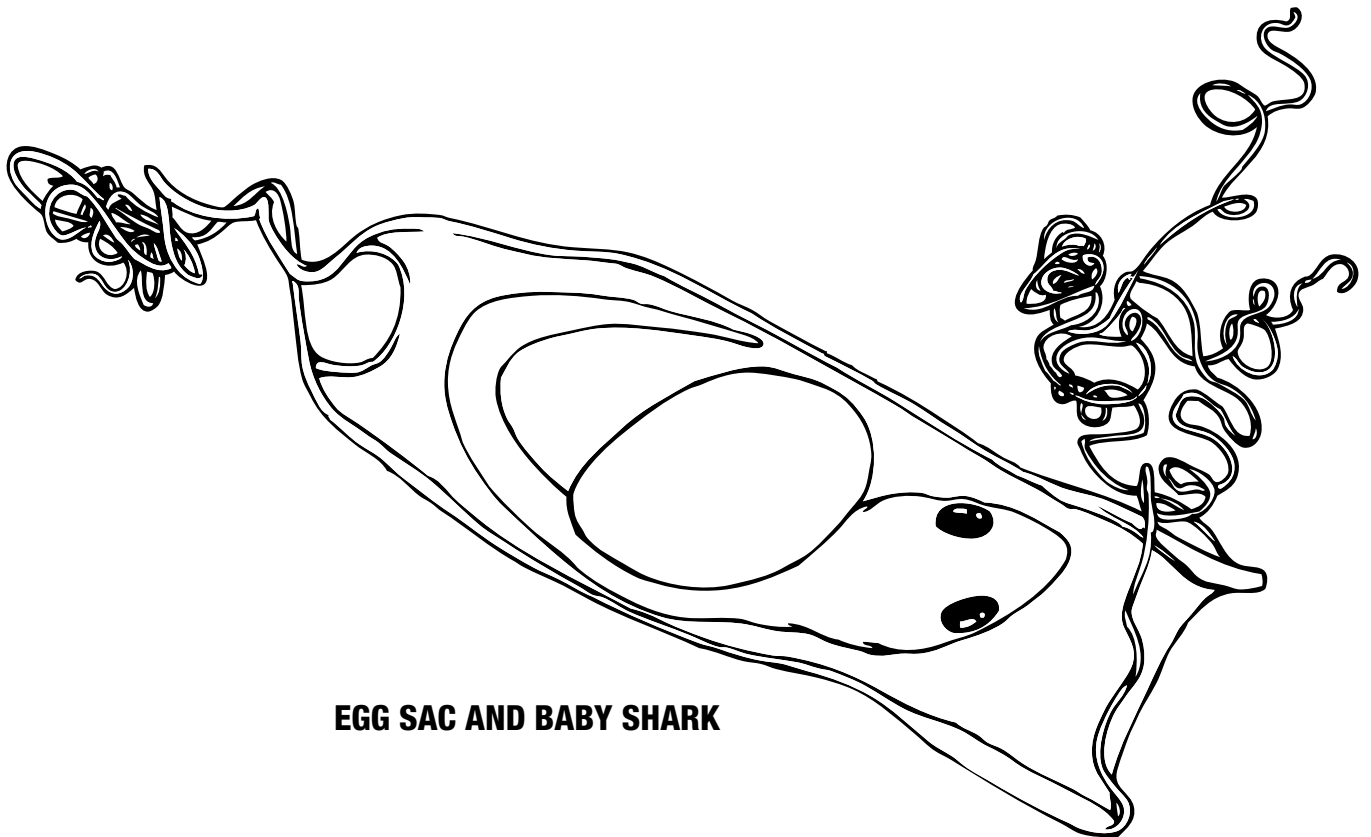
WHALE SHARK GILL RAKERS



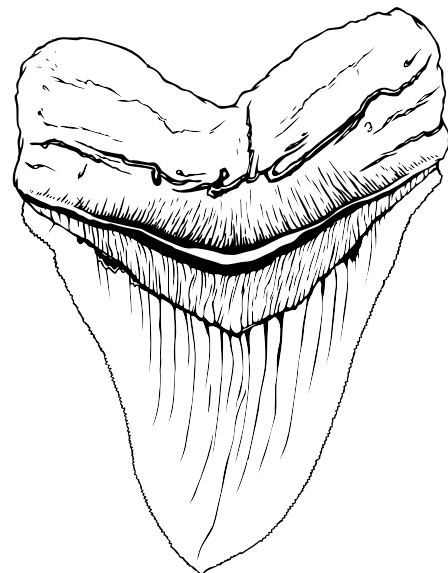
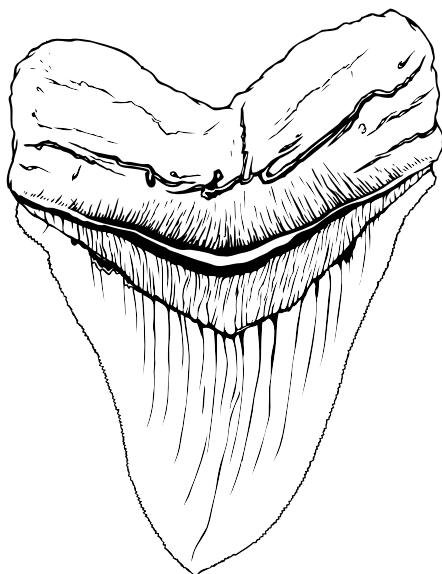
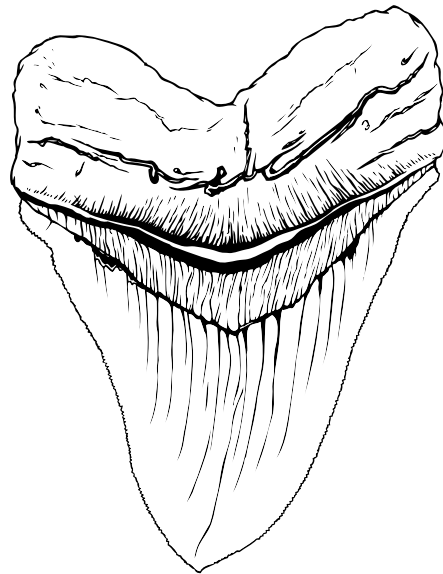
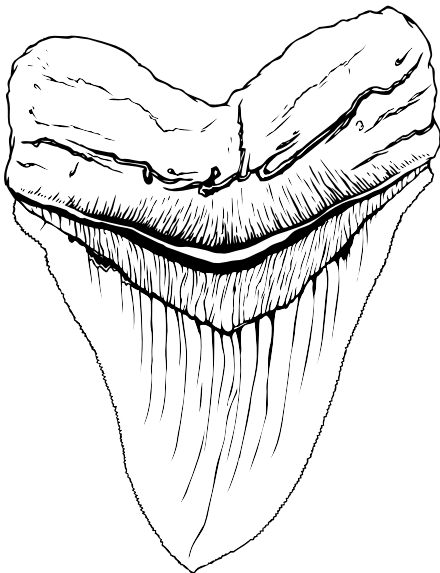
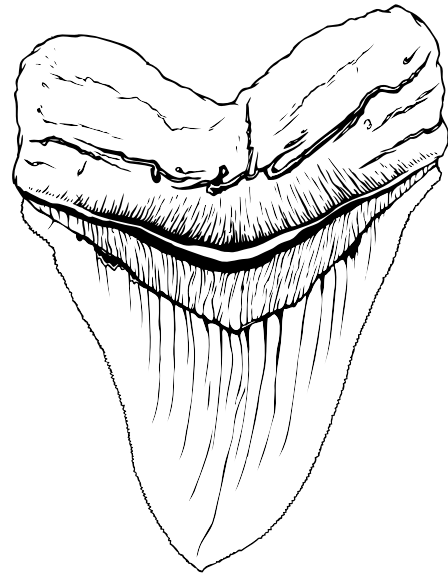
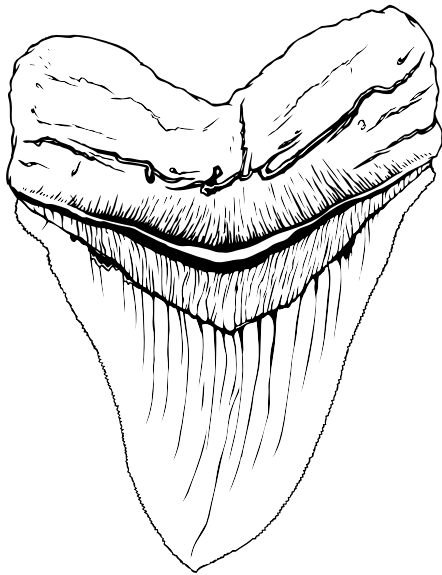
MANTA RAY GILL RAKERS



COOKIE CUTTER SHARK

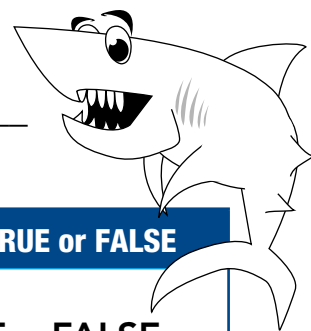


EGG SAC AND BABY SHARK





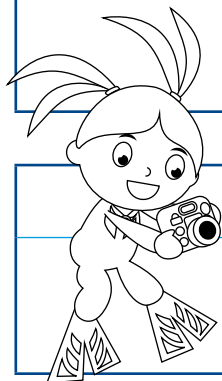
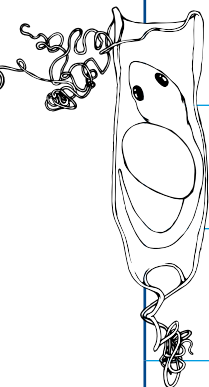
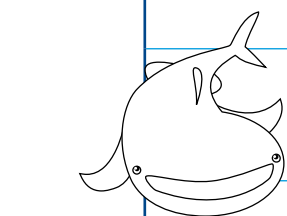
Shark Trivia



Name _____ Date _____

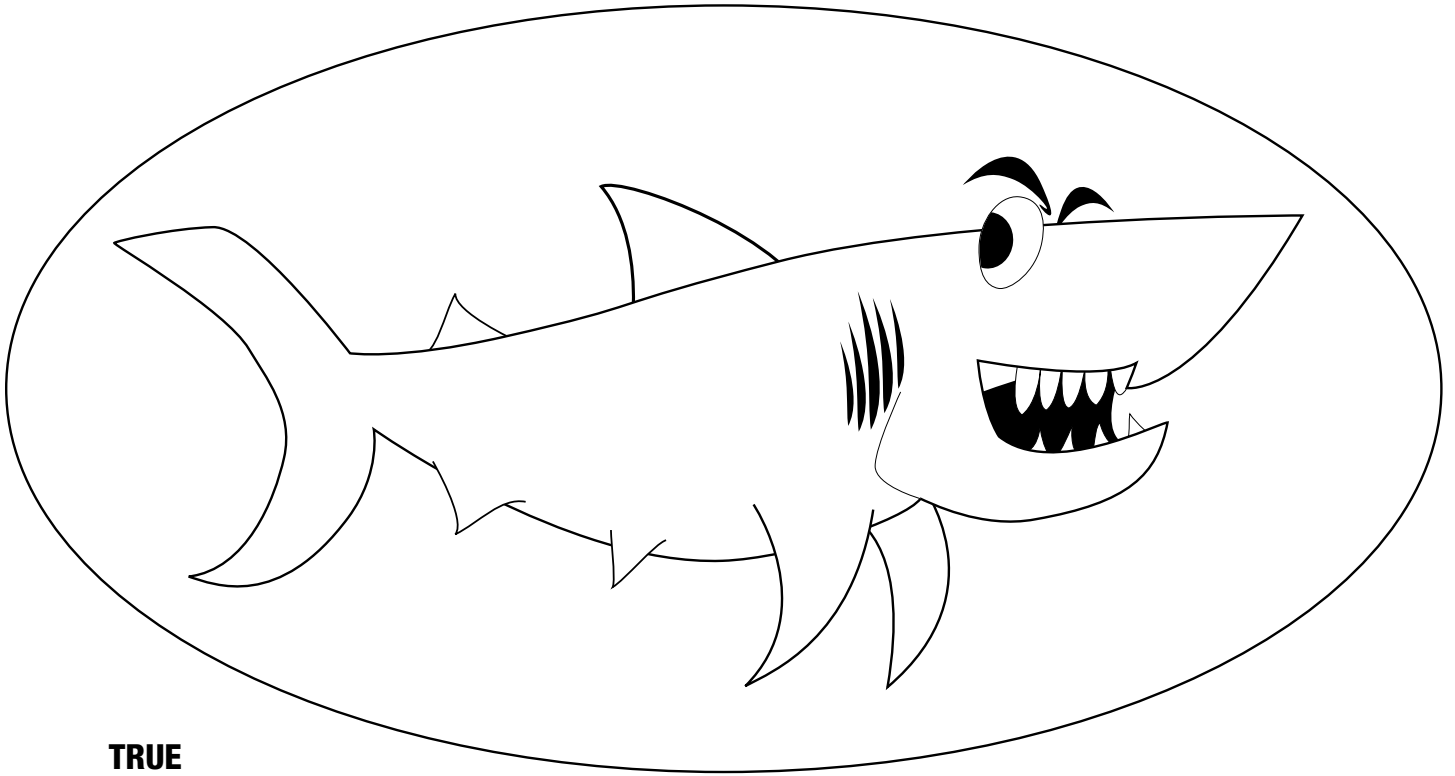
Directions: Circle the correct answer to each of the statements below.

Shark Trivia Statement	Circle TRUE or FALSE
Some sharks spend much of their day resting nearly motionless on the sand.	TRUE FALSE
Some sharks can swim into river areas for periods of time.	TRUE FALSE
Sharks always swim alone.	TRUE FALSE
Sharks can swim in water as shallow as 2ft and as deep as or deeper than 4,000 feet.	TRUE FALSE
Like all fish, sharks have only one pair of gills.	TRUE FALSE
Some sharks have an endless supply of teeth and can replace as many as they loose for as long as they live.	TRUE FALSE
Some sharks lay eggs.	TRUE FALSE
Shark parents work hard raising their young to protect them in the ocean.	TRUE FALSE
Some sharks can jump over twenty feet in the air.	TRUE FALSE
Sharks were swimming in the ocean even before dinosaurs walked the earth.	TRUE FALSE

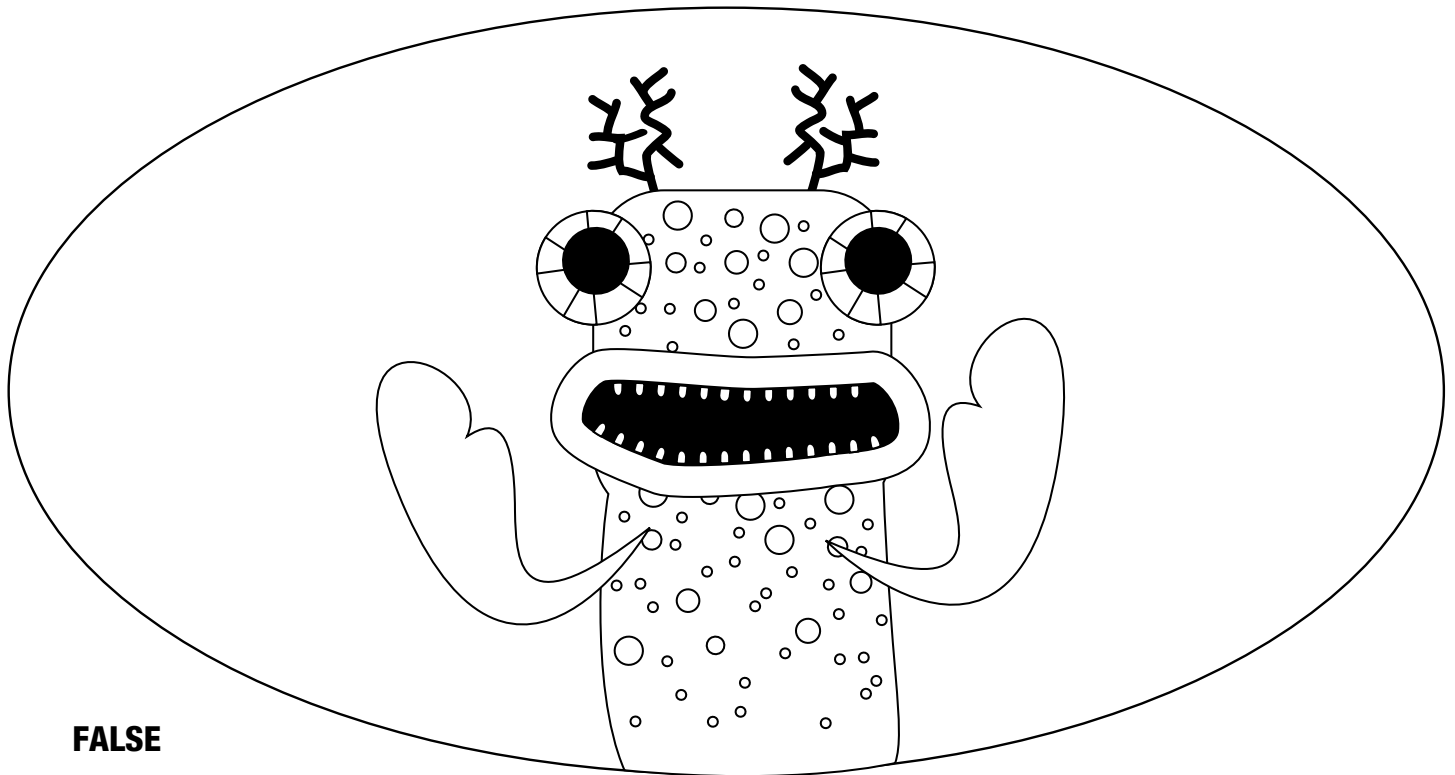


OCEAN ANNIE'S SUPER SCUBA CHALLENGE

What part of the sharks' bodies do we find as fossils? Do you know why?



TRUE



FALSE

Write Your Own Shark Story

strong
declining

deep
skates

bumpy
overfished

body
sandpaper

manta rays

gravel

sting rays

disappearing

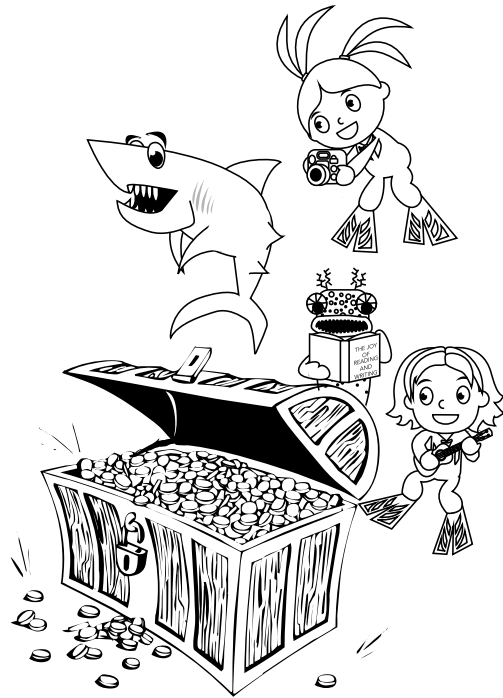
graceful

throughout

amazing

sharp

sharks



endangered

powerful

gills

long

rough

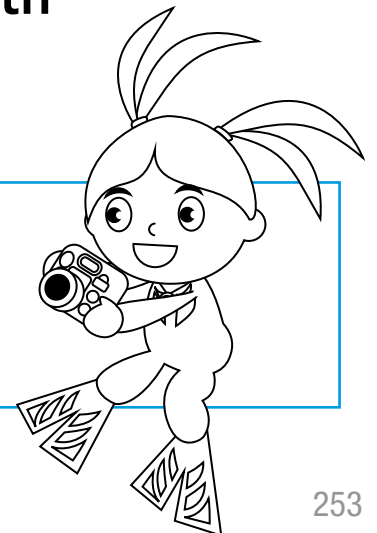
far

smooth

fins

OCEAN ANNIE'S SUPER SCUBA CHALLENGE

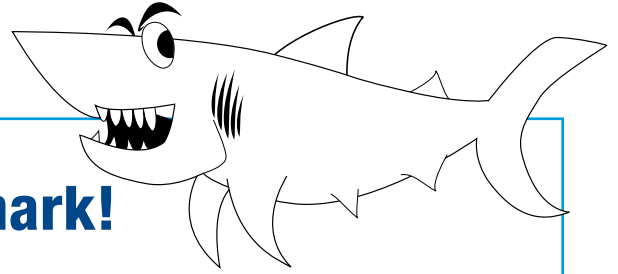
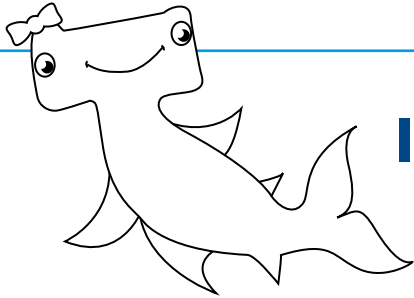
See if you can write sentences or a story about sharks using as many words from this treasure chest as you can.



Shark Tales

Name _____ Date _____

Directions: Read through the story and fill the blanks in with meaningful words that best complete the sentence. You can use words not included in the Treasure Chest too! Be creative and use your imagination and knowledge.



I want to be a shark!

I am a shark and a very _____ swimmer,

I use my _____ to help me steer as I swim.

My home range is found _____ the ocean, and I can travel

_____ distances. Some of my relatives include

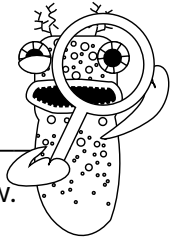
_____ and _____. My skin is

_____ and feels like _____. I breathe

through special openings on my body called _____.

I need to be protected because sharks are _____.

Shark Mouth 1



Name _____ Date _____

Directions: Test the Rice Plankton with each of these tools and answer the questions below.

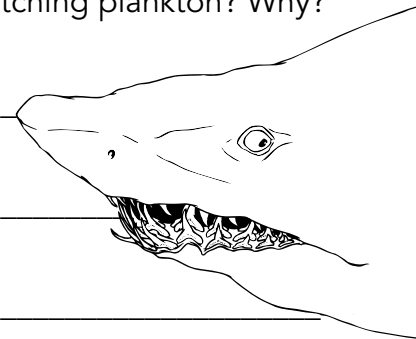
Net - like the mouth of the whale shark or basking shark. They sift water and filter plankton as the animal swims along.

Spaghetti Grabber - like the mouth of a mako shark. Their mouth and teeth grab and snare fast swimming skinny prey like squid.

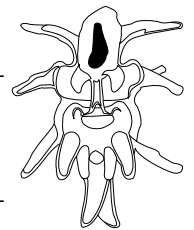
Nutcracker or Pliers - like the mouth of a horn shark or nurse shark. These sharks' mouths have flat, molar-like teeth made for crushing sea urchins, clamshells and scallops.

The rice in this bowl represents plankton. Plankton is comprised of phytoplankton and zooplankton. Although some plankton can barely be seen, other plankton can be quite large like jellies. Plankton means organisms that drift in the ocean or fresh water.

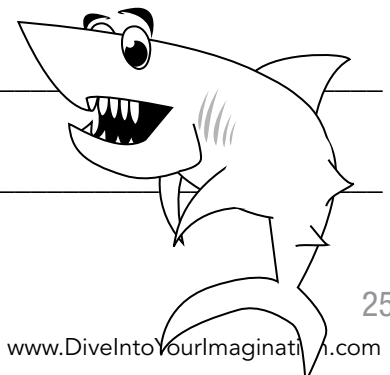
1. Which of the three mouth tools do you think will be most effective for catching plankton? Why?



2. Which of the three mouth tools do you think will be least effective for catching plankton? Why?



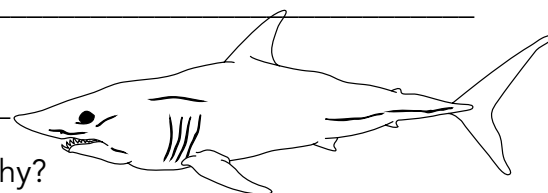
3. For thirty seconds use the net and catch as much plankton, or rice, as you can. Pour plankton into the graduated cylinder as you go along. How much plankton did you catch?



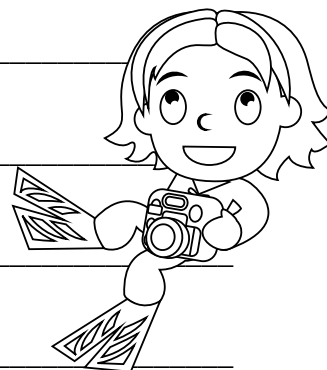
4. Repeat the steps using the pliers. How much plankton (rice) did you catch?



5. Next use the spaghetti grabber to catch the plankton. How much plankton (rice) did you catch?



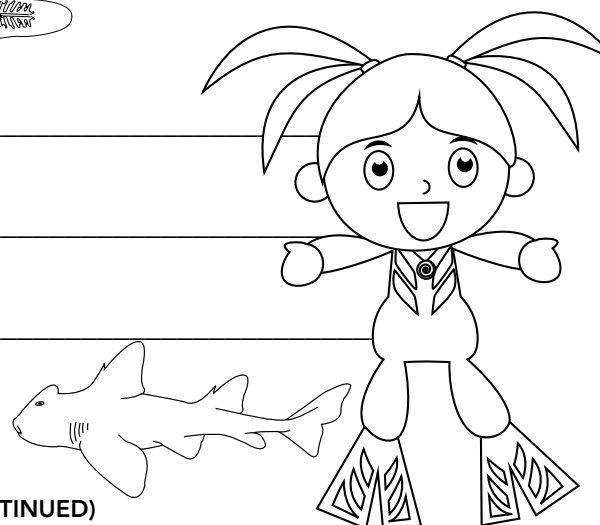
6. Which tool was most effective at catching the plankton and why?



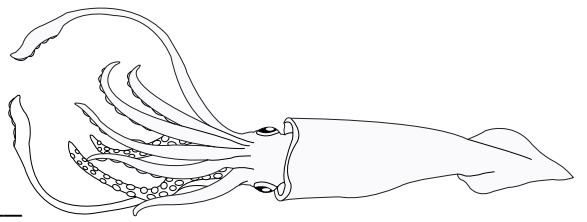
7. Which tool was least effective at catching the plankton and why?



8. What kind of shark do you think eats plankton?



Shark Mouth 2



Name _____

Directions: Test the Noodle Squid with each of these tools and answer the questions below.

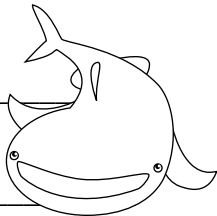
Net - like the mouth of the whale shark or basking shark. They sift water and filter plankton as the animal swims along.

Spaghetti Grabber - like the mouth of a mako shark. Their mouth and teeth grab and snare fast swimming skinny prey like squid.

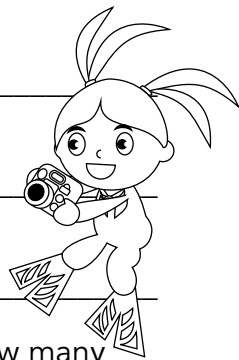
Nutcracker or Pliers - like the mouth of a horn shark or nurse shark. These sharks' mouths have flat, molar-like teeth made for crushing sea urchins, clamshells and scallops.

The pasta in this bowl represents squid.

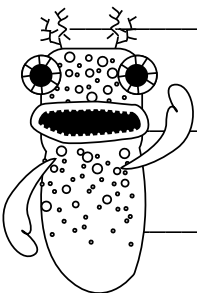
1. Squid are quick swimmers and some sharks like to eat them. Which of the three mouth tools do you think will be most effective for catching squid? Why?



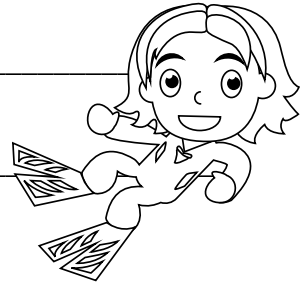
2. Which of the three mouth tools do you think will be least effective for catching squid? Why?



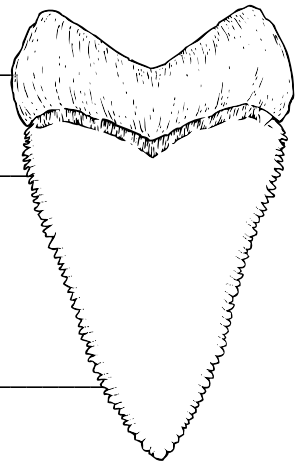
3. For thirty seconds use the net to catch as much squid as you can and then count how many squid you caught. How much squid did you catch?



4. For thirty seconds use the pliers to catch as much squid as you can and then count how many squid you caught. How much squid did you catch?



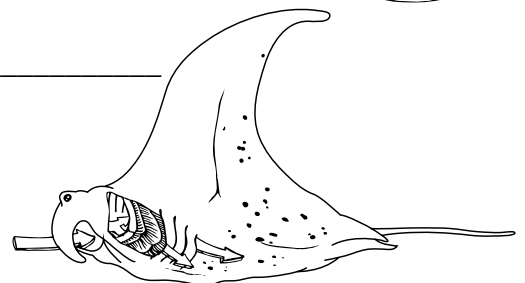
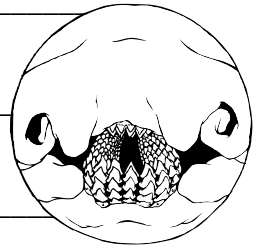
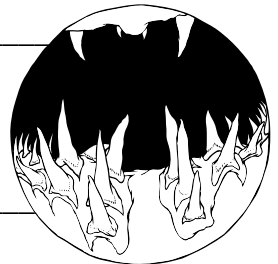
5. For thirty seconds use the spaghetti grabber to catch as much squid as you can and then count how many squid you caught. How much squid did you catch?



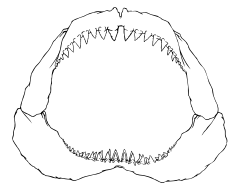
6. Which tool was most effective at catching the squid?

7. Which tool was least effective at catching the squid?

8. What kind of sharks do you think might eat squid? Explain your thinking.



Shark Mouth 3



Name _____ Date _____

Directions: Test the Walnut Clams with each of these tools and answer the questions below.

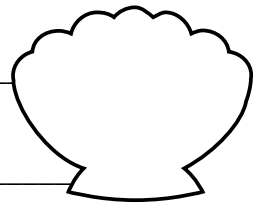
Net - like the mouth of the whale shark or basking shark. They sift water and filter plankton as the animal swims along.

Spaghetti Grabber - like the mouth of a mako shark. Their mouth and teeth grab and snare fast swimming skinny prey like squid.

Nutcracker or Pliers - like the mouth of a horn shark or nurse shark. These sharks' mouths have flat, molar-like teeth made for crushing sea urchins, clamshells and scallops.

The walnuts in this bowl represent clams. Some sharks must rely on their hard molar-like teeth to crush open hard shells to get at the soft meat inside for their food. At this station you will not only catch the clams, but you must also crack open the shell!

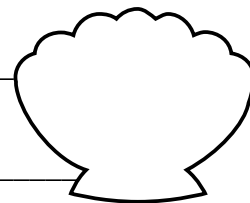
1. Which of the three mouth tools do you think will be most effective for catching clams and crushing them open? Why?



2. Which of the three mouth tools do you think will be least effective for catching clams and crushing them open? Why?

3. For thirty seconds use the net to catch and crack open as many clams as you can. You must be able to crack them open with the net to eat them. Count how many clams (nuts) you caught and opened. How many clams could you catch? How many of the clams that you caught could you actually eat?

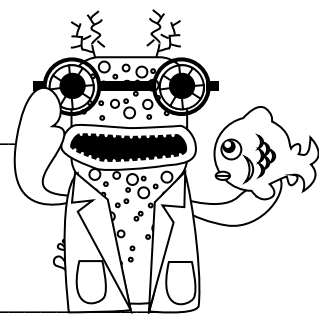
4. For thirty seconds use the pliers or nutcracker to catch and crack open as many clams as you can and then count how many clams (nuts) you caught. How many clams did you catch? How many of the clams could you crack open and eat?



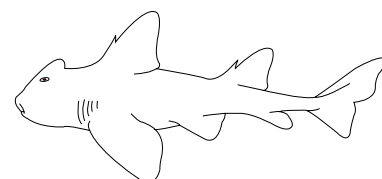
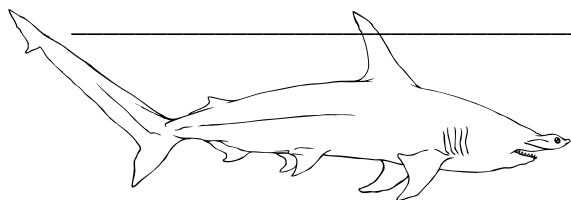
5. For thirty seconds use the spaghetti grabber to catch and crack open as many clams as you can and then count how many clams you caught. How many clams did you catch? How many of the clams you caught could you crack open and eat?

6. Which tool was most effective at catching the clams?

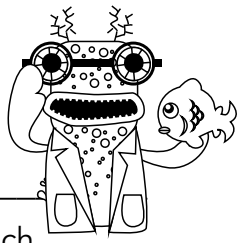
7. Which tool was least effective at catching the clams?



8. What kinds of sharks do you think might eat clams? Explain your thinking.



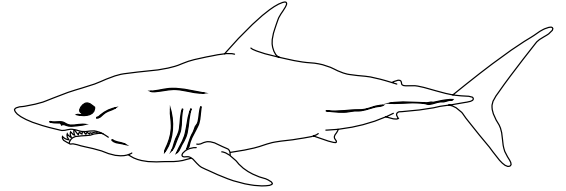
Shark-A-Mania Math



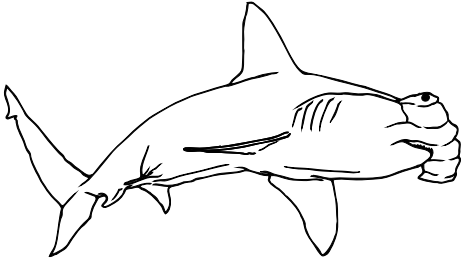
Name _____ Date _____

Directions: Solve the problem and show your thinking in the space provided below each.

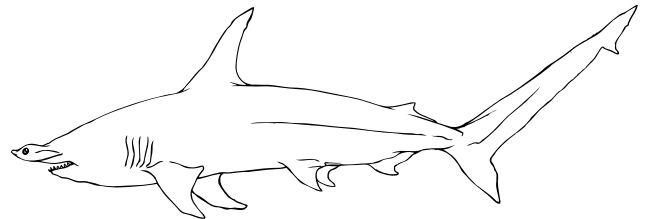
1. If a shark eats two squid a month, how many squid can a shark eat in a year? (*Hint, there are twelve months in a year.*) **Answer** _____



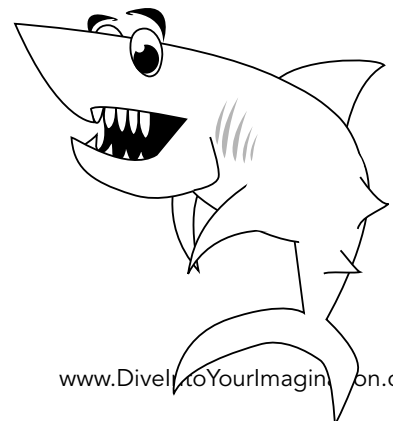
2. If a shark eats three fish every day, how many fish total will the shark have eaten in a week? (*There are seven days in a week.*) **Answer** _____



3. If a shark swims two miles an hour, how far can the shark travel over the course of a day? (*Remember, they swim day and nighttime. That is 24 hours!*) **Answer** _____

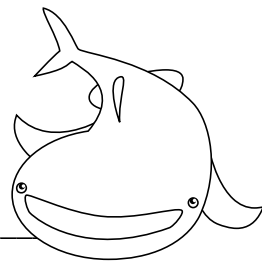


4. While swimming in the ocean a shark passes by one angelfish every ten minutes. How many angelfish would the shark have passed in two hours? (*Hint, there are 60 minutes in one hour.*) **Answer** _____



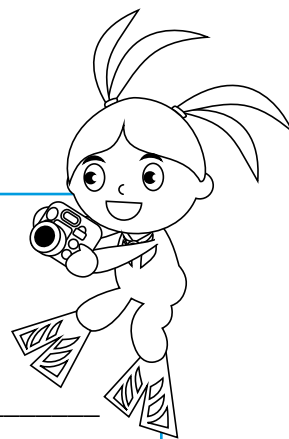
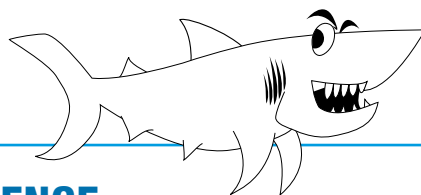
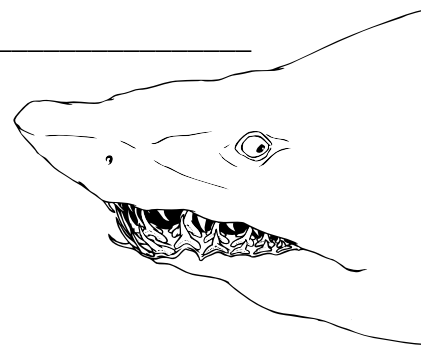
5. A shark passes through a cave once a week. How many times would the shark pass by the cave in a year?
(Hint, there are 52 weeks in a year.)

Answer _____



6. A hungry shark eats two fish, three squid, a sea urchin, and two crabs on Monday. How many sea creatures would the shark have eaten if he had the same thing every day of the week?
(Remember there are seven days in a week.)

Answer _____

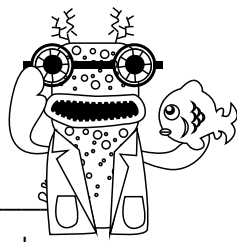


OCEAN ANNIE'S SUPER SCUBA CHALLENGE

A Great White Shark lost 100 teeth every year! Each time 100 new teeth grew back. How many teeth did the Great White Shark go through by the time he was 12?

Answer _____

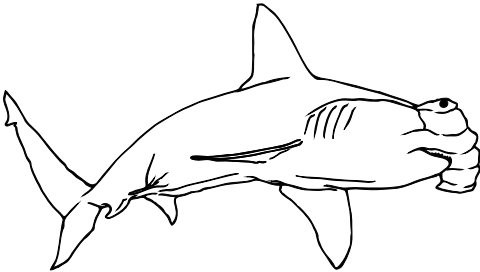
Shark-A-Mania Math



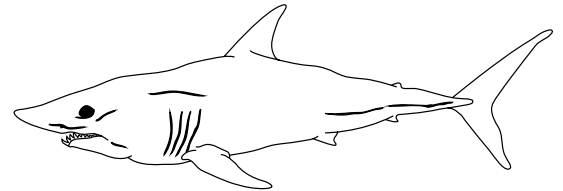
Name _____ Date _____

Directions: Solve the problem and show your thinking in the space provided below each.

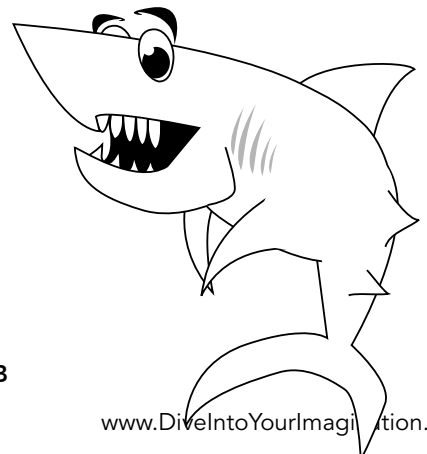
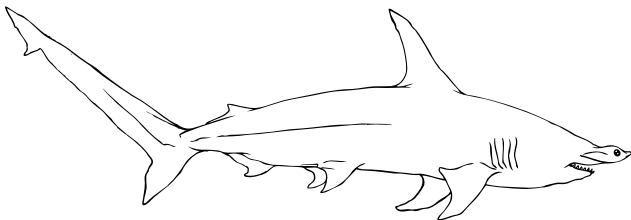
1. If a shark eats seven squid a month, how many squid can a shark eat in a year? (*Hint, there are twelve months in a year.*)



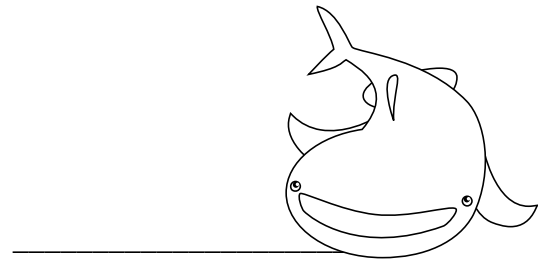
2. If a shark eats four fish every day, how many fish total will the shark have eaten in a week? (*Hint, there are seven days in a week*)



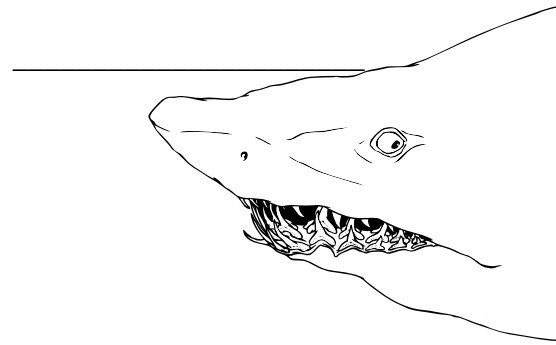
3. If a shark swims six miles an hour, how far can the shark travel over the course of a day? (*Hint, there are 24 hours in a day.*)



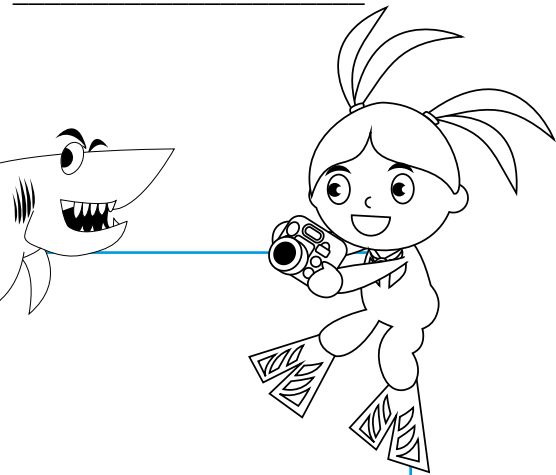
4. While swimming in the ocean a shark passes by one angelfish every twenty minutes for three hours. How many angelfish would the shark have passed in two hours? (*Hint, there are 60 minutes in an hour.*)



5. A shark passes through a cave twice a week. How many times would the shark pass by the cave in a year? (*Hint, there are 52 weeks in a year.*)

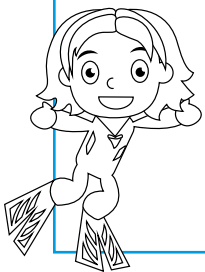


6. A hungry shark eats six fish, three squid, four sea urchins, and five crabs on Monday. How many sea creatures would the shark have eaten if he had the same thing all week? (*Remember there are seven days in a week.*)

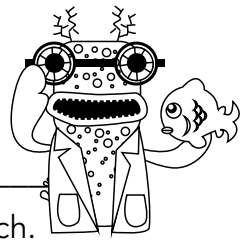


OCEAN ANNIE'S SUPER SCUBA CHALLENGE

A Great White Shark lost 200 teeth every year! Each time 200 new teeth grew back. **How many teeth did the Great White Shark go through by the time he was 12?**



Shark-A-Mania Math

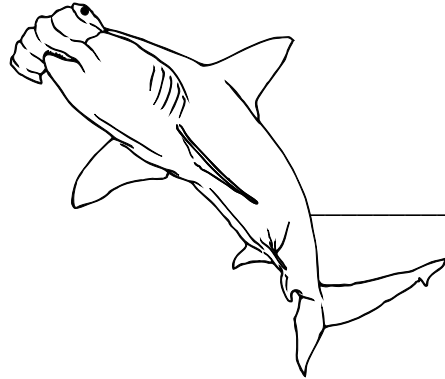


Name _____ Date _____

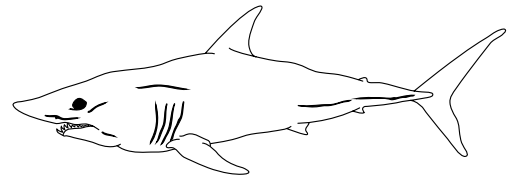
Directions: Solve the problem and show your thinking in the space provided below each.

1. If a shark eats six squid a month, how many squid can a shark eat in a year? (*Hint, how many months are in a year?*) _____

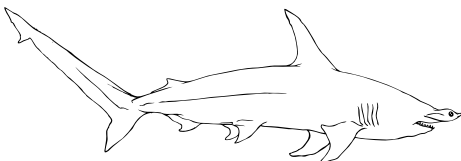
2. If a shark eats four fish every day, how many fish total will the shark have eaten in a week? (*Hint, think about how many days are in a full week.*) _____



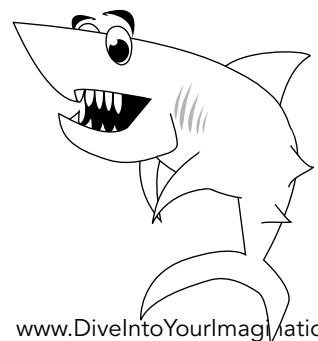
3. If a shark swims nine miles an hour, how far can the shark travel over the course of a day? (*Remember, they swim day and nighttime.*) _____



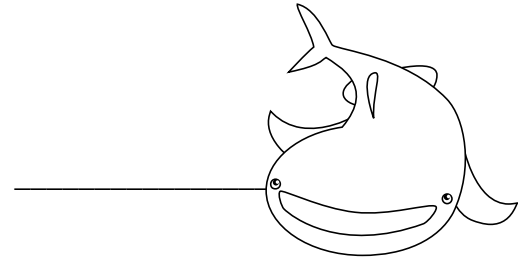
4. While swimming in the ocean a shark passes by one angelfish every fifteen minutes for an hour. How many angelfish would the shark have passed in two hours? (*Hint, how many minutes are in an hour?*) _____



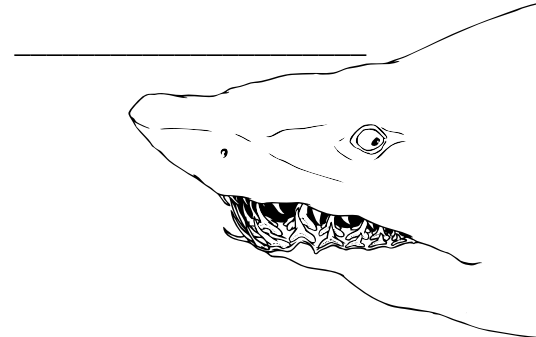
5. If a shark passes through a cave three times a week, how many times would he pass through the cave in a month? (*Look at your classroom calendar, how many weeks in are a month?*) _____



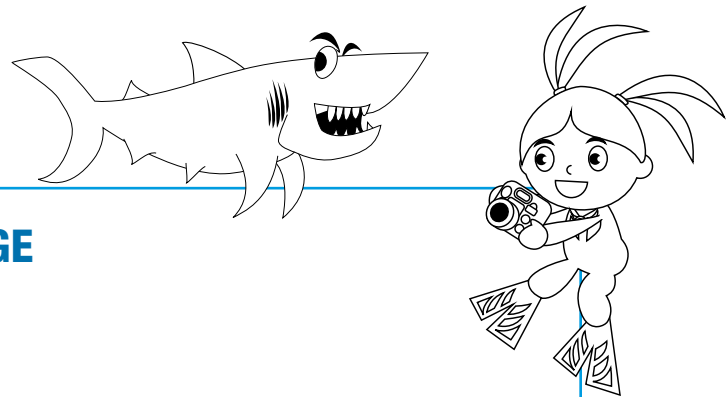
6. One pilot fish joins in swimming alongside a shark every ten minutes for an hour. How many pilot fish will be swimming along with the shark at the end of an hour?
(Think about how many minutes are in an hour.)



7. A shark passes by the coast of Hawaii twice a week, how many times will she pass by Hawaii in one year?
(Hint, how many weeks are in a year?).

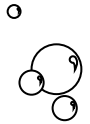
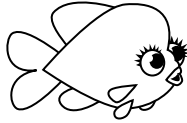
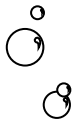
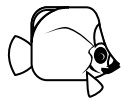


8. A hungry shark ate three fish, four squid, three sea urchins, and five crabs all on Monday. If he ate the same thing all week, how many sea creatures would he have eaten by the end of the week?

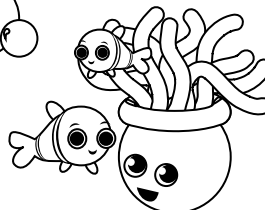
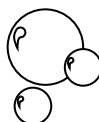
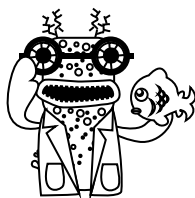
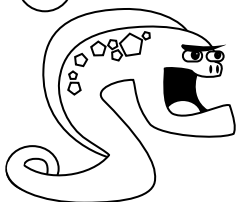
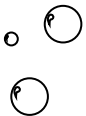
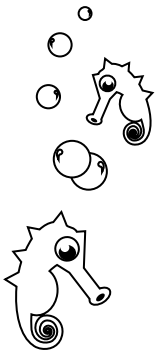
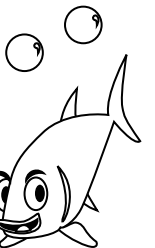
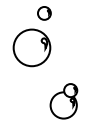
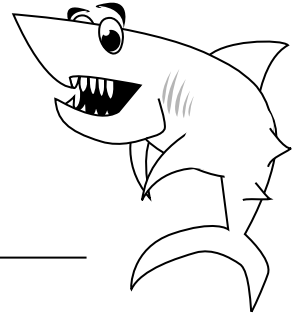


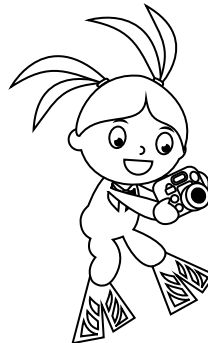
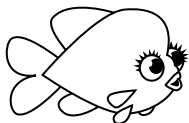
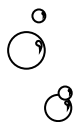
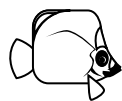
OCEAN ANNIE'S SUPER SCUBA CHALLENGE

A Great White Shark lost 300 teeth every year! Each time 300 new teeth grew back. How many teeth did the Great White Shark go through by the time he was 25?

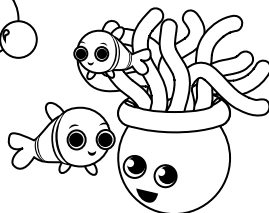
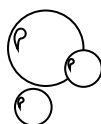
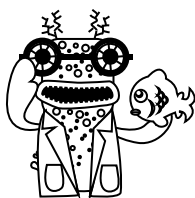
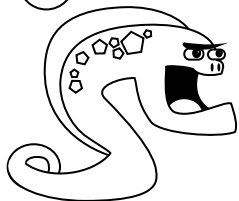
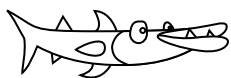
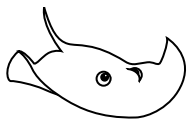
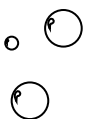
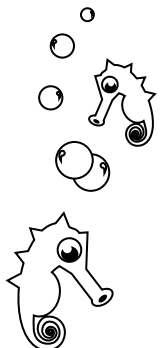
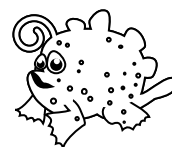
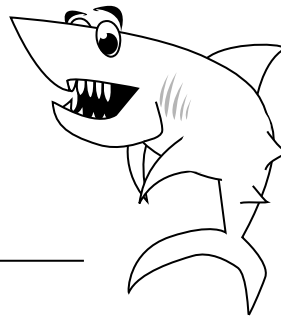


Today I learned...





Today I learned...

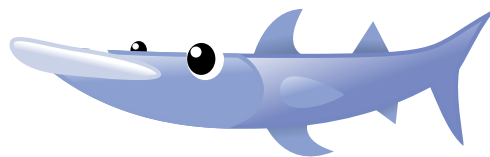




Dinner Time for Fish

G

Dinner Time for Fish



CONCEPT / TOPICS TO TEACH

Animals in the ocean use a wide variety of strategies and skills to hunt for food. Feeding relationships in the marine ecosystem are complex. Specialized feeding relationships occur between herbivores, omnivores, planktivores and piscivores. Students will explore a wide range of physical movements and vocabulary associated with feeding on the reef.

Objectives:

- » Students will build basic math and reading comprehension skills through a series of word problems pertaining to feeding time on the reef.
- » Students will expand vocabulary by reading sentences and identifying antonyms for a given word.
- » Students will complete a series of exercises to strengthen skills in word problems that address the functions of addition and subtraction.
- » Students will practice identifying fractions through an activity that requires them to match numeric fractions to visual representations.
- » Students will learn about the food web through an activity that they need to use information to properly place a variety of animals in their respective food web positions.
- » Students will expand their knowledge about fish living on the reef through an activity that requires them to combine visual symbols to decode the names of fish that are compound words.

Character Education: GRATITUDE

GRATITUDE means being thankful and learning how to appreciate. Helping children understand how their behavior affects one another helps their emotional development. The best way to teach GRATITUDE is to model the behavior for your students. Younger children are often less aware of how their behavior affects another. Introducing sharing, thanks and GRATITUDE will create a more nurturing environment versus one of entitlement in your class. We can appreciate and have GRATITUDE for everything in our lives, from our friendships with one another to the food we eat. We can be grateful for our education and our imagination too!

When students are working together in their buddy teams, remind them to always thank one another when receiving help. Students can also learn how to give GRATITUDE for the simple things in their classroom like the power that operates the lights. As the leader, you can take a few moments with your class and have them look around the room. Before beginning the exercises, have students take a deep breath and think of all the different ways they can express GRATITUDE. Creating a moment of silence and an expression of thanks in your classroom instantly brings peace and calm to your students. When we express GRATITUDE, we change our state of being! When we breathe slowly and deeply like scuba divers, we immediately calm down.

Ocean Annie and Scuba Divers express GRATITUDE and give thanks.

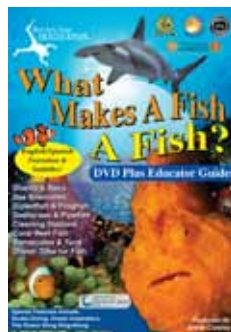
As scuba divers we express GRATITUDE for the wonders of nature and the underwater world. As scuba divers we explore a place very few get to see, yet the ocean is responsible for the health of our planet! Scuba divers appreciate nature and all of the gifts from the sea. Ocean Annie wants your students to feel connected to our environment. In order to create real change in our world,

we need to help the next generation feel connected to the environment and appreciate our ocean. Our ocean is responsible for 70% of the oxygen our planet needs, our water and food. More than 70% of the world population relies on food from the ocean as their main source of protein. Everything we do on land affects the ocean and we need to keep our ocean healthy. When we break this down, children understand and grow up wanting to protect it. Introducing GRATITUDE and thanks for our ocean is a great way to start your class!

Getting Started

Required Materials

- DVD "What Makes A Fish, A Fish?" by Dive Into Your Imagination
- Large Dry Erase Board/Easel and Markers



TREASURE CHEST

- Gratitude
- Herbivore
- Omnivore
- Piscivore
- Planktivore
- Plankton
- Predator
- Scientist
- Species
- Sustainable

Anticipatory Set Lead-In

- ✧ Watch and become familiar with chapter seven "Dinner Time for Fish" from the DVD "What Makes a Fish, a Fish?"
- ✧ Before running the film clip, ask each student in class to imagine they are an ichthyologist, meaning they are scientists studying fish. Have them work with their team to collect information about the video clip as it plays.

Here are some questions and answers you can use to build a brainstorming session:

KWL

LGL

AG

WP

Questions for Students	Answers for Educators
What is the biggest fish in the ocean and what does it eat?	<i>The whale shark grows up to 60ft and is the biggest fish in the ocean. It is a planktivore, meaning it filters organisms called zooplankton and phytoplankton from the water. These organisms are barely visible to the naked eye. The blue whale is the largest animal but the whale shark is the largest fish. Whale sharks are not whales or marine mammals; they are fish. If your students have a hard time with this concept discuss with them the different ways fish and marine mammals breathe. Compare gills to blow holes and fish to mammals.</i>
Do all fish have teeth?	<i>No! Fish have widely varied feeding apparatus; pointy teeth, molar-like teeth for crushing, and in some case no teeth at all!</i>
What kinds of things in the ocean do fish eat?	<i>It is widely varied, some fish eat other fish, some crunch up shellfish, and some even munch coral, plants, or scrape algae off rocks.</i>
What kinds of places do fish hide from other fish?	<i>Some hide in plain view using coloring to camouflage, and others look for holes, caves, coral and rocky overhangs to hide.</i>

Video Review

- ✧ After watching the video about “Dinner Time for Fishes,” once or even a few times, discuss and write down additional facts, questions, and information students gained from the video for further research and discussion. What else do they want to know?
- ✧ Ask students to write a reflection in their journal about dinner time for fish or for themselves.
- ✧ Discuss gratitude. How is giving thanks and having gratitude important in our lives? What are students grateful for? Do they recognize the importance of nature and the ocean to our planet? Can you help them see our responsibility to care for our natural world?

Imagination Value

Before the activities begin, use this as an imagination exercise with your students. You can use this as a movement activity and have students act out what you are saying, or have them be silent and use only their minds. Children love to eat and talk about their favorite foods. Have students imagine what it would be like to be a fish and how they can discover what fish eat. You can either read this script or use your imagination and create your own!

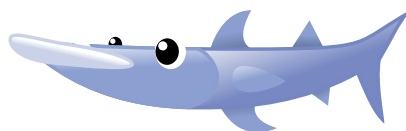
“On the count of three, let’s say the magic word. 1, 2, 3...IMAGINATION! Now, imagine you are a fish. Think about what you look like. You may be purple and pink like a parrotfish, gray like a shark or maybe green like a moray eel! Your body adapted to life in the ocean. Think about your new mouth. What would your mouth look like if you were your favorite fish? Is it big or small, turned upward or downward or is your mouth oddly shaped? Do you have many teeth...or none at all? Are they big teeth or small teeth? Take a few moments to really imagine you were a fish in the sea!

We learn a lot about fish from the shapes of their mouths and their teeth! By thinking about a fish’s mouth, you can learn about what kind of food their special mouth would eat. A big mouth might swallow a fish whole, or it might open wide and feed on the tiniest animals in the sea, plankton. Are your teeth sharp for snaring and grabbing like a barracuda, or flat nubby molars for crushing coral like parrot fish? Ichthyologists, scientists who study fish, observe fish and learn about them from the shape of the mouth, their teeth and the shape of the fish’s body. Get together with your buddy to go scuba diving and discuss the fish you created in your imagination and tell one another what kind of food you eat! As we continue with our exercises let’s pretend you are a scuba diving ichthyologist studying fish!”

Reduce, Refuse, Reuse and Recycle! You may know the 3 R’s but the fourth R stands for Refuse. Refuse single use plastic by not purchasing or using it!



CLASSROOM ACTIVITY STATION G1 FISH MUNCH A BUNCH!



Overview

Students will work through a series of word problems about how animals eat on the reef in order to practice basic math skills and review terminology from the film clip. Participation in this activity will give students an opportunity to practice *basic math skills*, enhance *reading comprehension*, and foster *literacy*.

Materials: “Fish Munch a Bunch”, Manipulatives (counters, number lines, hundreds chart, etc.)

Talking Points

- ✧ Moving water can cause coastal build up and erosion, carrying earth materials from one place to another and shaping the shoreline. There is a constant force adding land and taking it away through nature.
- ✧ Earth materials from the ocean, such as sand, shells, corals and rocks, are carried to the shore by waves. Shorelines are built up by these materials plus those brought by rivers, such as rocks, sand, and soils.
- ✧ Erosion is the wearing away or taking away of rocks, soil, shells and other earth materials and features. Waves can also break down and wear away cliffs, beaches and materials brought to the shore, changing the shape of the shoreline.
- ✧ Rocks, shells, corals, plants and other materials can be broken down into sand. Sometimes animals assist this breakdown process. Parrotfish are one example, and they eat coral. The hard part of the coral that is not digested by the parrotfish is excreted and becomes white sand.
- ✧ What mathematical principals do you think geologists, builders and coastal people need to understand in order to live and work.

Lesson Procedure

1. Provide each student with a copy of “Fish Munch a Bunch”. There are three options offering varied difficulty levels.
2. Ask students to work independently or in buddy teams to read through each problem and fill in the blanks with the correct solution.
3. Add completed work to the “What Makes a Fish” journal.



Always carry a sustainable seafood card with you in your wallet when grocery shopping or at a restaurant. You can get a sustainable seafood card from our website or by visiting your local aquarium.

CLASSROOM ACTIVITY STATION G1 (Continued)

FISH MUNCH A BUNCH!

Extension Ideas

- » Ask students to examine books from the suggested reading list to learn more about what animals eat in the ocean. Use their research to make a class bulletin board about feeding time in the sea.
- » Brainstorm with students about what kinds of resources people get from the sea and keep a running list. Ask students to research at home and see how family members rely on the sea for things like food, medicine and even cosmetics. What else can they find from the ocean in their homes? At school?

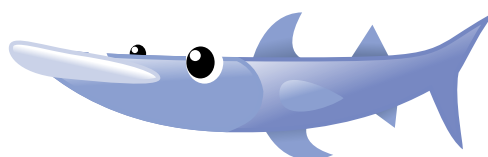
Notes

Too many fish have been taken from our ocean without the ability to reproduce to sustain their population. If you are going to eat me, please choose sustainable species!



CLASSROOM ACTIVITY STATION G2

FISHING FOR OPPOSITES



Overview

Students will learn about opposites as they review fun facts and complete sentences about predator/prey relationships, meaning which animals eat which and dinnertime on the reef. Participation in this activity will provide students with an opportunity to improve *reading comprehension*, *enhance literacy*, *increase vocabulary*, and review critical content from the DVD.

Materials: "Fishing for Opposites"

Talking Points

- ✧ The ocean has many resources supporting life on land and in the ocean. Marine resources include food, medicine, and nutrients.
- ✧ Most animals living in the ocean find their food exclusively in the ocean.
- ✧ The ocean does not have an endless supply of seafood.
- ✧ If people are not careful about how they fish, there will be no food left for other living things that depend on the resources of the ocean.
- ✧ Challenge students to use their imagination and become scientists observing fish. What a fish looks like may help students understand what they eat, where the fish may live, how they protect themselves, etc. There are no right and wrong answers to this activity. Encourage students to make observations and comparisons and write their thoughts down for later discussion.

Lesson Procedure

1. Provide each student with a copy of "Fishing for Opposites." Have them work individually or in buddy teams.
2. Challenge students to find opposites. They can use the word bank or create their own words. There are no right or wrong answers because there are lots of ways to describe the opposite. Have students write words together with the opposites they chose. After completing them, have them compare notes with one another to see how different people came up with different ways to mix and match.
3. Have students write a reflection and add completed work to the students' "What Makes a Fish" journals.

If not you, then who? We all can make a difference in the world! Help keep the ocean healthy and clean! The fish need it and so do you!



CLASSROOM ACTIVITY STATION G2 (Continued)

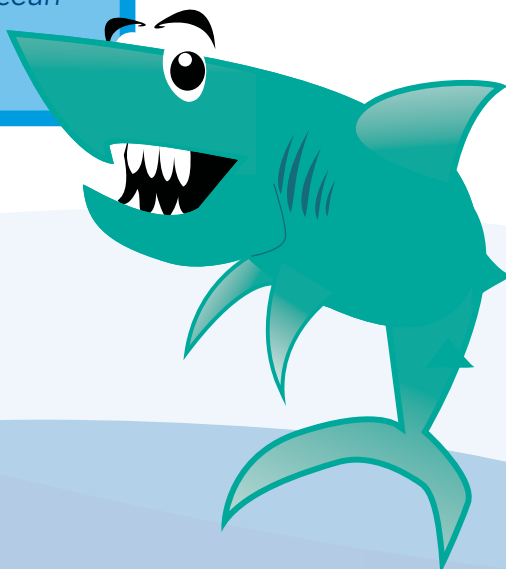
FISHING FOR OPPOSITES

Extension Ideas

- » Challenge students individually or as a class to come up with additional opposites related to dinnertime on the reef.
- » Choose a book from the reading list to read aloud as a class. Pick out key words from the story to write on the board, and ask students to come up with opposites for the selected words.
- » Ask students to think of additional antonyms for some of the words from their worksheets.

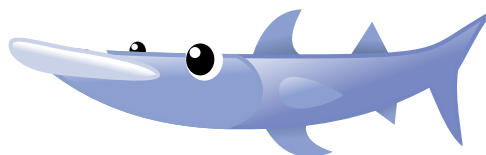
Notes

Sharks need a healthy ocean in order to live. We are interconnected.



CLASSROOM ACTIVITY STATION G3

FRACTION FISH



Overview

Students will match the numeric form of a fraction to a fish representing a pie chart form of the fraction in order to see how numeric fractions can be represented in a visual way. Participation in this activity will help familiarize students with *fractions*, and provide them with an opportunity to use *logic*, and *deductive reasoning*.

Materials: Bulletin Board, Butcher Paper, Fraction Fish Cards, Fish Templates, String, Thumbtacks, Colored paper, Scissors

Talking Points

- ✧ People eat food that comes from the ocean, yet the supply is limited. People must collect resources from the ocean sustainably meaning that we do not take out more animals than can be replaced through reproduction in order to maintain healthy populations. People have developed mathematical models to explore sustainability of various fisheries.
- ✧ People also study the ocean in order to understand how the ocean works, and to discover new ways that people can use and interact with it while doing so sustainably. Scientists use mathematical processes to figure out sustainable practices. While going through these exercises, how can you apply the Fraction Fish process to an activity in your life? What are other ways we use math in our daily lives? If you walk to school, do you need to calculate time and distance?

Lesson Procedure

1. Cover a bulletin board with colorful butcher paper and title it "FRACTION FISH".
2. Photocopy the "Fraction Fish" and place them in a vertical column along the left side of the board with a string attached long enough to reach across the board.
3. Photocopy the fish templates on colorful paper, cut them out, and place them in a vertical column along the right side of the board.
4. Instruct students to look at the numeric fractions on the left side of the board as a class, individually, or in buddy teams. Find the corresponding fish that represents the fraction in a pictorial way on the right side of the board.
5. As students find correct matches, they will take the string from the fraction on the left, and attach it with a thumbtack to the corresponding pie graph fish on the right.



Many species of seahorses are endangered because they are used in some cultures for medicine or to sell as souvenirs. Never purchase marine life as souvenirs!



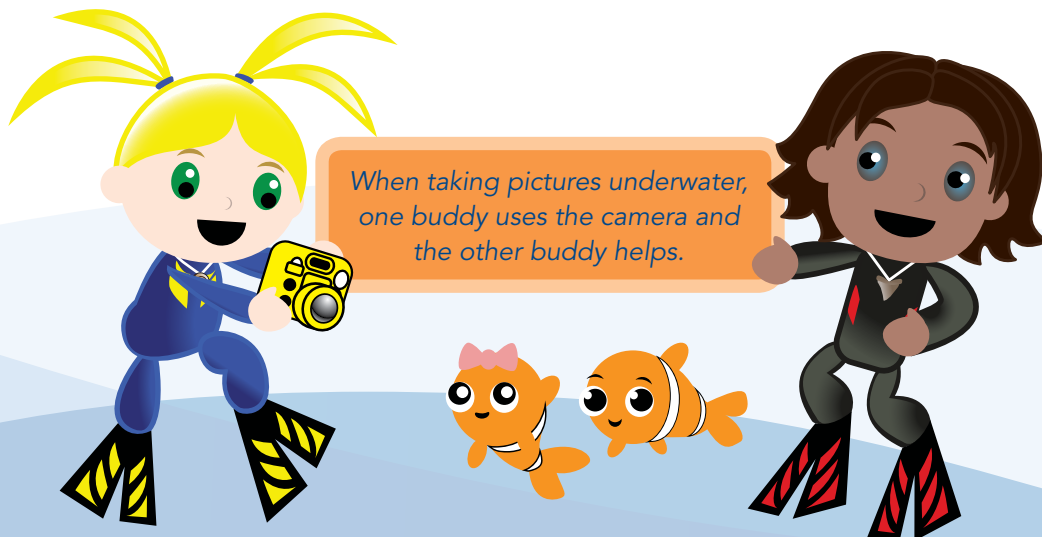
CLASSROOM ACTIVITY STATION G3 (Continued)

FRACTION FISH

Extension Ideas

- » Give each student a fish cut out and allow them to create their own fraction fish. Then decorate the fish with mouth, eyes, fins, and tail so each student has made their own fraction fish.
- » Challenge students to list reasons they need to understand fractions.
- » Create "Thank you Ocean!" posters, cards, and messages with your students. Create a list of all the reasons we need to be thankful for our ocean and express gratitude. Revisit the character education for ideas to share with students and then have them write or illustrate a "Thank You Ocean" card!

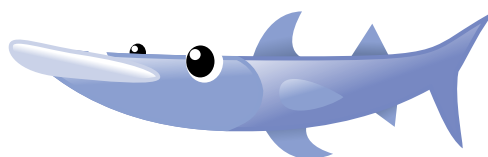
Notes



When taking pictures underwater, one buddy uses the camera and the other buddy helps.

CLASSROOM ACTIVITY STATION G4

FISH'S DINNER IN THE SEA



Overview

Students will illustrate and write an accompanying narration describing what it would be like if they were fish and had to find dinner in the sea. Through this activity students will have an opportunity to develop *language skills, literacy, creative skills, and artistic ability.*

Materials: Paper, Crayons or Colored Pencils

Talking Points

- ✧ Ask students if they or members of their family have eaten foods from the ocean. If so, what kinds? Many important resources like food comes from the ocean.
- ✧ Explain to students although there are many familiar foods from the sea like fish and crab, many products from the sea like kelp are contained in things we use every day like toothpaste, cosmetics, and even ice cream.
- ✧ Point out that although many products come from the ocean, the supply is limited. People must collect resources from the ocean sustainably which means in ways that we do not take out more than what can reproduce in order to maintain healthy populations.
- ✧ Point out people study the ocean in order to understand how the ocean works, and to discover new ways that people can use and interact with it while doing so sustainably. Scientists use mathematical processes to figure out sustainable practices. While going through these exercises, how can you apply a mathematical process to your life?

Lesson Procedure

1. Break students into buddy teams and ask them to list as many kinds of food they can think of from the ocean. Encourage them to brainstorm where in the ocean one might find the different foods.
2. Students will illustrate or make a collage using magazine clippings on what it would look like if they were fish and had to find their own dinner in the sea. What fish would they be? When would they hunt or feed? What kinds of foods would they eat? Where would they find the food? How would they succeed in catching their meal?
3. As students complete their work, ask them to write words, sentences, or a short paragraph describing their illustration.
4. When finished, encourage them to share their stories and ideas with their buddy teams. Use their work to review key concepts from what they learned.
5. Add completed stories to the “What Makes a Fish” journals.

CLASSROOM ACTIVITY STATION G4 (Continued)

FISH'S DINNER IN THE SEA

Extension Ideas

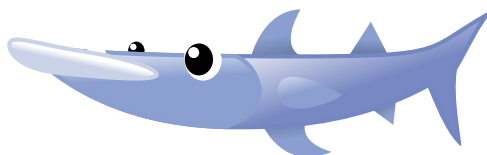
- » Ask students to go home and look for food items or products in their homes originating from the sea and report back to class with a list.
- » As a class, plan to sample some foods that come from the ocean. Try to choose foods and recipes that are healthy to eat and that promote a healthy ocean. Wonderful places to learn about kinds of foods your class can sample include the Monterey Bay Aquarium and Shedd Aquarium web sites.
- » Plan a class trip to a local grocery store to learn more about food products that come from the sea and if they follow the sustainable seafood guidelines.
- » Call your local scuba diving shop and invite them to your class for a presentation on local scuba diving or local dive sites.

Notes

The ocean is a place where people go for recreation.



CLASSROOM ACTIVITY STATION G5 THE OCEAN FOOD WEB



Overview

Students will expand their knowledge about sea life as they are taught about oceanic food webs through the example of a coral reef ecosystem. Participation in this activity will provide students with an opportunity to build *research skills*, enhance vocabulary, increase *literacy*, and expand knowledge of *basic biological principles*.

Materials: Bulletin Board, Butcher Paper, “Ocean Food Web” assignment cards, Computer access, Paper, Pencils, String, Index cards

Lesson Procedure and Talking Points

1. Cover a bulletin board with colorful butcher paper and title it “Ocean Food Web”.
2. Photocopy the “Ocean Food Web” assignment cards and give one to individuals or each buddy team.
3. Explain to class the animal on their assignment card is an animal found in a coral reef ecosystem. These ecosystems are on reefs found around the world in warm water. Students will gain an understanding of how these animals connect to one another in the coral reef food web.
4. Ask students to use books and search the internet to find out as much information as possible about what their assigned animal eats. Encourage students to take notes as they discover important information.
5. As students return with information about what their animals eat, lay food web cards on the floor. Use pre-cut string to connect animals based on their diets.
6. Once all of the animals have been placed, begin posting them on the bulletin board along with the strings that show “who eats who” in the coral reef food web.
7. Once all of the animals have been posted, the class can work together to write on index cards which animals are herbivores, omnivores, carnivores, piscivores and detritivores.
8. It is important to help students understand some of the terms are used synonymously such as scavenger and detritivore or herbivore and omnivore. Omnivores are animals that take advantage of whatever is an abundant food source.
9. Where do people fit in the ocean food web?

CLASSROOM ACTIVITY STATION G5 (Continued)

THE OCEAN FOOD WEB

Extension Ideas

- » Challenge students to see if they can think of other food webs from a different ecosystem like a forest or desert. What animals comprise these food webs.
- » Ask students to write down what they eat over the course of 24 hours. Discuss as a class how any of those food items might fit into a food web.
- » Have students think of ways they can give GRATITUDE and thanks to their parents, the food they eat and the ocean.

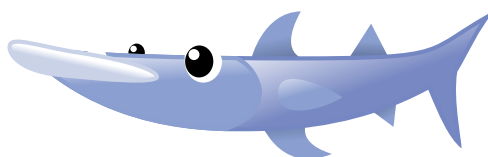
Notes

All pollution becomes water pollution. Reduce, reuse and recycle.



CLASSROOM ACTIVITY STATION G6

PUNNY FISH



Overview

Students will expand their knowledge about fish living on the reef through an activity requiring them to combine visual symbols to decode the names of fish that are compound words. Participation in this activity will provide students with an opportunity to build *analytic skills*, enhance *vocabulary*, increase *literacy* and *logic*.


Materials: “Punny Fish” activity page

Talking Points

- ✧ Humor is an important part of our lives.
- ✧ Ask students if they understand what a pun is. A pun is a joke exploiting the different possible meanings of a word or the fact that there are words that sound alike but have different meanings. Puns are play on words and can be a fun way to explore words and meanings.
- ✧ Brainstorm examples of puns with students before starting this activity.

Lesson Procedure

1. Provide students with a copy of the “Punny Fish” activity page.
2. Instruct students to use the images on their page to decode the names of fish.
3. Explain that the names of the fish are compound words, meaning two words put together that make up their names.
4. Allow students to work independently or in buddy teams to complete the activity.
5. Add completed work to the “What Makes a Fish” journal.



Diving is fun!
Learning is fun!

CLASSROOM ACTIVITY STATION G6 (Continued)

PUNNY FISH

Extension Ideas

- » Challenge students to see if they can write sentences or stories incorporating some or all of the fish from the activity.
- » See if students can find other compound fish names in the books in their book stall, or the library and make a new class "compound fish list".

Notes



Make a checklist to keep yourself organized before and after scuba diving.

CLASSROOM ACTIVITY STATION G7

BOOK STALL

Overview

Students will build independent reading strategies through examining supplemental materials. Providing a reading or computer area where students can look through books and other sources of information about the subject being discussed will help to build literacy.

Materials: The story *Hello Ocean* by Pam Munoz Ryan.

Lesson Procedure; Character Education, GRATITUDE

1. As a class, read the story *Hello Ocean* by Pam Munoz about a child's favorite sensory experiences with the ocean. Ask students if they know what the word gratitude means? Affirm that gratitude is a way of being thankful or appreciative, and ask students if they think the character in the book was thankful for her sensory experiences with the ocean. Ask students to think about some of their favorite sensory experiences and write a reflection using the chart on the activity page.

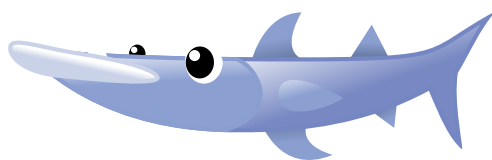
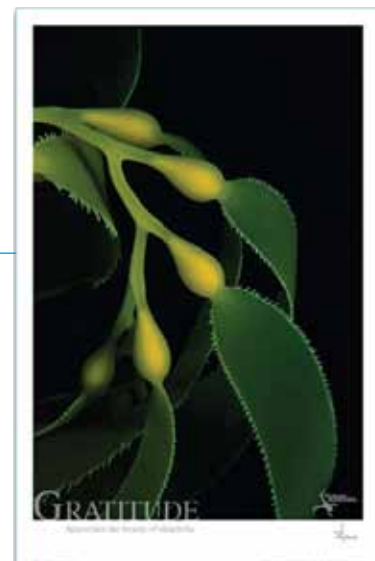
Poster: GRATITUDE

"Appreciate the beauty of simplicity"

Fine Art Prints, posters, greeting cards and other products are available to decorate your classroom or school while inspiring your students with real ocean animals and environmental scenes. Contact us to learn more.

Research all the places kelp grows in the sea based on water temperature. Have students find locations on a world map.

Kelp frond, California



There is lots of different equipment you can use underwater, always get properly trained.

Book Suggestions

- » Coupe, Robert. *Coral Reefs: Top Readers. Stage 3, Reading by Myself*. Sydney, New South Wales: Weldon Owen, 2008. Print. Grades 1 - 3.
- » Crawley, Annie and Cynthia Stierle. *Ocean Life from A to Z*. New York, New York: Reader's Digest, 2007. Print.
- » Earle, Sylvia A. *Sea Critters*. Photo Wolcott Henry. Des Moines, Iowa: National Geographic Children's Books, 2000. Print. Ages 4-8.
- » Munoz Ryan, Pam. *Hello Ocean*. Illus. Mark Astrella. Watertown, Massachusetts: Charlesbridge Publishing, 2001. Print. Grades Pre-K - K.
- » Nyquist, Kate Boehm. *Maggie's Coral Reef Adventure*. Illus. Kathleen Garry-McCord. Monterey, California: Monterey Bay Aquarium, 2000. Print. Grades 1 - 2.
- » Heller, Ruth. *How to Hide an Octopus and Other Sea Creatures*. New York: Grosset and Dunlap, 1992. Print. Grades Pre-K -1.
- » Weidner Zoehfeld, Kathleen. *What Lives in a Shell? Let's Read and Find Out Science*. Illus. Helen Davie. New York: Harper Collins, 1994. Print. Grades Pre-K - 1.
- » Yee, Tammy. Iki, *The Littlest Opihi*. Aiea, Hawaii: Island Heritage, 1998. Print. Grades K - 2.

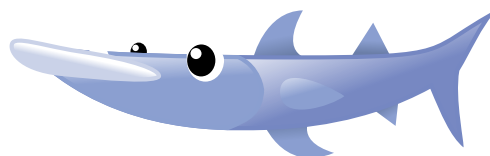
Closure and Follow Up

- ❖ Once students have had a chance to experience learning stations, spend time reviewing new facts learned from participating in the activities and correcting previous statements with new information.
- ❖ Take a moment to see how many students eat seafood. Seafood is a wonderful way to get important nutrients the body needs, but many fish are endangered. To help ensure that there are enough fish to eat, people should use a sustainable seafood card. Remind students about the sustainable seafood cards available at all aquariums so families can make choices about food to eat. If you contact an aquarium near you, many will send you these cards for your class.
- ❖ To reinforce learning, review key vocabulary from the treasure chest, main concepts, and ideas associated with food webs and sustainability.

Plan for Independent Practice

- » Students can keep a weekly journal of things they eat or products they use from the sea. Each week have them compare it with the sustainable seafood cards.
- » Students can talk about what kinds of foods their pets eat. Have them check the ingredients of the food to see if there are plants or animals from the Ocean in the pet food. Is it sustainable?
- » Students can perform a movement study and simulate the different ways they saw fish move in the video. Include instruments to add a dimension to the concept of cadence and rhythm.
- » Review the word GRATITUDE with students and discuss how it relates to their character and their lives. Encourage them to use their imagination and think of all the ways they can express GRATITUDE for their friends, family and our environment. Encourage your students to create a poster giving thanks to our Ocean and all of the animals in the sea! Cut out large circles to represent a globe and have students decorate the globe knowing that 2/3 of our Earth is Ocean. Everything we do on land affects the Ocean.

DVD TRANSCRIPT

Dinner Time For Fish

Under the ocean, beneath the sea animals need to feed. Big fish eat little fish.

Little fish eat teeny tiny fish.

Whale Sharks are the biggest fish in the ocean and eat the tiniest plants and animals in the sea called plankton!

Little fish hide from bigger fish. Bigger fish try and find little fish. Fish group hunt with Mrs. Octopus.

Some fish try to look like something else. Other fish lie in wait of unsuspecting bait.

Some fish can't wait to get into school.

Some fish live and hunt in the sand. Other fish live in the rocks and slither along the land. Lots of fish live and eat on a coral reef.

Some fish don't eat fish at all, they have no teeth. The shape of their mouths shows us what they might like to eat.

These fish eat coral polyps, look at their snouts. And these fish eat WORMS! What do you think these fish eat with their big teeth?

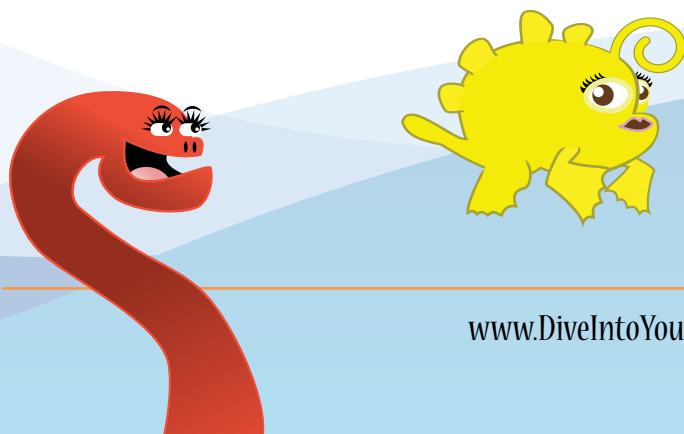
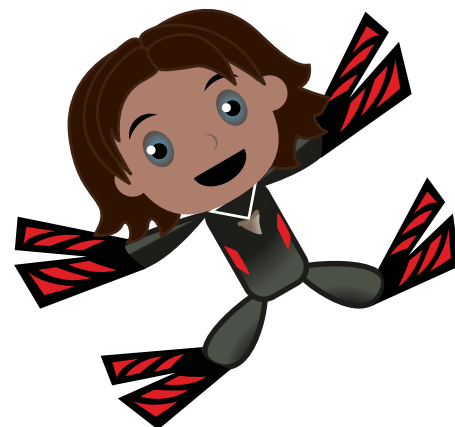
Some fish are vegetarians, only feeding on plants and algae. These fish use their teeth to chomp coral and eat the algae growing inside.

Some fish have big teeth. Some fish have no teeth.

Sharks are fish.

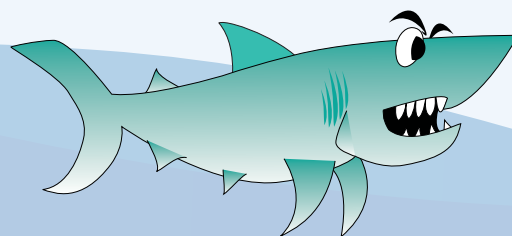
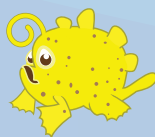
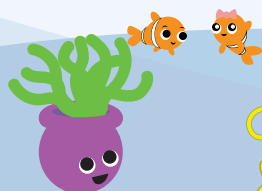
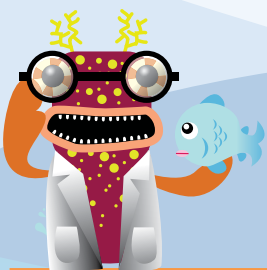
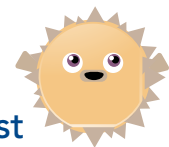
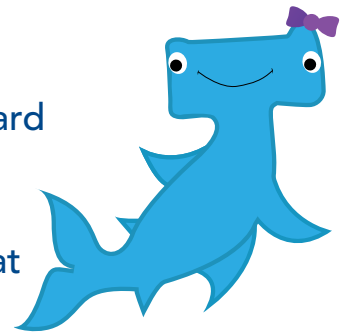
Don't be scared of sharks though. They like to eat other fish.

Under the ocean, beneath the sea, all animals need to feed.



Go Blue! Ten Ocean Annie Tips to Help Our Environment

1. Support marine reserves and protected areas prohibiting fishing.
2. Dispose of garbage, especially plastic, properly. Eliminate using plastic bags or any single use products.
3. Never buy souvenirs or other material that came from living animals.
4. If you like to fish in non-protected areas, be sure never to discard fishing line or other gear where it can end up in the water.
5. Know about and support laws that protect fish and their habitat like the Endangered Species Act (ESA) and Convention on International Trade in Endangered Species (CITES).
6. When you travel, do not collect living material to take home.
7. Spread the word! Tell everyone you know about how special marine animals are and what we can do to protect them.
8. Write a letter to your local, national or international governments to create laws to protect sharks, tuna and other fish.
9. Collect money as a class and donate it to a charity or scientist studying and helping our ocean. Contact us for a list!
10. Keep your curiosity alive, brainstorm how else you can help the ocean or your local environment and share your ideas with us!



Dinner Time For Fish

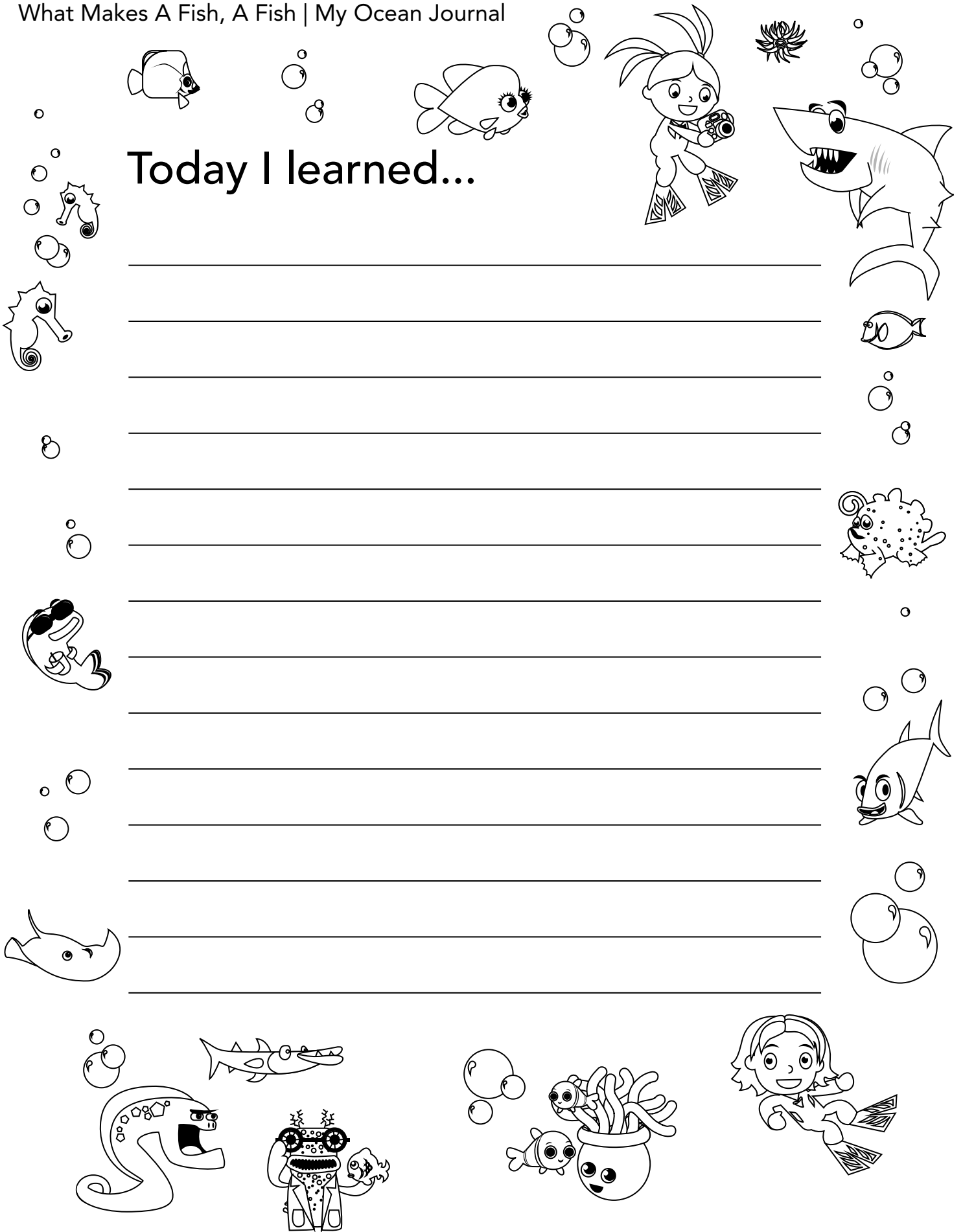
ACTIVITIES



Name _____ Date _____

G

Today I learned...





Chest

Treasure

of Words

gratitude

herbivore

omnivore

piscivore

planktivore

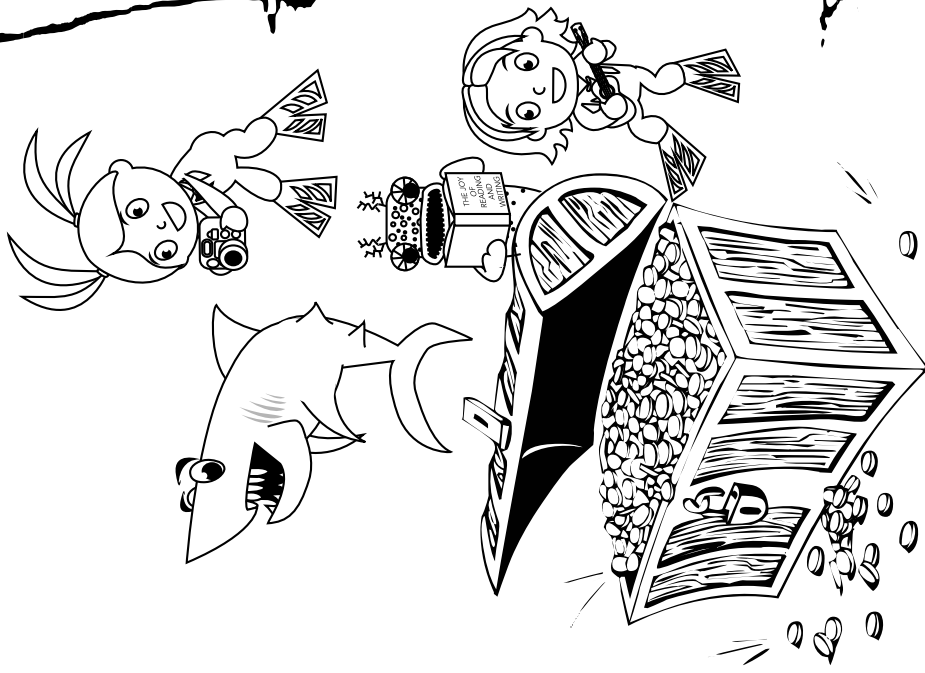
plankton

predator

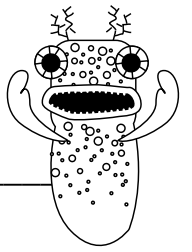
scientist

species

sustainable



Fish Munch A Bunch!



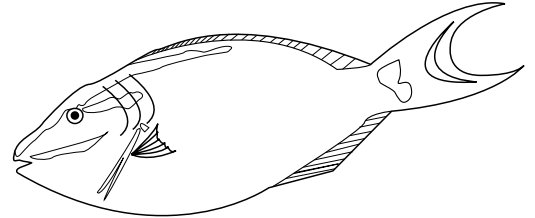
Name _____ Date _____

Directions: Solve the problem and show your thinking in the space provided below each.

1. Parrotfish like to munch on coral. The pink parrotfish takes four bites of coral, and the blue parrotfish takes three bites.

How many bites will they have taken all together?

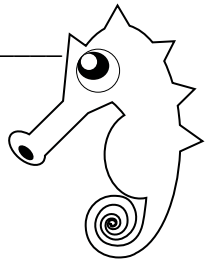
Answer _____



2. Seahorses love to snap up tiny shrimp called mysids. Yellow seahorse ate five shrimp, and the pink seahorse also ate five.

How many shrimp will the seahorses have eaten together?

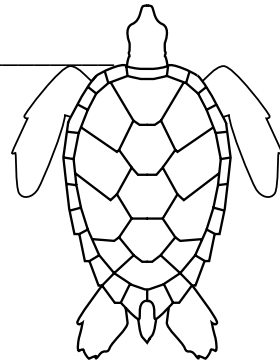
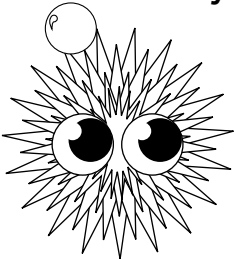
Answer _____



3. Some horn sharks like to chomp on sea urchins. A big horn shark can eat six sea urchins a day, and a little one can eat two sea urchins.

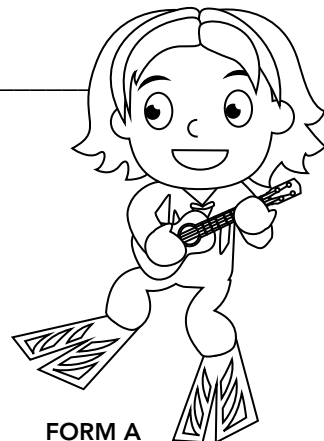
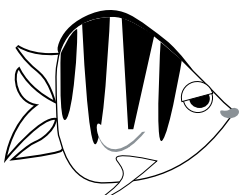
How many more sea urchins can a big horn shark eat?

Answer _____



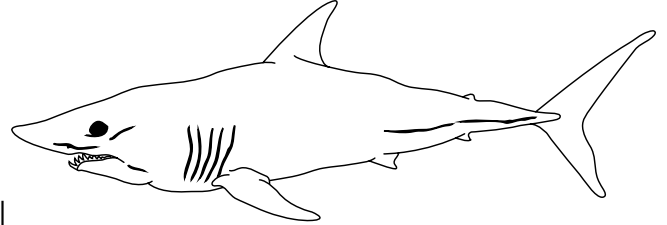
4. Butterflyfish like to help clean algae off of other sea animals. A butterflyfish cleans six turtles in the morning and three turtles in the afternoon. **How many turtles will the butterflyfish have cleaned in one day?**

Answer _____



5. Mako sharks love to feast on squid. A mako shark eats three squid one night and seven the next night. **How many more squid did the mako shark eat on the second night?**

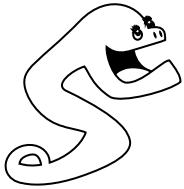
Answer _____



6. Sometimes eels snack on octopuses. A green eel catches eight octopuses in a month and a snowflake eel catches two octopuses in the same month.

How many more octopuses did the green eel catch?

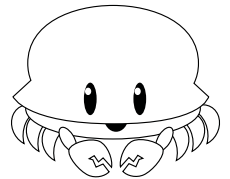
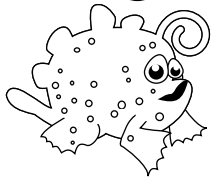
Answer _____



7. Frogfish are great at crunching crabs. A frogfish eats six crabs in the morning and four more crabs in the evening.

How many crabs will it have eaten all together?

Answer _____



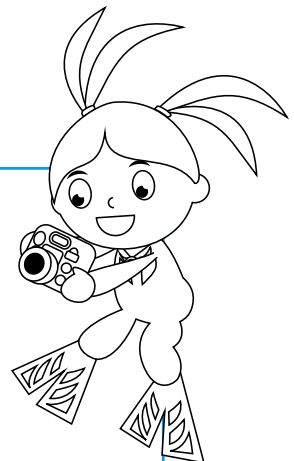
8. The giant whale shark filters lots of plankton from the water every day. A whale shark eats ten pounds one day and ten pounds more the next. **How many pounds of plankton will the whale shark have eaten all together?**

Answer _____

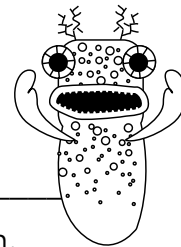


OCEAN ANNIE'S SUPER SCUBA CHALLENGE

While scuba diving in the ocean, Ocean Annie swam by a school of 100 tiny yellow fish. Imagine how these fish could be swimming. On the back of the page organize the fish in rows. **How many ways can you arrange the school of fish?**



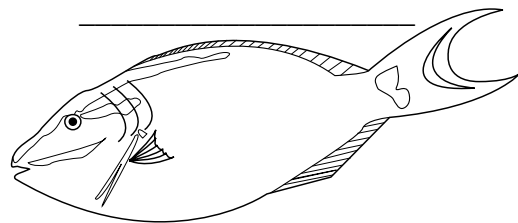
Fish Munch A Bunch!



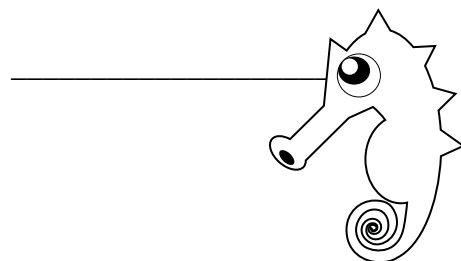
Name _____ Date _____

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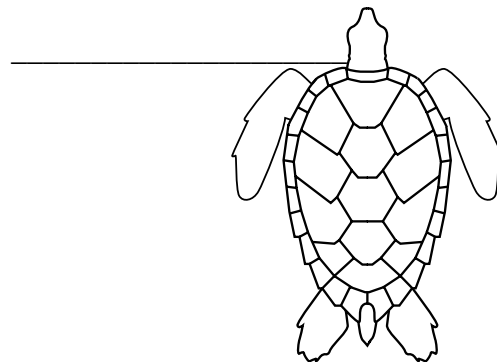
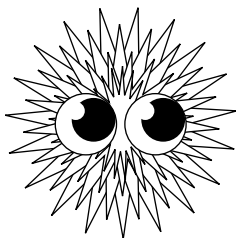
1. Parrotfish like to munch on coral. The pink parrotfish takes eight bites of coral, and the blue parrotfish takes nine bites. **How many bites will they have taken all together?**



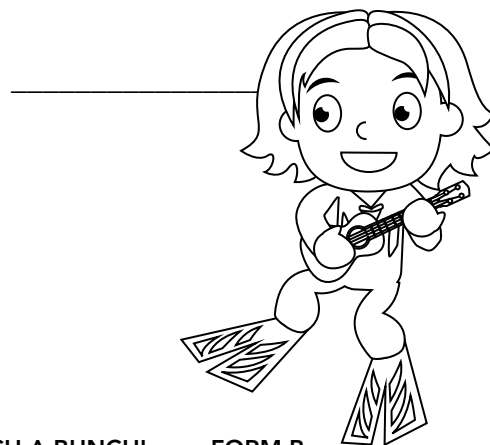
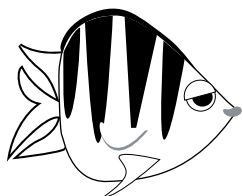
2. Seahorses love to snap up tiny shrimp called mysids. Yellow seahorse ate twelve shrimp, and the pink seahorse ate six. **How many shrimp will the seahorses have eaten together?**



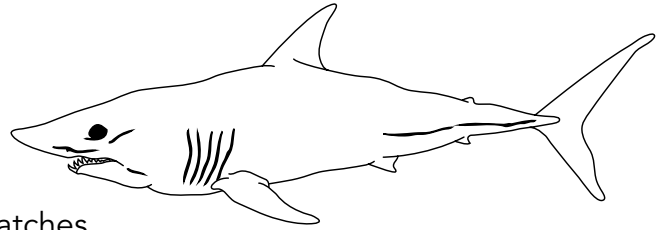
3. Some horn sharks like to chomp on sea urchins. A big horn shark can eat fifteen sea urchins a day, and a little one can eat five sea urchins. **How many more sea urchins can a big horn shark eat?**



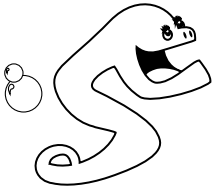
4. Butterflyfish like to help clean algae off of other sea animals. A butterflyfish cleans eleven turtles in the morning and seven turtles in the afternoon. **How many turtles will the butterflyfish have cleaned in one day?**



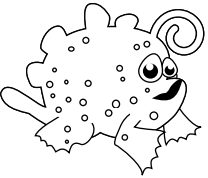
5. Blue sharks love to feast on squid. A blue shark eats four squid one night and thirteen the next night. **How many more squid did the blue shark eat on the second night?**

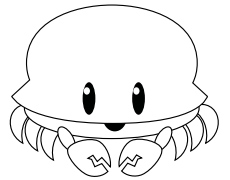


6. Sometimes eels snack on octopuses. A green eel catches ten octopuses in a month and a snowflake eel catches four octopuses in the same month. **How many more octopuses did the green eel catch?**



7. Frogfish are great at crunching crabs. A frogfish eats ten crabs in the morning and fourteen more crabs in the evening. **How many crabs will it have eaten all together?**



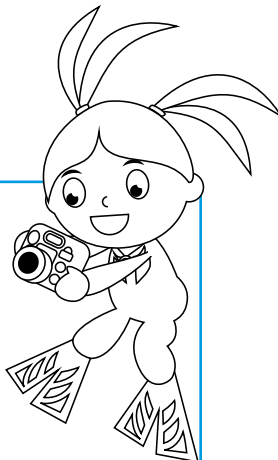


8. The giant whale shark filters lots of plankton from the water every day. A whale shark eats ten pounds one day and eleven pounds more the next. **How many pounds of plankton will the whale shark have eaten all together?**

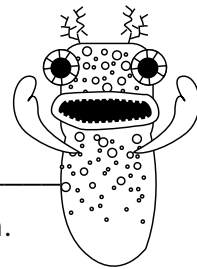


OCEAN ANNIE'S SUPER SCUBA CHALLENGE

While scuba diving in the ocean, Ocean Annie swam by a school of 100 tiny yellow fish. Imagine how these fish could be swimming. On the back of the page organize the fish in rows. **How many ways can you arrange the school of fish?**



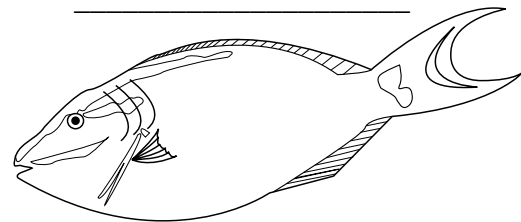
Fish Munch A Bunch!



Name _____ Date _____

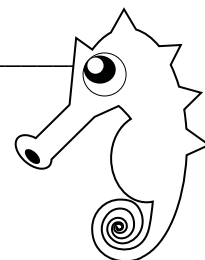
Directions: Solve the problem and show your thinking in the space provided below each.

1. Parrotfish like to munch on coral. The pink parrotfish takes sixteen bites of coral, and the blue parrotfish takes twenty-one bites. **How many bites will they have taken all together?**



2. Seahorses love to snap up tiny shrimp called mysids. Yellow seahorse ate thirty-two shrimp, and the pink seahorse ate forty-seven.

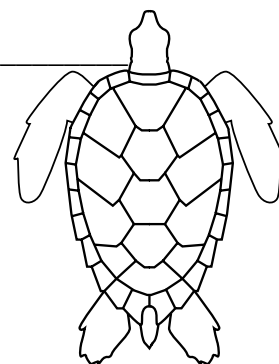
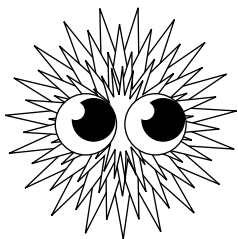
How many shrimp will the seahorses have eaten together?



3. Some horn sharks like to chomp on sea urchins.

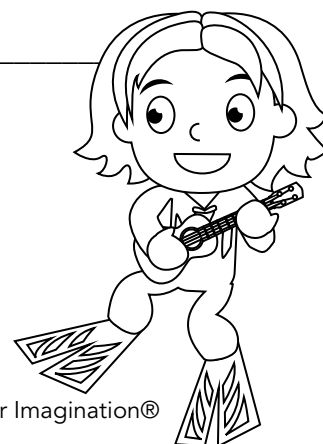
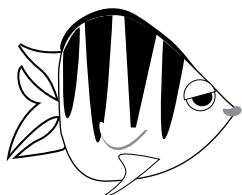
A big horn shark can eat sixty-five sea urchins a day, and a little one can eat twenty-five sea urchins.

How many more sea urchins can a big horn shark eat?

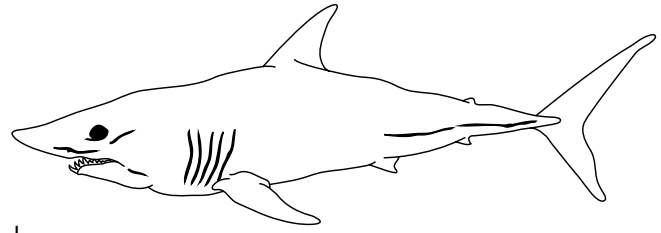


4. Butterflyfish like to help clean algae off of other sea animals.

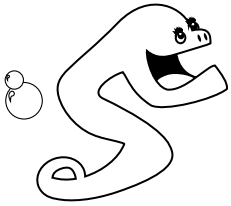
A butterflyfish cleans seventeen turtles in the morning and twelve turtles in the afternoon. **How many turtles will the butterflyfish have cleaned in one day?**



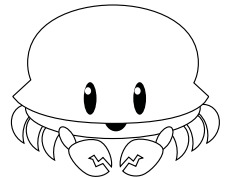
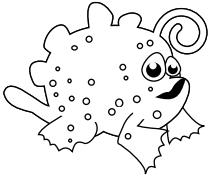
5. Blue sharks love to feast on squid. A blue shark eats twenty-eight squid one night and thirty-three the next night. **How many more squid did the blue shark eat on the second night?**



6. Sometimes eels snack on octopuses. A green eel catches forty octopuses in a month and a snowflake eel catches twenty-one octopuses in the same month. **How many more octopuses did the green eel catch?**



7. Frogfish are great at crunching crabs. A frogfish eats eighteen crabs in the morning and fourteen more crabs in the evening. **How many crabs will it have eaten all together?**

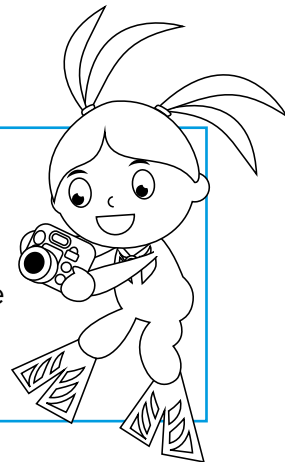


8. The giant whale shark filters lots of plankton from the water every day. A whale shark eats twenty pounds one day and twenty pounds more the next. **How many pounds of plankton will the whale shark have eaten all together?**

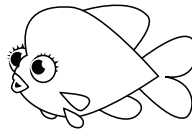


OCEAN ANNIE'S SUPER SCUBA CHALLENGE

While scuba diving in the ocean, Ocean Annie swam by a school of 1000 tiny yellow fish. Imagine how these fish could be swimming. On the back of the page organize the fish in rows. **How many ways can you arrange the school of fish?**



Fishing For Opposites



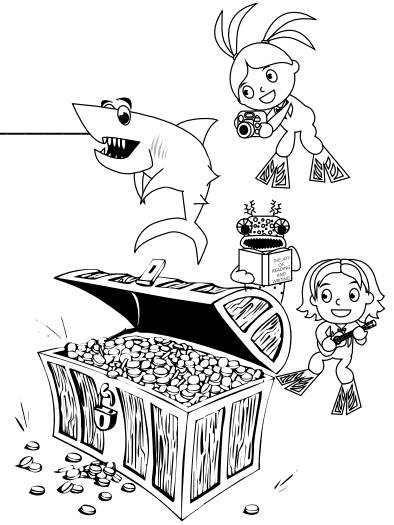
Name _____ Date _____

Directions: Use this word list to fill in the blanks in the sentences.

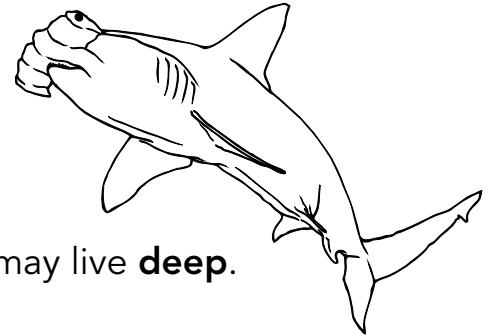
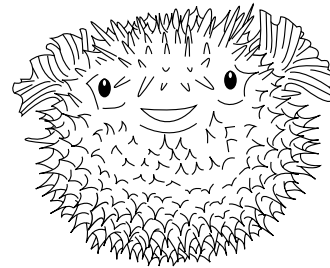
friendly
long
hunted

prey
slow
spines
thin

shallow
dull
big

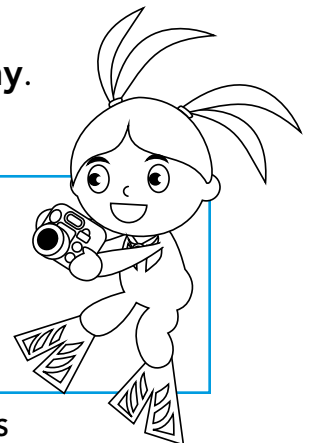


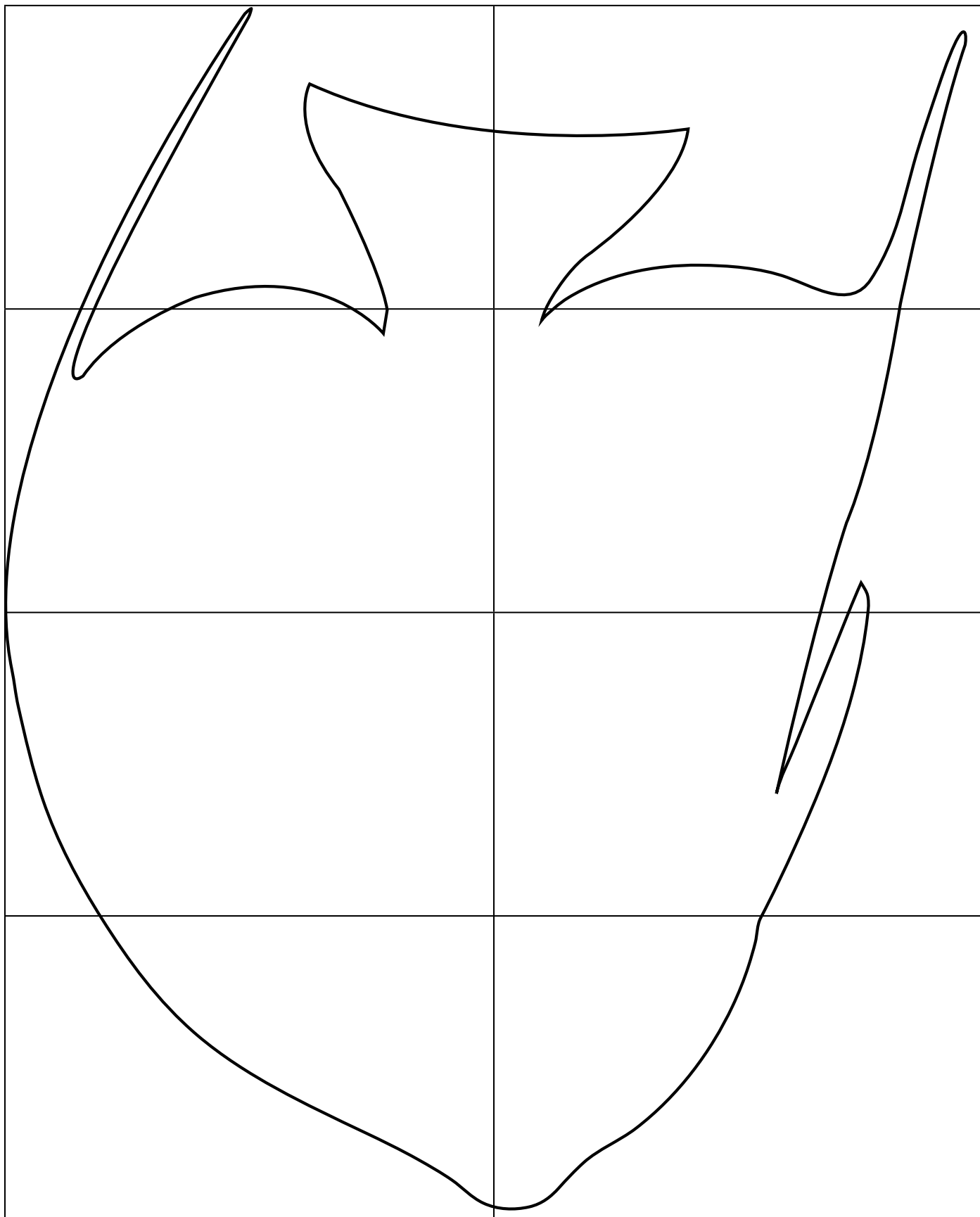
1. If you are not the **hunter** then you might be the _____.
2. Without _____ to protect them, some fish have smooth **skin**.
3. Some fish move **fast**, and others go _____.
4. When a fish is not _____ it is **small**.
5. **Predators** go on the hunt for _____.
6. Though some fish are _____ others are **short**.
7. Some fish are **thick** and some are _____.
8. If a fish does not live _____ then it may live **deep**.
9. When a fish is not **shiny** it is _____.
10. Though some fish are _____ others are **shy**.

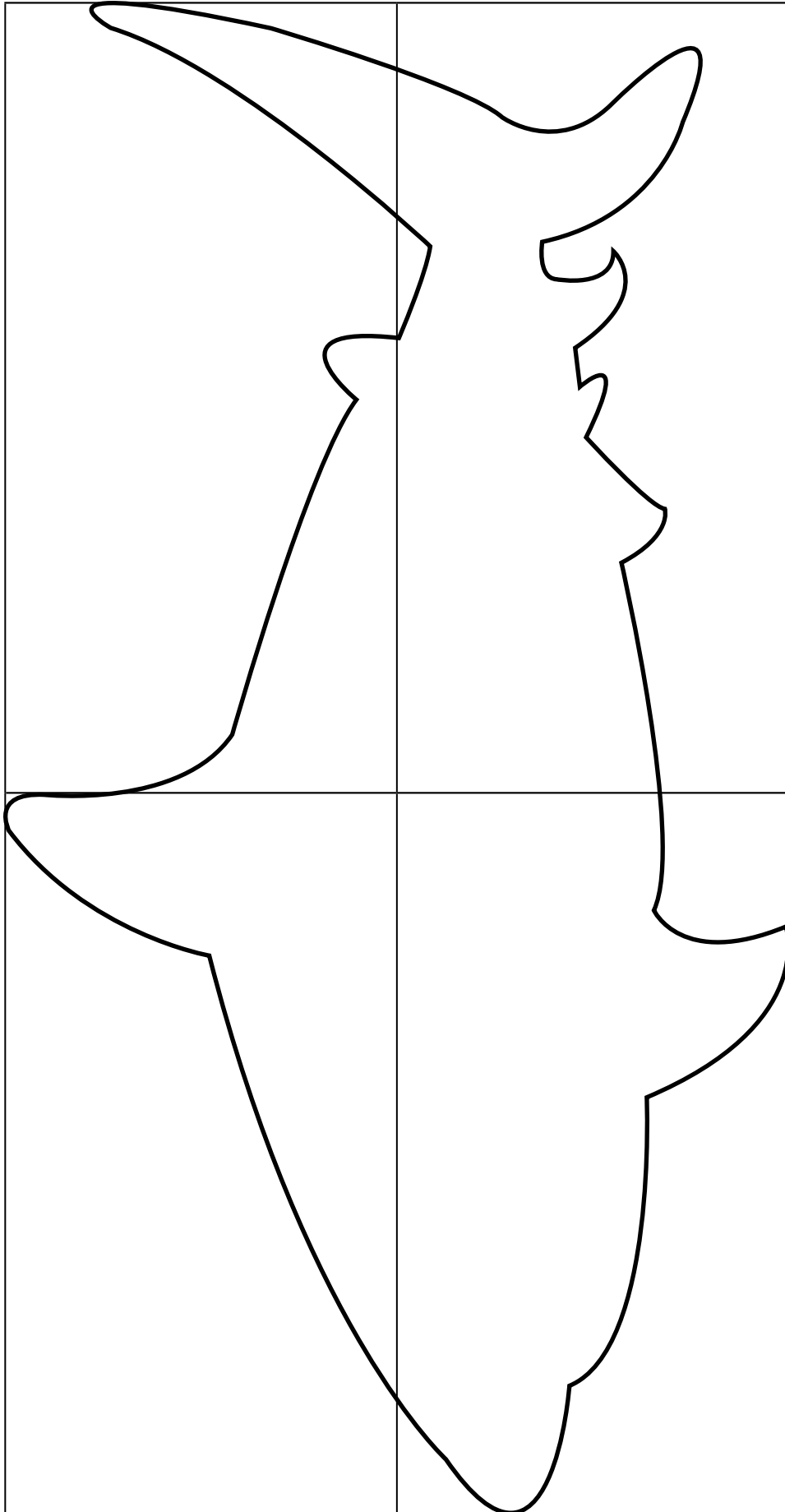


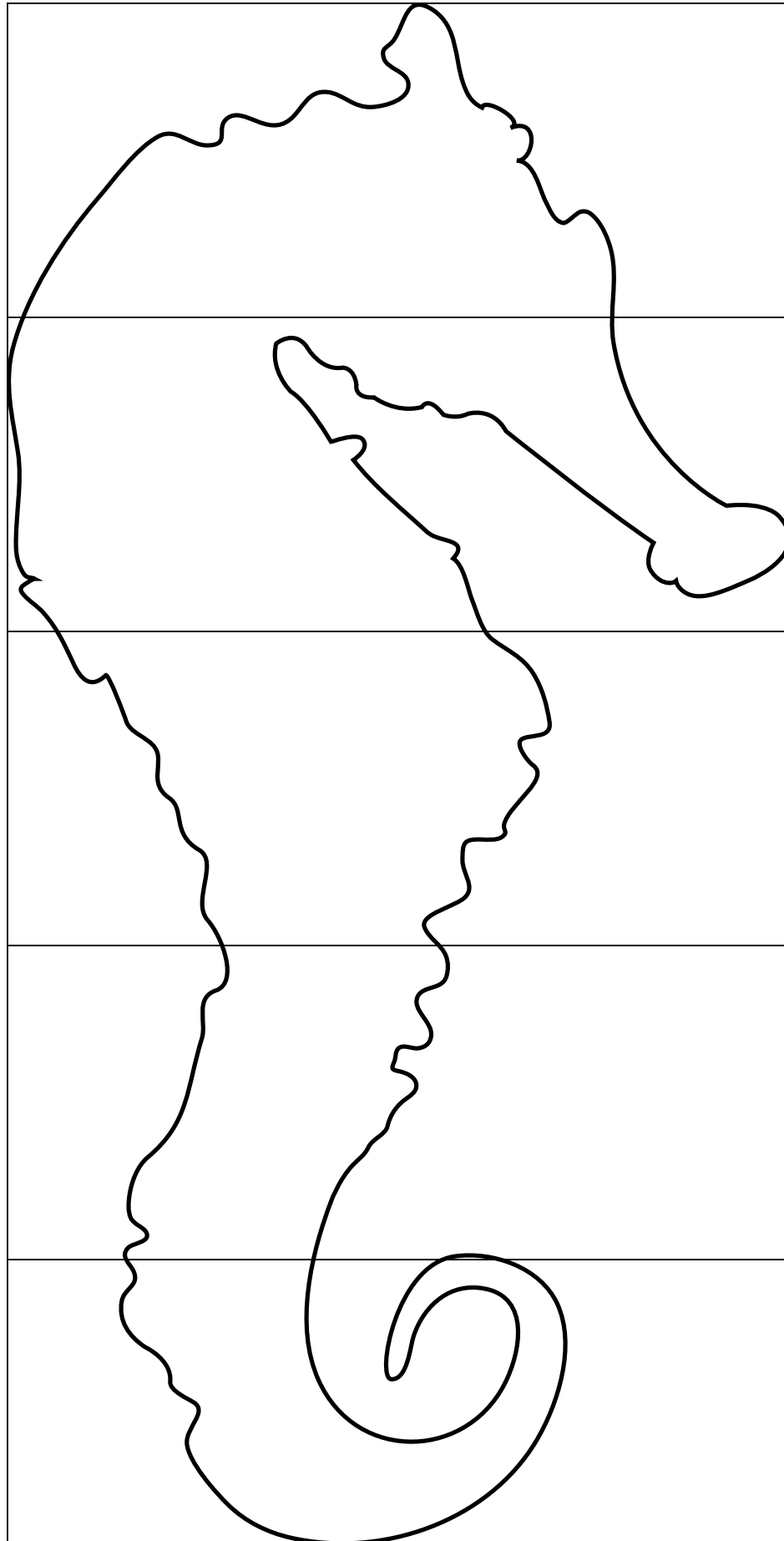
OCEAN ANNIE'S SUPER SCUBA CHALLENGE

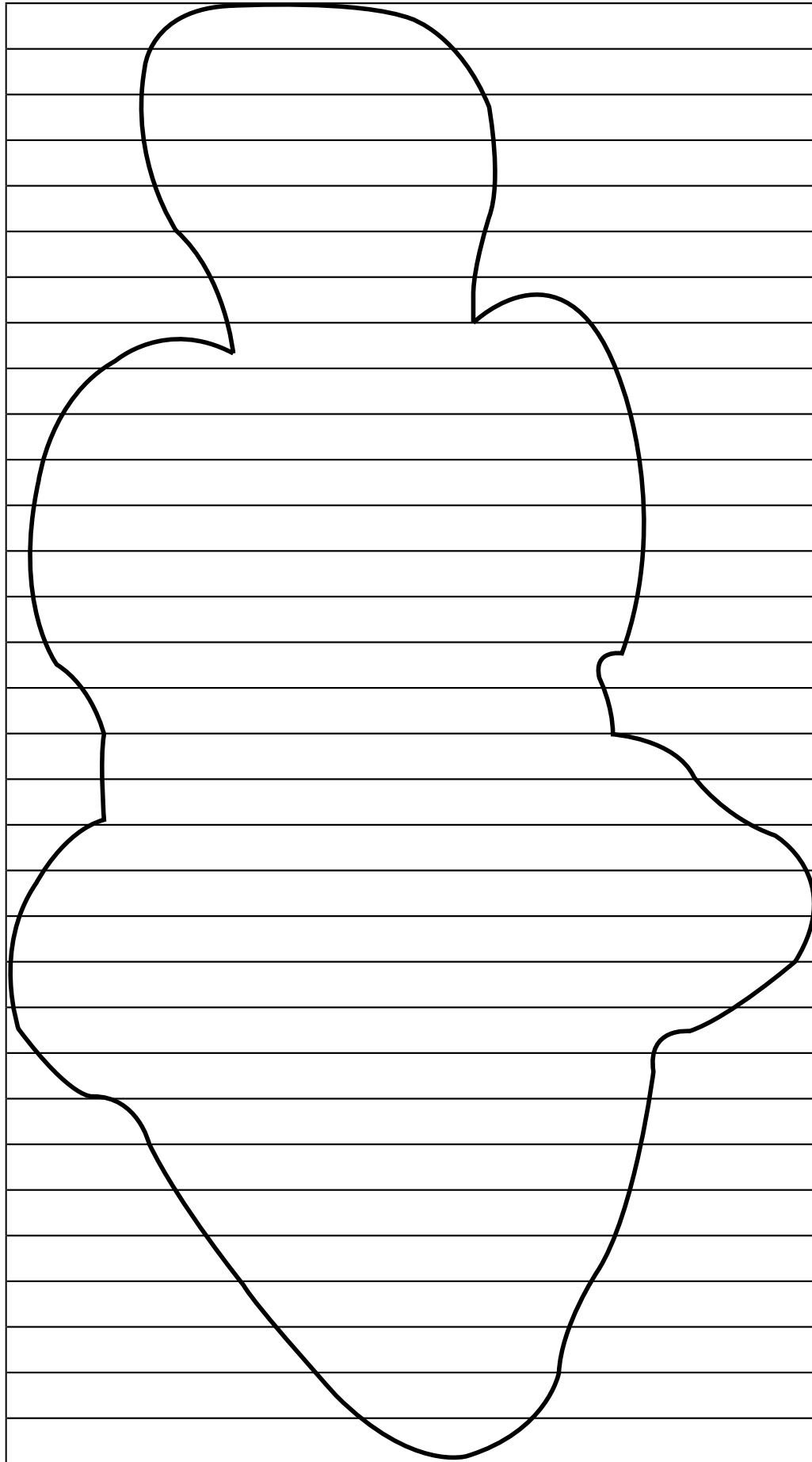
On a separate piece of paper, take all the words from the treasure chest and create your own story using each of them!



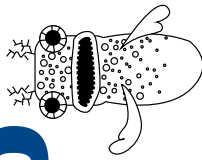






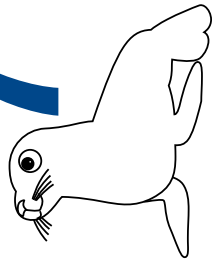


$$\frac{6}{8}$$



$$\frac{4}{16}$$

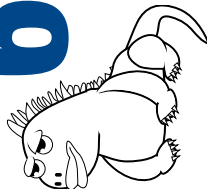
$$\frac{5}{7}$$



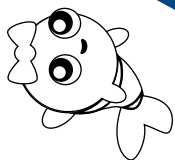
$$\frac{3}{5}$$



$$\frac{3}{6}$$



$$\frac{7}{8}$$



$$\frac{4}{5}$$

$$\frac{5}{9}$$



$$\frac{1}{2}$$



$$\frac{3}{9}$$



Parrotfish

**Green Sea
Turtle**

Brittle Star

Lobster

Sea Anemone

**Banded Coral
Shrimp**

**White Tip Reef
Shark**

Nudibranch

Jellies

Octopus

Coral

Grouper

**Sally Lightfoot
Crab**

Humans

Blue Tang

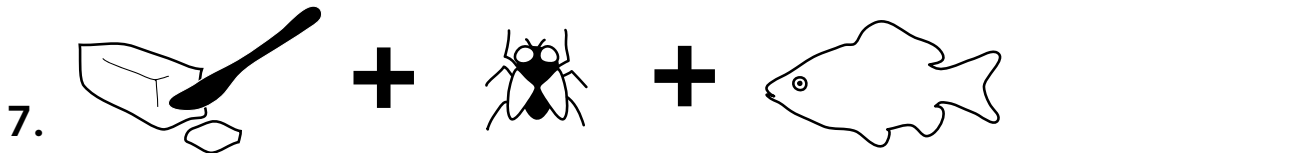
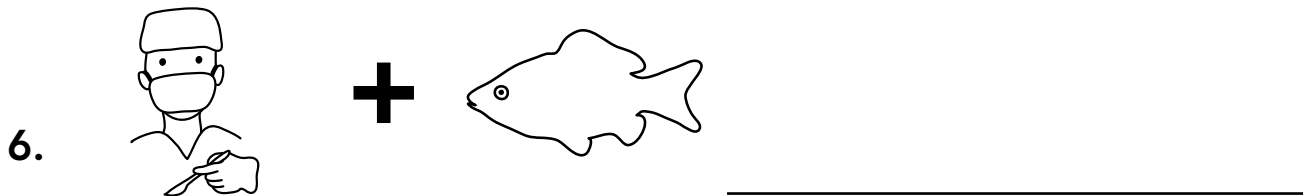
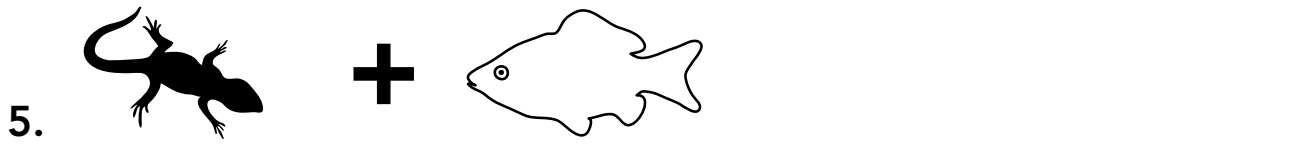
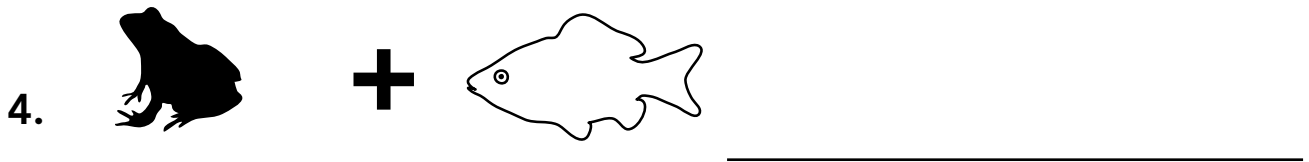
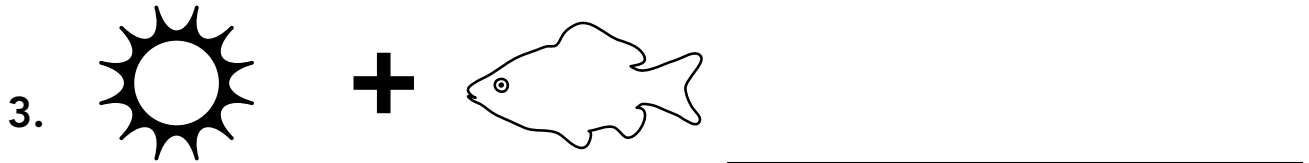
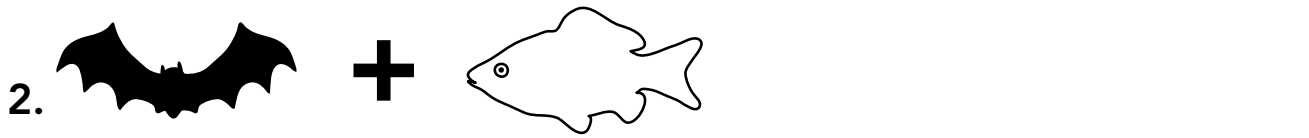
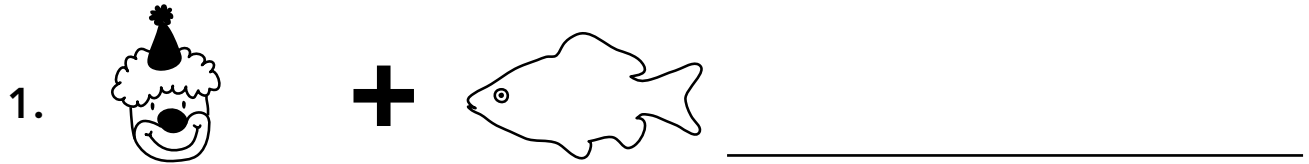
**Crown Of
Thorns
Sea Star**

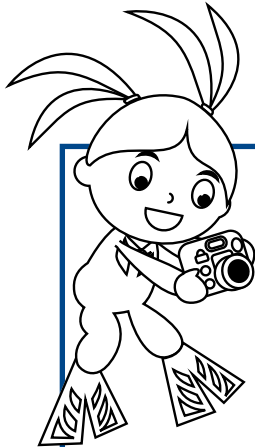
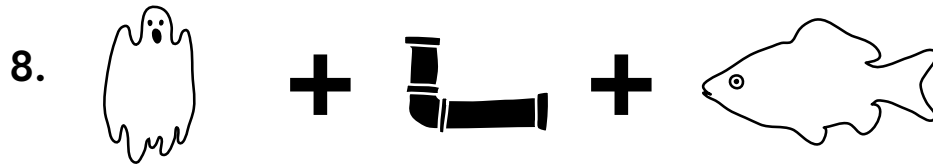
Punny Fish Rebus



Name _____ Date _____

Directions: Use the images on the page to decode the names of the fish. All of the names are compound words.

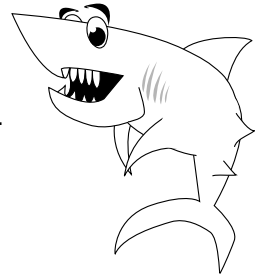




Ocean Annie Super Scuba Challenge

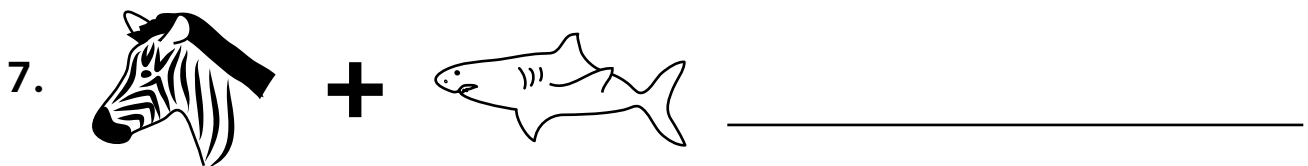
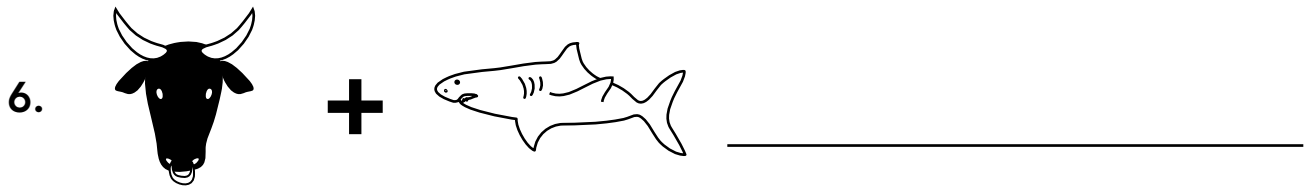
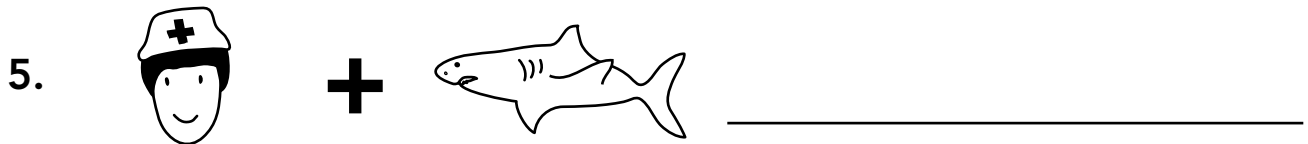
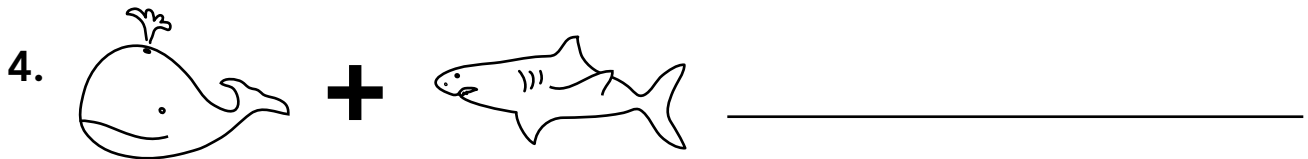
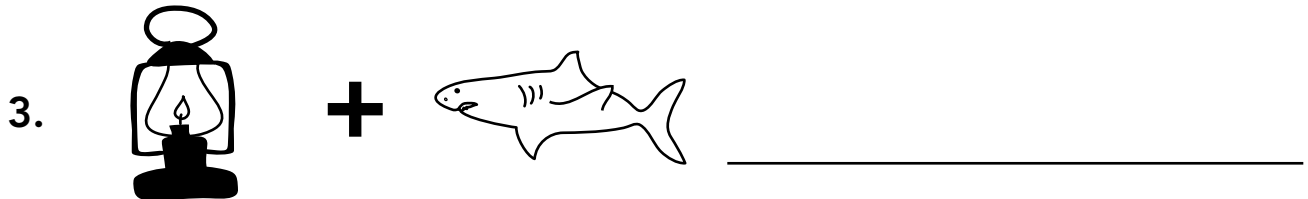
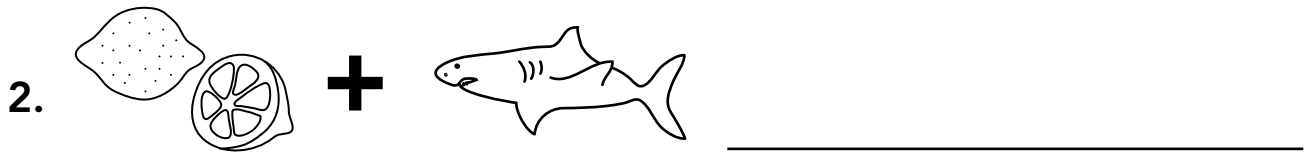
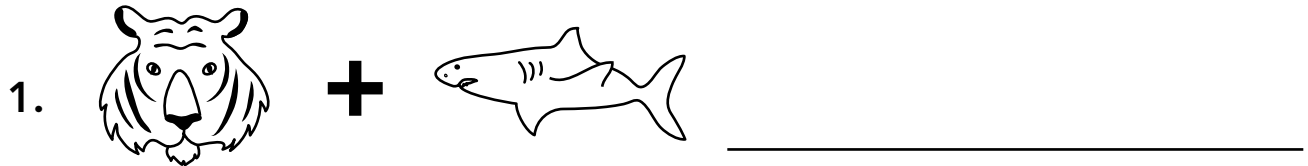
Now it is your turn. Think of an ocean animal you can create your own rebus puzzle for your friends to solve!

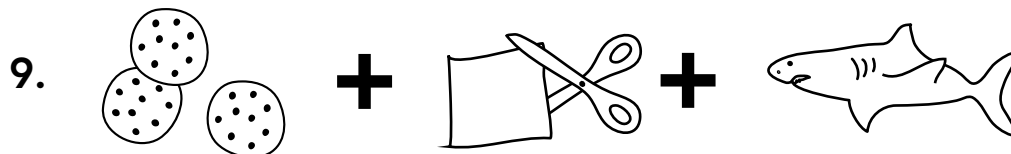
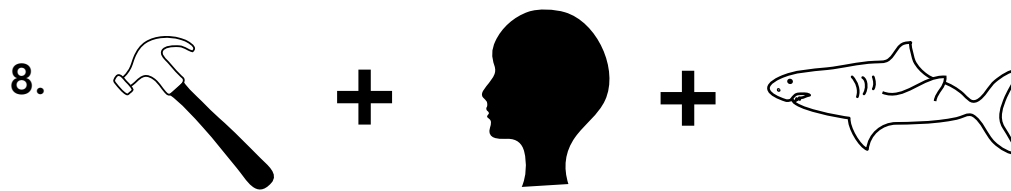
Rebus



Name _____ Date _____

Directions: Use the images on the page to decode the names of the sharks. All of the names are compound words.

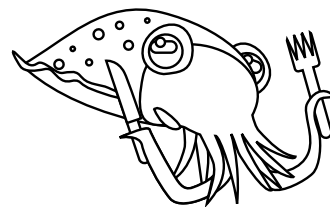




Ocean Annie Super Scuba Challenge


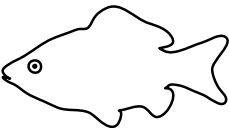
Now it is your turn. Think of an ocean animal you can create your own rebus puzzle for your friends to solve!


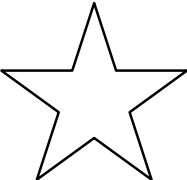
Rebus

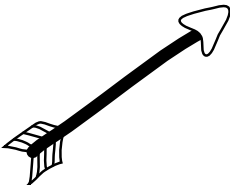
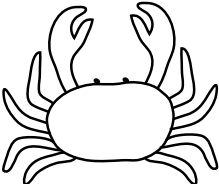



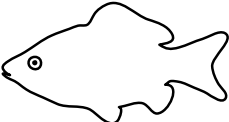
Name _____ Date _____

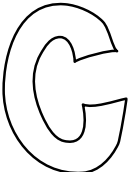
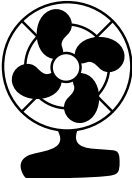
Directions: Use the images on the page to decode the names of the sea creatures. All of the names are compound words.



1.  +  _____

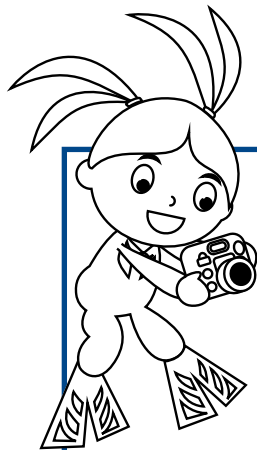
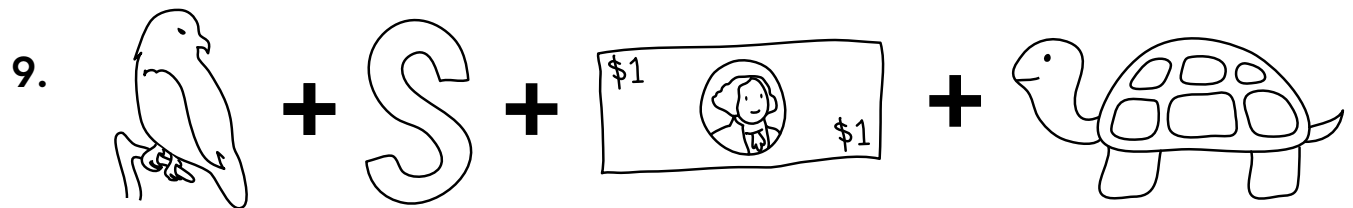
2.  +  _____

3.  +  _____

4.  +  _____

5.  +  _____

6.  +  _____



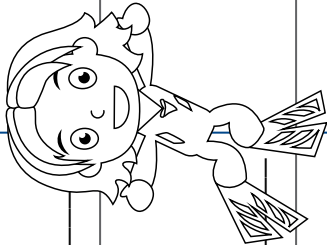
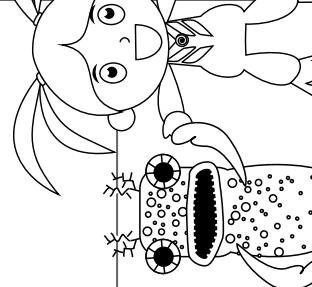
Ocean Annie Super Scuba Challenge

Now it is your turn. Think of an ocean animal you can create your own rebus puzzle for your friends to solve!

Gratitude Chart

Name _____ Date _____

Directions: Fill in the areas of the chart as directed in the lesson.

Some Little Things I am Grateful For...	Reason I appreciate this so much ...
<p>Draw a picture of something I really appreciate on the back of this page.</p>	
<p>I am grateful for my sense of smell. My favorite smell _____</p>	
<p>I am grateful for sight and the thing I love to see most _____</p>	
<p>I am grateful for my hearing and favorite thing to hear _____</p>	
<p>I am grateful for the ocean because _____</p>	
<p>I am grateful for my _____</p>	

Fishes, Fishes, More and More Fishes



H

Fishes, Fishes, More and More Fishes



CONCEPT / TOPICS TO TEACH

There are many diverse types of fish that live in the sea. They belong to different families based on similar physical characteristics, like seahorses, sharks, and frogfish are distinct families, yet they all have things in common that make them fish. Throughout the ocean fish come in all shapes, colors, and sizes, therefore fish are “diverse.”

Objectives:

- » Students will utilize and expand their vocabulary while brainstorming synonyms for words relating to fish.
- » Students will use problem solving skills and manipulatives to solve problems dealing with currency.
- » Students will use analytical skills, logic, deductive reasoning, and fact recall to work through a series of trivia style questions pertaining to fishes.
- » Students will use the scientific method of inquiry to make observations and predictions about animal lifestyles based on body shape.

Character Education: SELF-EXPRESSION

By the time a child goes to school, they have often heard the word “no” thousands of times. Dive Into Your Imagination believes children need to be reminded they are great. Children can do anything they imagine as long as they understand the steps needed in order to make dreams a reality. Learning positive SELF-EXPRESSION is very important to the development of their self-esteem. Through hard work and education children can turn their dreams and imagination into reality. In your class, if your students experience respect, compassion and a nurturing environment they will be able to freely express their feelings, emotions, and thoughts, allowing creativity and learning!

The Ocean is a great platform and can be used as a metaphor for students to learn SELF-EXPRESSION. There are thousands of unique species of fish adapted to life in the sea. Each and every one of your students is unique. Each and every species of the thousands of fish are unique! You have a unique school of fish in your class needing to express themselves. Children need to feel they can safely use SELF-EXPRESSION and imagination, which in turn will give them great personal power.

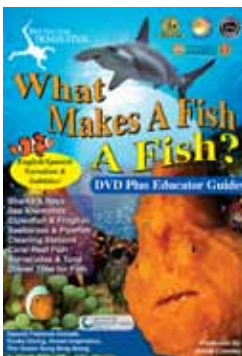
The ocean is such an unbelievable world! The ocean allows children to learn and discover the unbelievable is real. Try to choose to say yes as often as possible! Fostering a child’s ability to fully be able to SELF EXPRESS and celebrate one another’s uniqueness builds self-confidence and self-esteem.

Get your students into buddy teams. Remind them of the common hand signals you use in your classroom when you go scuba diving into your imagination. Ask them to use their imagination, think about all the things they have learned. What animal can they relate to and how can they use this to express themselves through the next exercises? Remind students of the rules of scuba diving. We wear regulators in our mouths and communicate through hand signals and making notes. As students learning SELF EXPRESSION, remind them to always practice patience and respect each others unique forms of SELF EXPRESSION.

Getting Started

Required Materials

- DVD "What Makes A Fish, A Fish?" by Dive Into Your Imagination
- Large Dry Erase Board/Easel and Markers



TREASURE CHEST

- Camouflage
- Cell
- Chromatophore
- Disguise
- Estuary
- Mating
- Population
- Predator
- Scales
- Scientist
- Species
- Zoologist

Anticipatory Set Lead-In

- ✧ Watch and become familiar with chapter eight "Fishes, Fishes, Fishes, More and More Fishes" from the DVD "What Makes a Fish, a Fish?"
- ✧ Before running the film clip, have students imagine they are zoologists, meaning they are scientists who specialize in the behavior of animals as they study the animals in the film clip. Have them get into their buddy teams to look for answers to questions you give them.

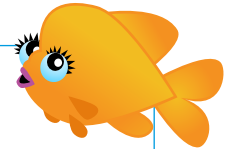
Here are some questions and answers you can use to build a brainstorming session:



Questions for Students	Answers for Educators
What different colors do you see on the fish?	<i>Fish come in almost every color imaginable: pink, red, blue, green, orange, purple, yellow, and many more colors. They also come in many combinations of color.</i>
Are all fish you see the same size?	<i>No! Some are barely a centimeter long while others like the whale shark can grow up to sixty feet!</i>
Can you remember some of the names of different fish you see in the video?	<i>Hawkfish, Leaf Fish, Frogfish, Hairy Fish, Angelfish, Devilfish, Trumpetfish, Tuna Fish, Kelpfish, Catfish, Batfish, Parrotfish, Porcupine Pufferfish, Lizardfish, Cardinalfish, Waspfish, Scorpionfish! All of the names are located in the transcript.</i>
What is the most interesting fish you remember from the video? Why?	<i>This opportunity allows students to share their personal perspective.</i>

Video Review

- ✧ After watching the video about “Fishes, Fishes, More and More Fishes” once or even a few times, discuss and write down additional facts, questions, and information students gained from the video for further research and discussion.
- ✧ Ask students to write a reflection in their journal about the variety of fishes.
- ✧ Self-expression is an important part of our lives. We are all the same, yet we are all different. Have students reflect on the importance of respecting one another and our ability to self-express.



Imagination Value

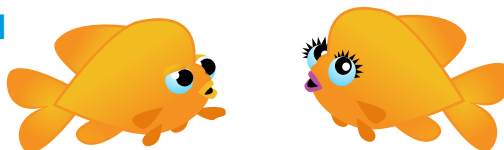
Have your students imagine they are scuba divers. They are going to imagine entering another world. Have students think of ways they can be unique through SELF-EXPRESSION, while following the rules necessary for safety underwater. You can read this script to them or use your imagination and create your own!

“On the count of three we are going to say the magic word and become SCUBA DIVERS! 1, 2, 3...IMAGINATION! In order for scuba divers and snorkelers to see underwater, we have to wear a mask over our eyes with our nose enclosed. People need air in front of their eyes in order to see underwater when snorkeling or scuba diving. In order to swim and conserve our energy, we wear fins on our feet and never use our arms for propulsion.

What would you do if you became an underwater photographer or a marine biologist. Would you move differently underwater? Maybe slower! Get together with your buddy and check your equipment. You need to put on your mask, fins, tank, and other scuba equipment on so you can go underwater and observe fish in their environment. Remember the golden rule in scuba diving is to stop, think, and breathe slowly. If you breathe fast, you move fast and will scare the fish away, yet when you breathe slowly, you move slowly! Are you ready to go? Get with your buddy and signal OK to go down! Put your regulator in your mouth and descend... Everything is silent underwater. Underwater you witness the unbelievable is REAL!

What fish would you like to film and study? Perhaps you will collect parrotfish, barracuda, a seahorse, an eel or maybe even a shark. How much can you learn about animals through observation? How much can we learn about one another through observations? Remember as scuba divers you need to go slow so as not to scare the fish! Scuba divers talk with hand signals underwater and use slates to write down notes, draw pictures or even symbols. Scuba divers carry special cameras to photograph and video what we observe. It is a lot of fun to imagine you can go underwater as a scuba diver! The animals you choose to study are a reflection of you. How will you express yourself in class today? As a scuba diving underwater photographer can you bring out your best? The more you learn, the more you grow!”

CLASSROOM ACTIVITY STATION H1 “FIN-ONYMS!”



Overview

Students will learn about and practice using synonyms to help expand vocabulary skills pertaining to fish. Participation in this activity will provide students with potential to build *vocabulary*, enhance *literacy*, and practice *spelling* skills.

Materials: “Fin-onyms”

Talking Points

- ✧ There is great diversity in our ocean. There are more than 32,000 species of fish making them the most diverse group of vertebrates on the planet.
- ✧ How many words are there in the English language? Have students guess. It is difficult to know for sure because there are derivatives like plurals and also words that are considered obsolete. According to the Oxford Dictionary, there are more than 171,000 words!
- ✧ Define synonym with students. Fin-onym is a play on word for a synonym. Why are synonyms important? How do we use them?
- ✧ Challenge students to use their imagination and become scientists observing fish. They need a command of language to be able to write reports. Unless they know synonyms for words, they would always be saying the same words! Have fun with this, have students pull out their magnifying glass to role play being a scientist while doing the activity.

Lesson Procedure

1. Provide each student with “Fin-onyms”.
2. Instruct students to work independently or in buddy teams to come up with synonyms for each “fishy” word on the list.
3. When students have completed their work, encourage them to share their lists.
4. Add completed work to the “What Makes a Fish” journals.



We stay healthy for diving by eating right, staying in shape and resting.

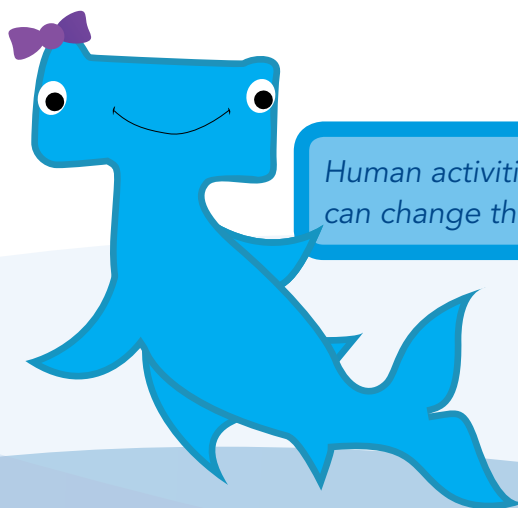
CLASSROOM ACTIVITY STATION H1 (Continued)

“FIN-ONYMS!”

Extension Ideas

- » Ask students to pick some of their favorite words from the list and incorporate them into sentences or a story.
- » Challenge students to come up with a list of antonyms for some of the words on their worksheets.
- » Select a book from the class reading list. Ask students to listen for and write down extra words on their worksheets. When we read or listen to other stories about similar subjects, sometimes it sparks us to remember more. The more we listen, the more we learn!

Notes



Human activities both inland and on the coast can change the shape of beaches and shores.

CLASSROOM ACTIVITY STATION H2

FISH MARKET



Overview

Students build their understanding of currency and spending as they shop within a specified budget to buy items from the market. Participating in this activity will provide students with a chance to practice *basic math skills, reading comprehension, learn about currency, and practice addition and subtraction.*

Materials: "Fish Market"

Talking Points

- ✧ Where does rain come from? Where does the water in our lakes come from? Help students follow the trail of water back to the ocean by discussing these points with them.
- ✧ The ocean is a major influence on weather and climate. Local weather, including precipitation fog and wind, can be caused by the ocean—no matter where you live.
- ✧ Most precipitation on the planet comes from water that evaporated from the ocean. When water evaporates and condenses, clouds form, which can lead to precipitation.
- ✧ Most of the water in lakes, ponds, rivers and the ground comes from water that evaporated from the ocean and fell to the land as precipitation. Most of the water from land and in the atmosphere eventually returns to the ocean as runoff from rivers, or precipitation. The ocean influences climate by absorbing, storing and moving heat, carbon and water.
- ✧ Our ocean is responsible for our water, food and oxygen. We need a healthy ocean in order for fishermen to catch sustainable fish to bring to market! We are connected to the ocean!

Lesson Procedure

1. Provide each student with "Fish Market."
2. Have students work as a class, individually, or in buddy teams to answer the questions about the "Fish Market."
3. Take time to explore with class when there is more than one right way to achieve an answer.
4. Add completed work to the "What Makes a Fish" journal.

Scientists, fishers, engineers, surfers, swimmers, photographers, filmmakers, artists and scuba divers explore the ocean.



CLASSROOM ACTIVITY STATION H2 (Continued)

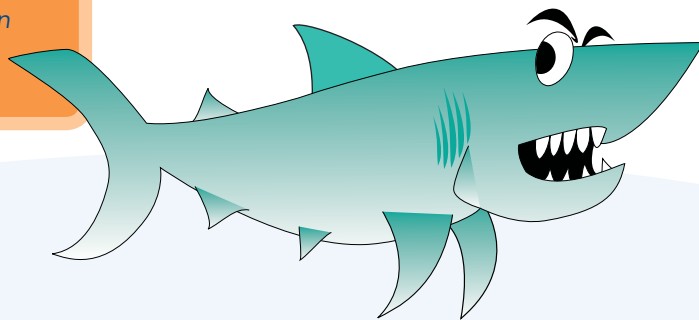
FISH MARKET

Extension Ideas

- » Take students on a field trip to a local market with a set amount for a budget and provide a shopping list. How well can students work to meet their budget?
- » Put out a display of several common objects with their store prices labeled on the underside and out of view. Provide students with a set of shuffled index cards with the prices and see if students can use deduction to place the correct prices with the respective objects.

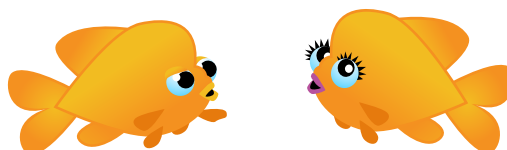
Notes

People explore the ocean through many different hobbies and careers.



CLASSROOM ACTIVITY STATION H3

EXPLORE WITH ME!



Overview

Students will brainstorm a list of items and tools they think they need to study life in the ocean on a scientific expedition. Students will write and/or illustrate stories about how they would use the tools in the field on the expedition. Participation in this activity will provide students with an opportunity to expand *vocabulary*, enhance *literacy skills*, provoke *creative expression*, and review key content learned through the DVD.

Materials: Paper, Pencils, Crayons or colored pencils

Talking Points

- ✧ Ask students why they think people study the ocean. Affirm that there are many reasons including general curiosity, the need to find out what kinds of animals and features the ocean has, and to find resources that can help people live better lives.
- ✧ Ask students what kinds of tools people need to explore the ocean. Affirm there are many tools, a very important one of them being SCUBA which is used by hobbyists and scientists alike.
- ✧ Explain to students they will have an opportunity to explore a classroom ocean as SCUBA divers. Do you remember what SCUBA stands for? (Self Contained Underwater Breathing Apparatus.)
- ✧ What other special tools do you need?



We need to learn about ocean resources through exploration and scientific investigation.

Lesson Procedure

1. Divide class into buddy teams. Ask teams to list tools they think they would need to explore the ocean on an oceanographic expedition.
 - Get students started by brainstorming a few general ideas such as scuba gear, sampling bags, a boat or submarine, compass, GPS etc.
 - Prompt students with questions: What would you wear? How would you travel to the sea? Would you leave the country? What would you need before, during and after your dive? How would you know where you are going?
2. Allow students time to develop the list of items and tools.
3. Instruct students to use their lists of words independently or with their buddy to design a poem, story and/or image to show how they would use their tools, and what kinds of things they might discover during the expedition.
4. Share stories aloud and add them to their "What Makes a Fish" journals.

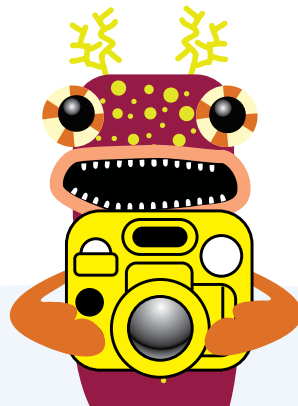
CLASSROOM ACTIVITY STATION H3 (Continued)

EXPLORE WITH ME!

Extension Ideas

- » Ask students to research what kind of tools scientists use to work in the ocean. Have them pick a unique tool for ocean discovery and make a report.
- » Pick a local body of water: a lake, stream or river, and repeat this exercise. Tie in a local environmental issue the students can research and use as a reason for their expedition.
- » Challenge students to invent a tool that they think would be useful to study the ocean and describe how it would be used.

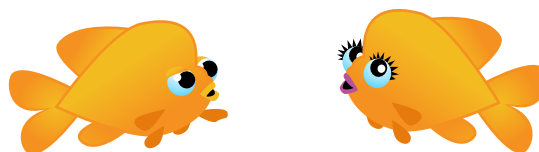
Notes



Human activities sometimes pollute the ocean. Help keep our ocean clean!

CLASSROOM ACTIVITY STATION H4

FISH JUMBLE & TUMBLE



Overview

Students will play a “fish quiz” version of the popular dexterity building game Jenga® in order to reinforce new vocabulary, and concepts about fish biology from the DVD. Participation in this activity will provide students with an opportunity to practice *dexterity, logic, analytical thinking, new vocabulary*, and review key concepts from the lesson.

Materials: Jenga® commonly available where board games are sold (optional), Permanent marker, “Fish Jumble & Tumble” questions

Talking Points

- ✧ This exercise was designed to be a review of what students learned or yet still need to learn!
- ✧ The ocean is more than 70% of our planet and is underrepresented in our lives. It is responsible for our weather patterns, holds 98% of our water, feeds 70% of the people on our planet, and supplies oxygen to our planet. We need a healthy ocean because life as we know it would not exist on our planet without it.
- ✧ The ocean is still 90% unexplored. We have a lot to learn about our ocean! Encourage your students to be the next generation of explorers. Where are they going to go? What will they discover?

**The standard Jenga® game has 54 pieces, although some variations have become available. The questions provided below are suggestions, but may be selected for the appropriateness and skill level of your class. It is not necessary to use all of the game pieces/questions. If you do not have a Jenga® game you can turn this into a fun game for your class. You can have students take the quiz individually or in buddy teams or groups. You can read the questions to entire class and then give students thirty seconds to confer and answer correctly. It creates competition and cooperation.*

Lesson Procedure

1. Write one question from the “Fish Jumble & Tumble” list onto each wooden game piece. This step is optional, as the questions can be used as a class trivia game played independently or in teams as opposed to the Jenga® format.
2. Prepare the Jenga® for game play according to the instructions provided with the game. Hint: Try to be sure the questions are turned inward so they cannot be seen before they are drawn.
3. Instruct students to take turns strategically pulling pieces out of the tower. After pulling out a piece, he/she will read the question on the game piece to the others in the group. Whichever student can correctly answer the question will keep the game piece that had the question on it and also draw the next question. If a question is pulled that cannot be answered, that game piece will be set in a discard pile, and the same player will pull again.
4. When the tower topples, the game is over. The student with the most pieces and ultimately the most correct answers wins.
5. Repeat as desired.

CLASSROOM ACTIVITY STATION H4 (Continued)

FISH JUMBLE & TUMBLE

Extension Ideas

- » Ask students to collect facts independently about fish and create their own trivia game.
- » Take these questions and answers and create a quiz for students to answer if you do not have access to a Jenga® game.
- » Use the answers to the questions and create a vocabulary or spelling list for your students.
- » You can reverse the game and read the words scales, gills, school, camouflage, etc. and have students describe the meaning of the words from memory!

Notes



People inhabit many different areas of the planet Earth, but most live near the coast.

CLASSROOM ACTIVITY STATION H5

FISH BODIES



Overview

Students will observe clues, generate a hypothesis about an assigned animal, and then conduct research to discover supporting data. Participation in this activity will provide students with an opportunity to become acquainted with the *scientific method of inquiry* and key *biological principles*, *conduct research*, and improve *literacy and vocabulary skills*.

Materials: Bulletin Board, Butcher Paper, “Fish Bodies” fact sheets, Index cards, Pencils or other writing instruments, Books from the selected book list, Computer access

Talking Points

- ✧ Review with students, what makes a fish, a fish? There is great diversity in our ocean. There are more than 32,000 species of fish making them the most diverse group of vertebrates on the planet. Have students explain what vertebrates are versus invertebrates? Are sharks fish? What makes a shark a fish? How are they different from bony fishes?
- ✧ Challenge students to use their imagination and become scientists observing fish. What a fish looks like may help students understand what they eat, where the fish may live, how they protect themselves, etc.
- ✧ Encourage students to use their observation skills and knowledge they learned during this activity. Have fun with this, have students pull out their magnifying glass to examine the fish!

Lesson Procedure

1. Prepare a bulletin board with the title “Fish Bodies”
2. Photocopy the “Fish Bodies” fact sheets from this lesson plan, fold them in half, and staple them to the bulletin board. The image and name of the animal should be on the outside.
3. Divide the class into buddy teams and assign each group a fish from the board.
4. Give each group an index card.
5. Students will look carefully at their fish, and see if they can record a hypothesis on their index card about where the fish lives based only on its body shape.
6. Students will be asked to turn to books and internet resources to find out where their fish lives, add it to the information on the note card, and see if their hypothesis was correct.
7. Students will add their index cards to the bulletin board, lift the fish they were assigned, and check the correct answer.

Living near the coast has benefits, but also risks from storms.



CLASSROOM ACTIVITY STATION H5 (Continued)

FISH BODIES

Extension Ideas

- » Ask students to include a few additional facts on their index cards they found interesting in the course of their research about their assigned animal.
- » Challenge students to think about animals in the terrestrial environment and ask them how their body shape relates to lifestyle.
- » Have students repeat the exercise for all of the fish on the bulletin board.
- » Take a class trip to an aquarium to become more closely acquainted first hand with the diversity of fish body shapes and function. If you cannot do this, replay the DVD for your students and have them watch it with the music only selection so they can focus completely on visual cues.

Notes



Most of the water from land and in the atmosphere eventually returns to the ocean as runoff from rivers, or precipitation.

CLASSROOM ACTIVITY STATION H6 BOOK STALL



Overview

Students will build independent reading strategies and improve literacy by examining supplemental materials. Providing a reading or computer area where students can research and expand on the subject of the unit will help to build literacy, develop vocabulary, and increase language skills.

Materials: Hide and Seek on the Reef, The Adventures of Ocean Annie by Annie Crawley

Lesson Procedure: Character Education SELF EXPRESSION

1. Read the book together as a class, or have students read it on their own.
2. What are the main characters in the book?
3. What do they do during their adventure?
4. What sets each of the characters apart and gives them their unique personalities? How are they able to express themselves? How are you able to express yourself?

Poster: BELIEVE

"There are no risks in life if you are true to your intentions."

Fine Art Prints, posters, greeting cards and other products are available to decorate your classroom or school while inspiring your students with real ocean animals and environmental scenes. Contact us to learn more.

Using a map, have students find Darwin Island in the Galapagos. Hammerheads go here to get cleaned by butterflyfish!

Hammerhead shark , Darwin Arch Galapagos



Book Suggestions

- » Baines, Francesca. *Ocean Worlds*. Two-Can Discovery Guides. Princeton, New Jersey: Two-Can, 2001. Print. Grades 1 - 2.
- » Denne, Ben. *First Encyclopedia of Seas & Oceans*. Usborne First Encyclopedia. Illus. David Hancock. Designed Nelupa Hussain. Tulsa: Usborne Books, 2011. Print. Grades 2 – 4.
- » Kudlinski, Kathleen. *The Seaside Switch*. Illus. Lindy Burnett. Minnetonka, Minnesota: NorthWord Books for Young Readers, 2007. Print. Grades Pre-K - 1.
- » Walker, Sally M. *Seahorse Reef: A Story of the South Pacific*. Illus. Steven Petruccio. Smithsonian Books, 2007. Ages 9-12.
- » Ward, Jennifer, et al.. *Somewhere in the Ocean*. Illus. Kenneth Spengler. Flagstaff,
- » Arizona: Rising Moon, 2000. Print. Grades Pre-K - 1.
- » Worth, Bonnie. *Wish For a Fish; All About Sea Creatures*. Illus. Aristedes Ruiz. New York: Random House, Inc., 1999. Print. Ages 4-8.



Closseure and Follow Up

- ❖ Once students experienced the learning stations, gather them to discuss what new facts they learned from participating in the activities and reflect on how much they learned.
- ❖ Talk with students about endangered fish. Fish species are starting to disappear from the ocean because people collect them to eat or to keep in aquariums. Help students understand that we can protect the ocean by selecting only sustainable fish to eat or keep as pets.
- ❖ Show students a globe or world map, and show most of the living space on Earth is in the Ocean. Fish live in all parts of the ocean from the deep sea to the coasts and from the poles to the equator. Fish have specialized bodies and adaptations that help them to live in different ocean environments.
- ❖ Ocean habitats are defined by environmental factors including salinity, temperature, oxygen, pH, light, nutrients, pressure, substrate and circulation. Ocean life is not evenly distributed temporally or spatially, it is patchy. Much of the ocean is a desert, yet some regions of the ocean support more diverse and abundant life than anywhere on Earth.
- ❖ Brainstorm with students ways in which we use the ocean. Why do we need the ocean?

Plan for Independent Practice

- » *Everything we do on land affects the Ocean. Our ocean is responsible for more than 70% of the oxygen we breathe, food for people and our water. We need to protect our ocean.* Have your students pick an environmental project affecting our ocean or an animal within. Pollution is becoming a huge problem in the sea, fish stocks are collapsing, sharks are endangered, and ocean acidification is affecting the pH balance in the sea. These are just a few ideas they can choose from. How can they make a difference?
- » Ask students to think of all the things that make them different or diverse from their classmates, and things that make them the same. Spend time comparing and contrasting these qualities.
- » Students can look for diversity in other animal groups of animals: dogs, cats, butterflies etc. and scientifically compare them.
- » Review the word SELF-EXPRESSION with students and discuss how it relates to their character. Encourage them to use their imagination and think of all the ways they express themselves. Can they illustrate something great they do? How do they express themselves? Are they good at writing? What do they enjoy? Can they write a poem about themselves or a short story? Maybe they sing or dance and want to compose a song or create a dance to share.
- » Have students buddy up and have each partner use observation skills and write down a sentence or a paragraph about their buddy. Sometimes our friends are really terrific observers and can see things in us that we do not see in ourselves. As Ocean Annie says, "Sometimes you can't see the picture when you are in the frame!"

DVD TRANSCRIPT

Fishes, Fishes, Fishes, More And More Fishes

Fishes, Fishes, Fishes, More and More Fishes

New Fish, Old Fish, Silver Fish, Gold Fish

Hawkfish, Leaf fish, Frogfish

Hairy Fish, Scary Fish, Spiked Fish, Striped Fish

Pink Fish, Purple Fish, Pink and Purple Fish

Giant Fish, Teeny tiny Fish, Fighting Fish, Hiding Fish

Angelfish, Devilfish

Thin Fish, Thick Fish,

Trumpetfish, Tuna Fish

One Fish, Two Fish, Three Fish, Lots-and-lots-of-Fish

Clear Fish, Kelpfish

Catfish, Batfish, Stick-out-your-tongue Fish

Parrotfish, Porcupine Pufferfish, Spotty Fish

Lizardfish, Cardinalfish, Waspfish, Scorpionfish

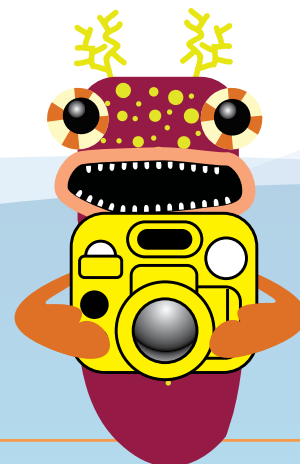
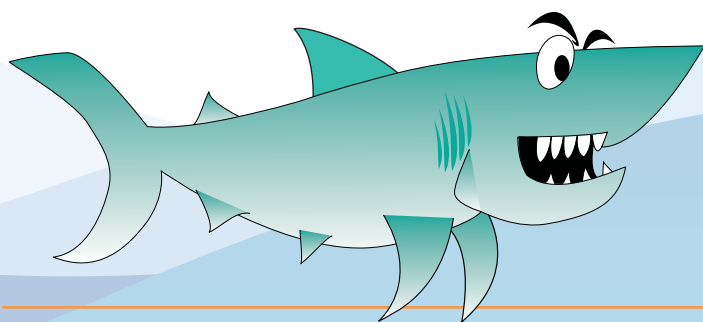
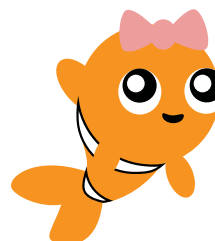
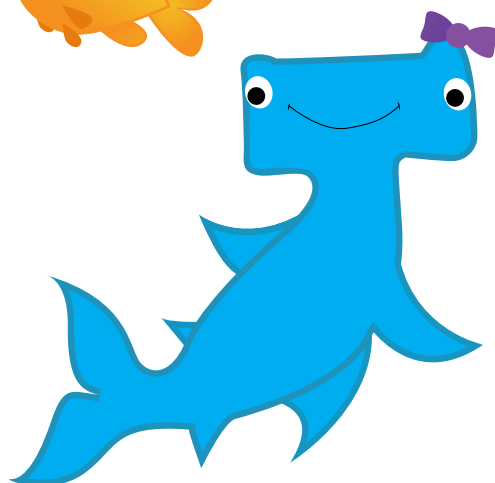
Warty Fish, Big Lip Fish

Orange Fish, White Fish, Green Fish, Glass Fish

Pygmy Fish, Schooling Fish, Hey, Look-at-me Fish

*Small mouth Fish, Big mouthed Fish, Sleepy Fish,
The tail End Fish!*

Fishes, Fishes, Fishes, More and More Fishes



Go Blue! Ocean Annie's Tips to Help Our Environment

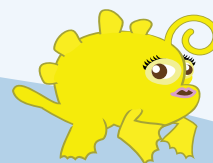
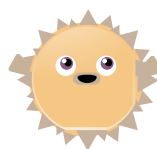
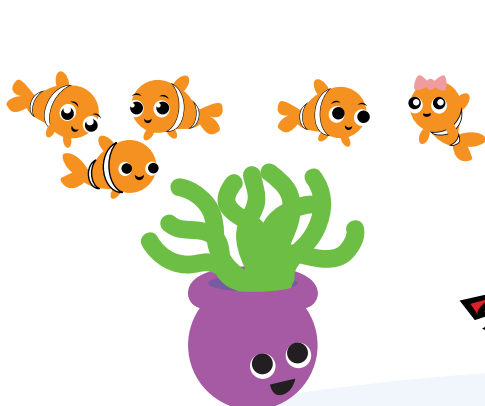
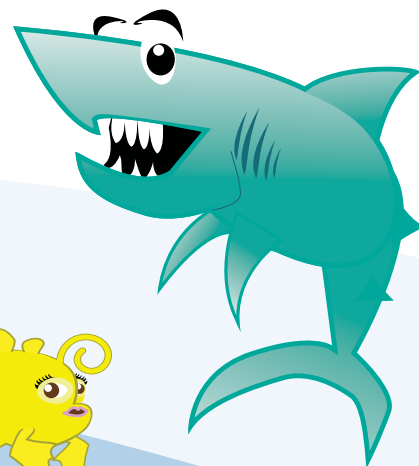
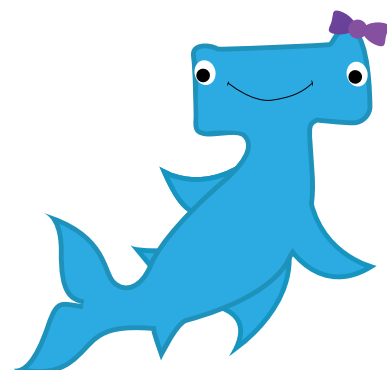
We want to hear from you!

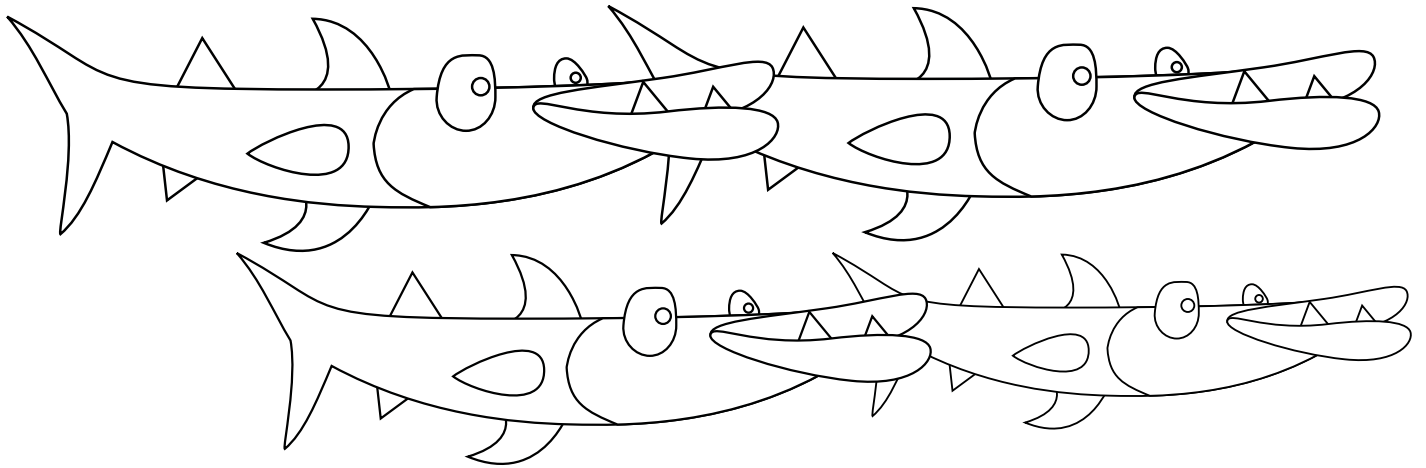
How did our GO BLUE environmental tips help your home, class, or community? Were you able to create a local or global initiative? Did you meet Ocean Annie's challenge and make your school and homes a no single use zone? What ways were you successful in reducing the amount of waste you create? We want to be able to share your positive environmental initiatives. Send us your story we can publish on our website, newsletter, and share with others. Please include images, video or artwork!

If you are interested in following Annie Crawley to locations around the world in real time, register your class or summer program by sending an email to Annie@AnnieCrawley.com She is also available to speak at schools around the world. Dive Into Your Imagination is working on developing relationships between schools too, let us know if you are interested in other initiatives.

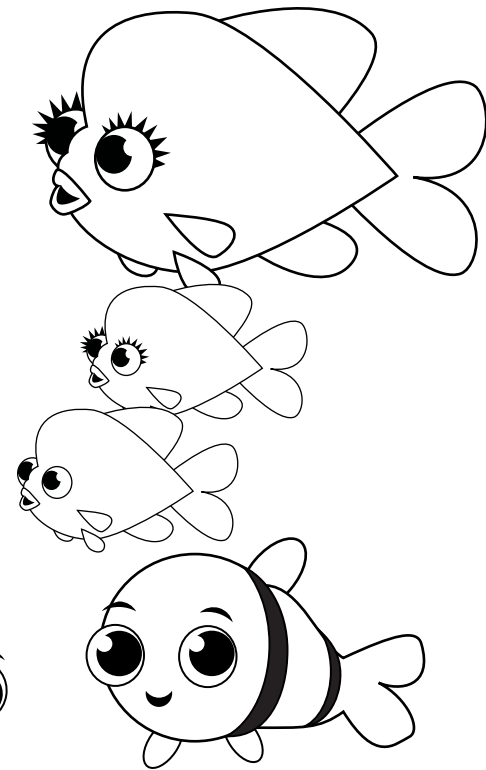
How can we help support your continuing education? Share your experiences through social media. You can post on our Facebook fanpage <http://www.facebook.com/DiveIntoYourImagination> and twitter account @DiveImagination

As good citizens of the world, we want to live at one with nature and always support the health of our Ocean. By doing this, we GO BLUE and LIVE BLUE!





Fishes, Fishes, More And More Fishes ACTIVITIES



Name _____ Date _____

H



Chest

Treasure

of Words

camouflage

cell

chromatophore

disguise

estuary

mating

population

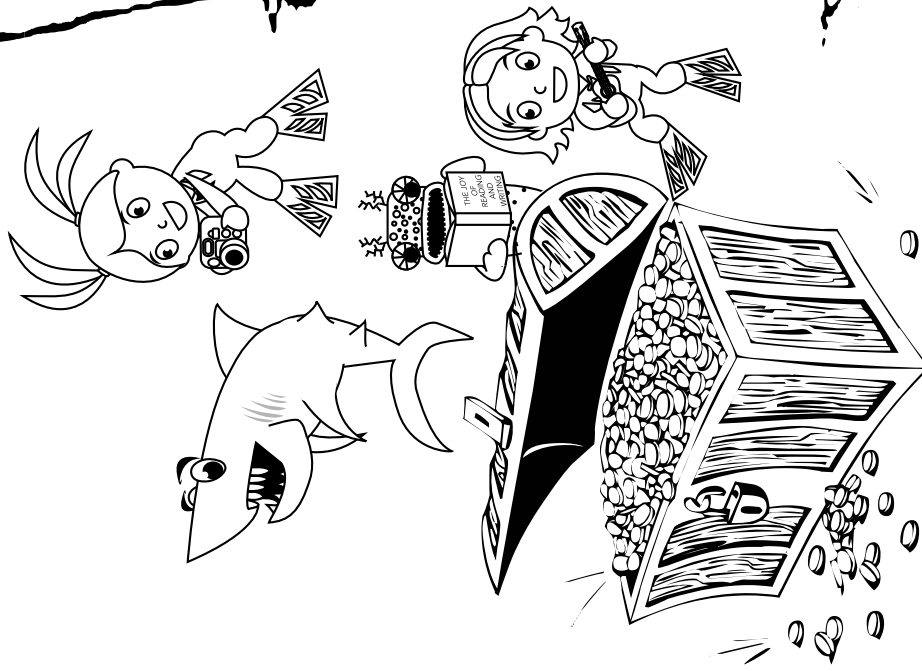
predator

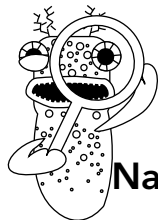
scales

scientist

species

zoologist

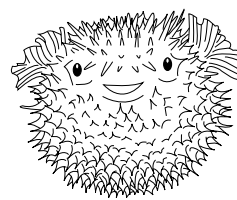




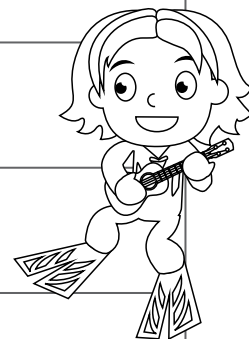
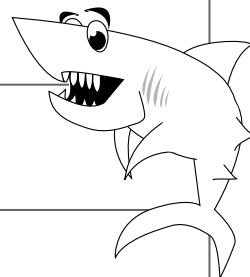
Fin-onyms

Name _____ Date _____

Directions: The words on this page can all be used to describe the qualities and characteristics of different kinds of fish. A synonym is when two words share the same or similar meaning. An example would be the similar words dark and dim. Brainstorm and list as many synonyms you can think of for each bold word.

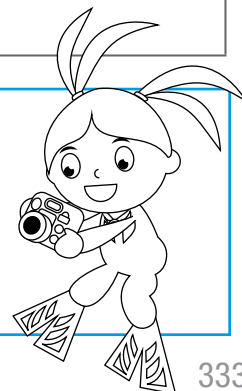


1. Prickly	
2. Squishy	
3. Slimy	
4. Strong	
5. Large	
6. Small	
7. Shiny	
8. Fast	
9. Slow	
10. Thick	



OCEAN ANNIE'S SUPER SCUBA CHALLENGE

Think of an adjective or word you would use to describe a fish? List synonyms for your unique word. Then use your adjective in a sentence about a fish!



Directions: Here are 5 sets of the cash combinations for FORM A. Provide one set per child.

FORM A



FORM A



FORM A



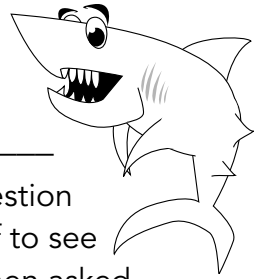
FORM A



FORM A



Fish Market



Name _____ Date _____

Directions: Cut out your coins and arrange them as needed to answer each question about things you need to buy on your trip to the fish market. Challenge yourself to see if you can get as close as possible by paying exact change. Circle YES or NO when asked.

1. A sandpiper is playing beautiful music near the market. you want to drop 5¢ in his tip basket.

Do you have enough money? Yes No

Do you have exact change to make 5¢? Yes No

What will you put in the basket to equal 5¢? Show your thinking below.

2. You are at the sea market and want to buy some sea biscuits that cost 6¢.

Do you have enough money? Yes No

Do you have exact change to make 6¢? Yes No

What will you put in the basket to equal 6¢? Show your thinking below.

3. You are at the sea market and need to buy some sea urchins that cost 4¢.

Do you have enough money? Yes No

Do you have exact change to make 4¢? Yes No

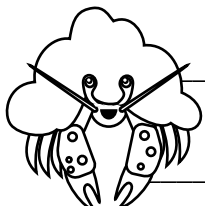
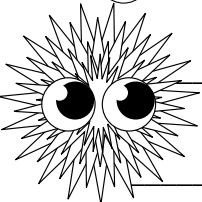
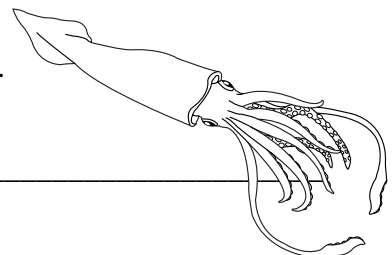
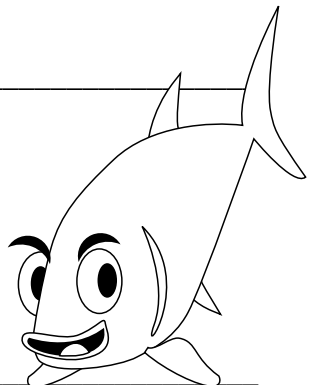
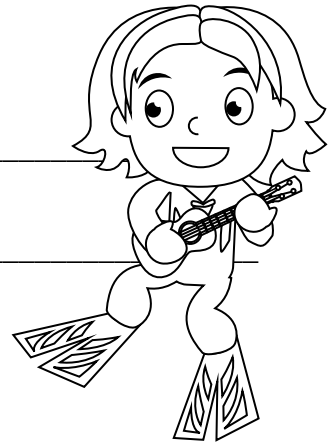
What will you put in the basket to equal 4¢? Show your thinking below.

4. Your buddy the squid shows up at the market and needs to borrow 10¢ to make his purchase.

Do you have enough money? Yes No

Do you have exact change to make 10¢? Yes No

What will you put in the basket to equal 10¢? Show your thinking below.



5. At the sea market you find some fancy sea stars that would be lovely in your fishy home, but they cost 15¢.

Do you have enough money?

Yes

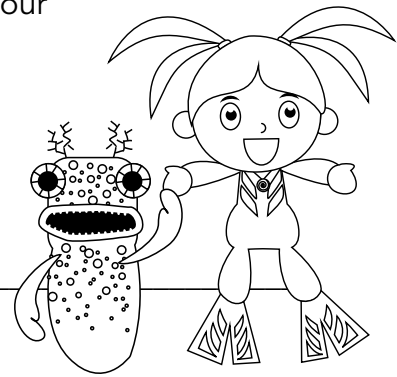
No

Do you have exact change to make 15¢?

Yes

No

What will you put in the basket to equal 15¢? Show your thinking below.



6. You suddenly remember that you need some sea lettuce that costs 25¢.

Do you have enough money?

Yes

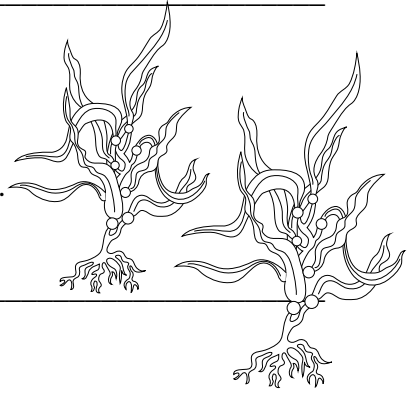
No

Do you have exact change to make 25¢?

Yes

No

What will you put in the basket to equal 25¢? Show your thinking below.



7. There is a great guitarfish at the sea market that you would love to have so you can join the Big Blue Band and it costs 12¢.

Do you have enough money?

Yes

No

Do you have exact change to make 12¢?

Yes

No

What will you put in the basket to equal 12¢? Show your thinking below.



8. When it is time to leave the sea market you need to take the cuttle-shuttle home, which costs 8¢.

Do you have enough money?

Yes

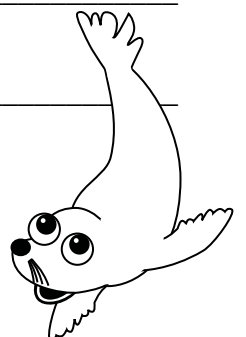
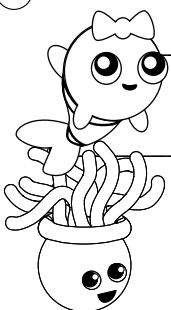
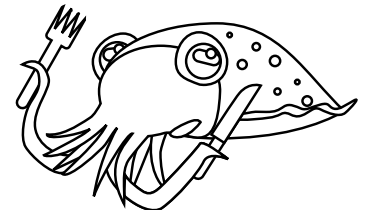
No

Do you have exact change to make 8¢?

Yes

No

What will you put in the basket to equal 8¢? Show your thinking below.



Directions: Here are 4 sets of the cash combinations for FORM B. Provide one set per child.

FORM B



FORM B



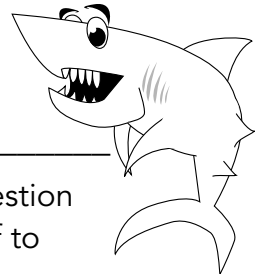
FORM B



FORM B



Fish Market



Name _____ Date _____

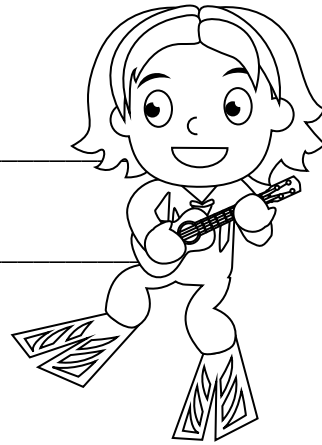
Directions: Cut out your coins and arrange them as needed to answer each question about things you need to buy on your trip to the fish market. Challenge yourself to get as close as possible by paying exact change. Circle YES or NO when asked.

1. A sandpiper is playing beautiful music near the market. you want to drop 50¢ in his tip basket.

Do you have enough money? Yes No

Do you have exact change to make 50¢? Yes No

What will you put in the basket to equal 50¢? Show your thinking below.

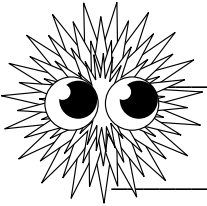


2. You are at the sea market and want to buy some sea biscuits that cost 17¢.

Do you have enough money? Yes No

Do you have exact change to make 17¢? Yes No

What will you put in the basket to equal 17¢? Show your thinking below.



3. You are at the sea market and need to buy some sea urchins that cost 35¢.

Do you have enough money? Yes No

Do you have exact change to make 35¢? Yes No

What will you put in the basket to equal 35¢? Show your thinking below.

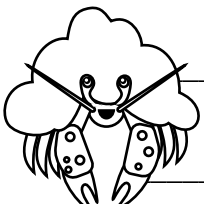
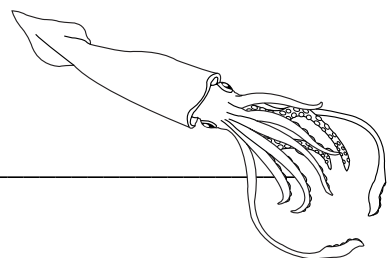


4. Your buddy the squid shows up at the market and needs to borrow 56¢ to make his purchase.

Do you have enough money? Yes No

Do you have exact change to make 56¢? Yes No

What will you put in the basket to equal 56¢? Show your thinking below.

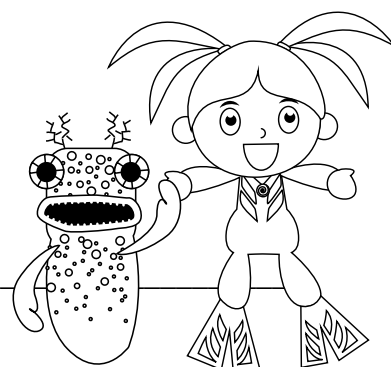


5. At the sea market you find some fancy sea stars that would be lovely in your fishy home, but they cost 48¢.

Do you have enough money? Yes No

Do you have exact change to make 48¢? Yes No

What will you put in the basket to equal 48¢? Show your thinking below.



6. You suddenly remember that you need some sea lettuce that costs 70¢.

Do you have enough money? Yes No

Do you have exact change to make 70¢? Yes No

What will you put in the basket to equal 70¢? Show your thinking below.



7. There is a great guitarfish at the sea market that you would love to have so you can join the Big Blue Band and it costs 95¢.

Do you have enough money? Yes No

Do you have exact change to make 95¢? Yes No

What will you put in the basket to equal 95¢? Show your thinking below.

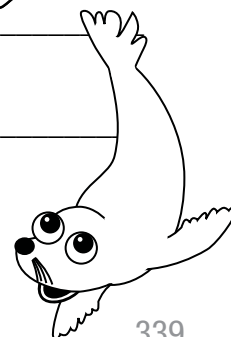
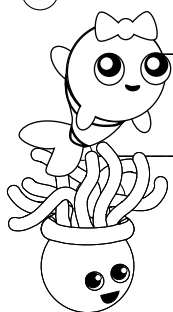
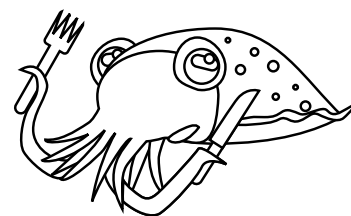


8. When it is time to leave the sea market you need to take the cuttle-shuttle home, which costs 30¢.

Do you have enough money? Yes No

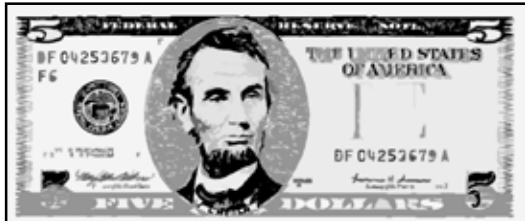
Do you have exact change to make 30¢? Yes No

What will you put in the basket to equal 30¢? Show your thinking below.

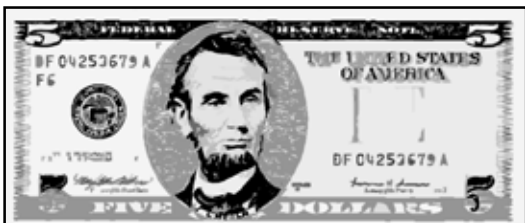


Directions: Here are 3 sets of the cash combinations for FORM C. Provide one set per child.

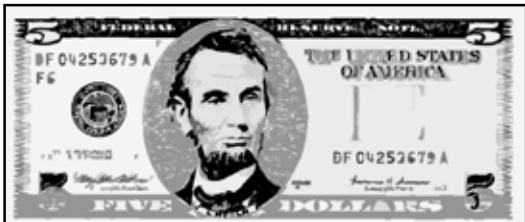
FORM C



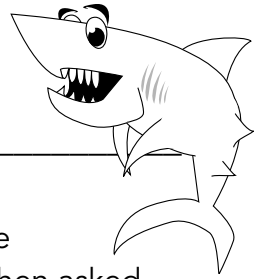
FORM C



FORM C



Fish Market



Name _____ Date _____

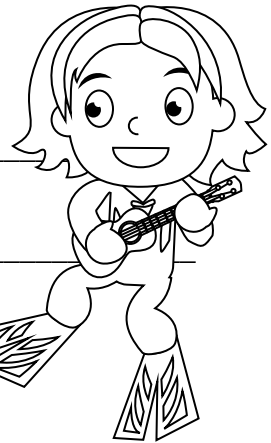
Directions: Cut out your currency and arrange it as needed to answer each question about things you need to buy on your trip to the fish market. Challenge yourself to get as close as possible by paying exact change. Circle YES or NO when asked.

1. A sandpiper is playing beautiful music near the market. you want to drop \$2.00 in his tip basket.

Do you have enough money? Yes No

Do you have exact change to make \$2.00? Yes No

What will you put in the basket to equal \$2.00? Show your thinking below.

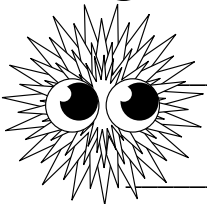


2. You are at the sea market and want to buy some sea biscuits that cost 1.60¢.

Do you have enough money? Yes No

Do you have exact change to make 1.60? Yes No

What will you put in the basket to equal 1.60? Show your thinking below.

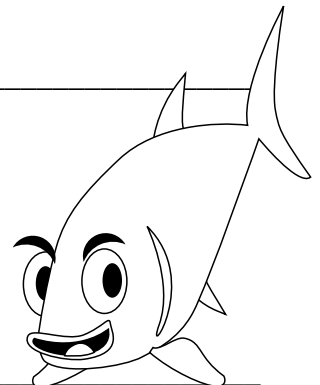


3. You are at the sea market and need to buy some sea urchins that cost \$2.15.

Do you have enough money? Yes No

Do you have exact change to make \$2.15? Yes No

What will you put in the basket to equal \$2.15? Show your thinking below.

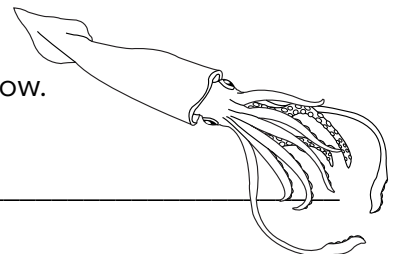


4. Your buddy the squid shows up at the market and needs to borrow \$1.30 to make his purchase.

Do you have enough money? Yes No

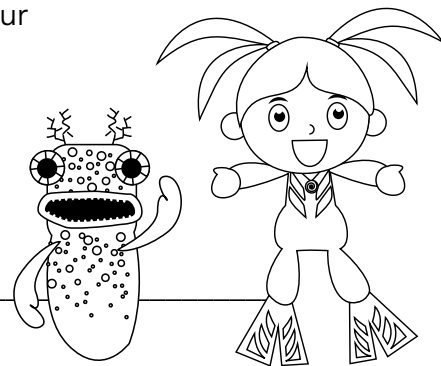
Do you have exact change to make \$1.30? Yes No

What will you put in the basket to equal \$1.30? Show your thinking below.

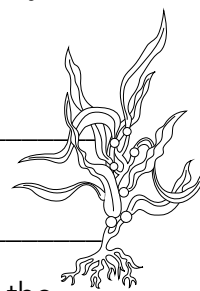


5. At the sea market you find some fancy sea stars that would be lovely in your fishy home, but they cost \$6.95.

Do you have enough money? Yes No
 Do you have exact change to make \$6.95? Yes No
 What will you put in the basket to equal \$6.95? Show your thinking below.



6. You suddenly remember that you need some sea lettuce that costs \$1.50. If you buy the sea stars will you have enough money left to buy the lettuce too? If so, how much money will you have left? Show your thinking below.



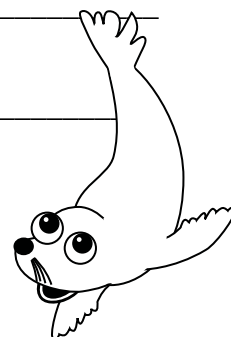
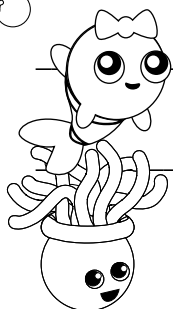
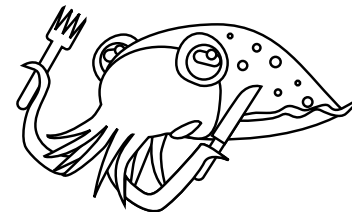
7. There is a great guitarfish at the sea market that you would love to have so you can join the Big Blue Band and it costs \$7.25.

Do you have enough money? Yes No
 Do you have exact change to make \$7.25? Yes No
 What will you put in the basket to equal \$7.25? Show your thinking below.

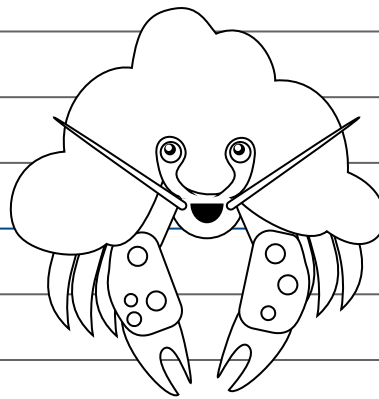
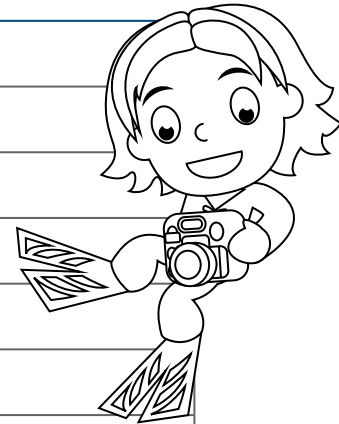


8. When it is time to leave the sea market you need to take the cuttle-shuttle home, which costs \$1.95.

Do you have enough money? Yes No
 Do you have exact change to make \$1.95? Yes No
 What will you put in the basket to equal \$1.95? Show your thinking below.

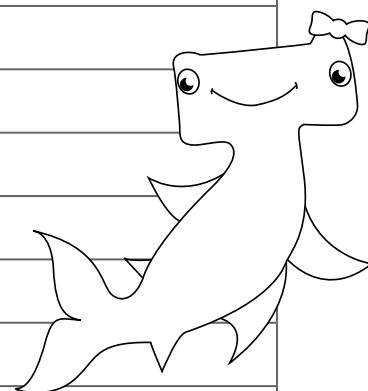
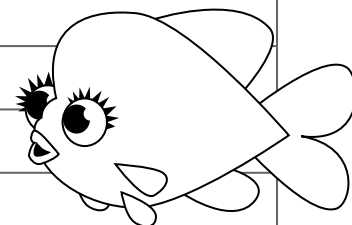


Directions: Answer the questions verbally in the activity. Answers will be revealed.



1. What is the special covering on a fish's skin called?
2. True or False. If a fish is born in fresh water it must never enter salt water?
3. What is the organ fish use to breathe?
4. What is it called when fish swim together in large groups?
5. What is another way to say fish can disguise themselves?
6. A shark is a fish, true or false?
7. What is a fish called that eats both plants and animals?
8. Is a jellyfish a fish?
9. Do all fish swim?
10. Is a seahorse a fish?
11. An eel is a fish, true or false?
12. Can fish hear?
13. What is the largest fish in the ocean?
14. True or False. All fish have skeletons.
15. What is a fish called that feeds only on plants?
16. Do fish breathe oxygen?
17. What is the organ that fish use to control sinking and floating?
18. A whale is a type of fish, true or false?
19. What is the place in the ocean where fish can go to get cleaned?
20. What is a person called who studies fish?
21. What are fish called that only feed on meat?
22. Some fish can live out of the water briefly, true or false?
23. What kind of equipment can a person wear to breathe underwater and watch the fish?
24. Is a stingray a fish?
25. What body part is most important to help fish steer when they swim?
26. True or False. Fish are found throughout all parts of the ocean.
27. Some fish can spend time in both fresh and salt water, true or false.

28. Do all fish lay eggs?
29. What is it called when fish move together in a large group from one place to another?
30. Do fish have muscles?
31. All fish are colorful, true or false.
32. Can fish smell things?
33. All fish are vertebrates, true or false.
34. Do fish ever have special "home" spots that they return to?
35. One reason that fish swim in large groups is to seem bigger to other fish that might want to eat them, true or false?
36. Do some fish lay eggs?
37. Most fish work very hard to take care of their babies, true or false?
38. What does a frogfish use to fish for fishes?
39. Many fish control the temperature inside their bodies by adjusting to temperature of the water that surrounds them, true or false?
40. What is it called when fish form a partnership with another animal that benefits either one or both of them?
41. Do any fish live in the parts of the ocean that are totally dark and never get any sunlight?
42. Some fish make nests true or false?
43. Some fish don't have fins true or false?
44. What fish is the most poisonous in the sea?
45. True or false, some fish can start life as a male and become female.
46. What are sharks and rays skeletons made of?
47. Do any fish live in the icy waters near the poles?
48. Do fish have good eyesight?
49. Too much fishing is causing some kinds of fish to become endangered, true or false?
50. If water that fish live in is polluted, can fish become sick or die as a result?
51. What is it called when there are no more of a certain kind of animal left in the world?
52. Does picking up garbage on the beach help fish stay healthy?
53. What should we use instead of single use plastic bottles for drinking?
54. Some fish are starting to become hard to find because people do things that disturb their homes, true or false?



Seahorse

Usually found clinging to plants and corals. They use their tail to hold on to objects, and the bumpy texture of their bodies help them blend into the places where they are found.

Stingray

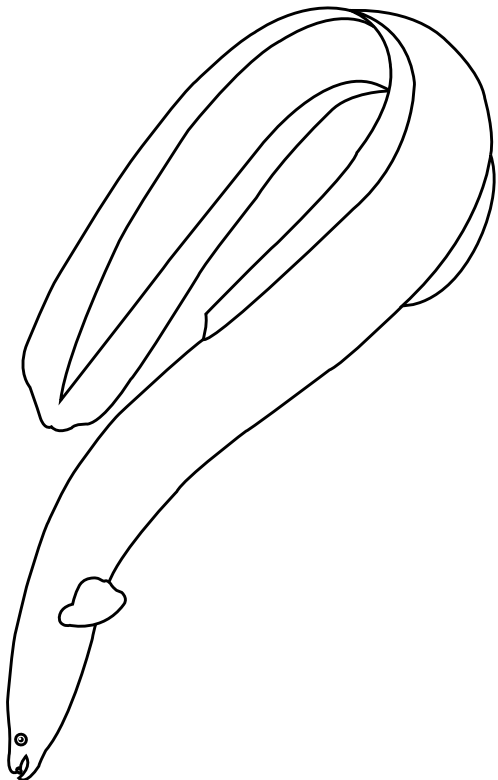
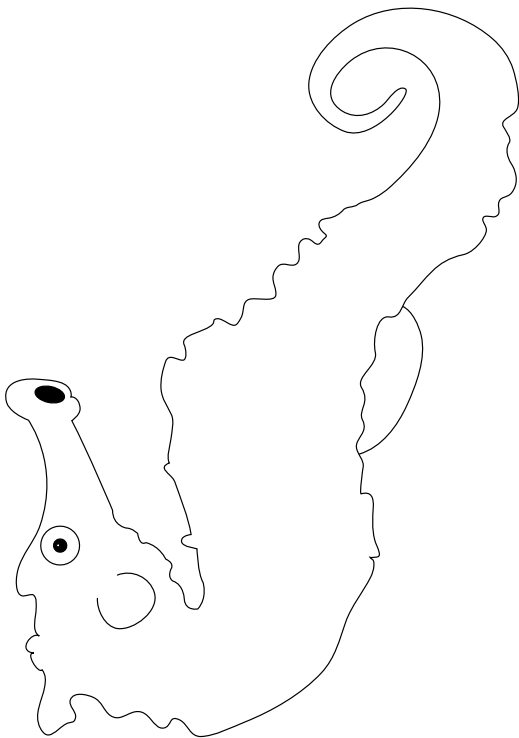
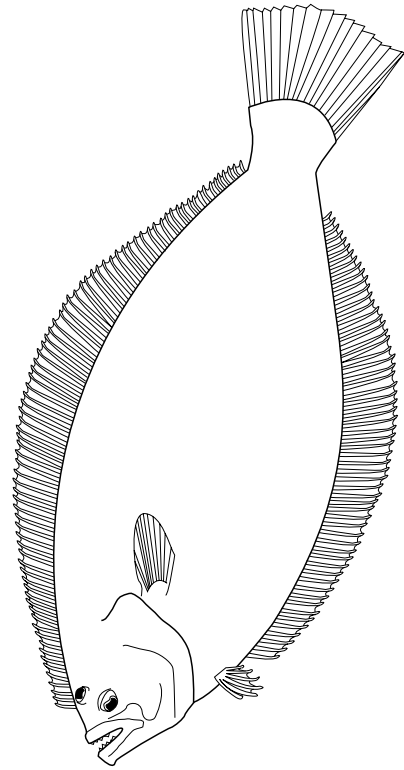
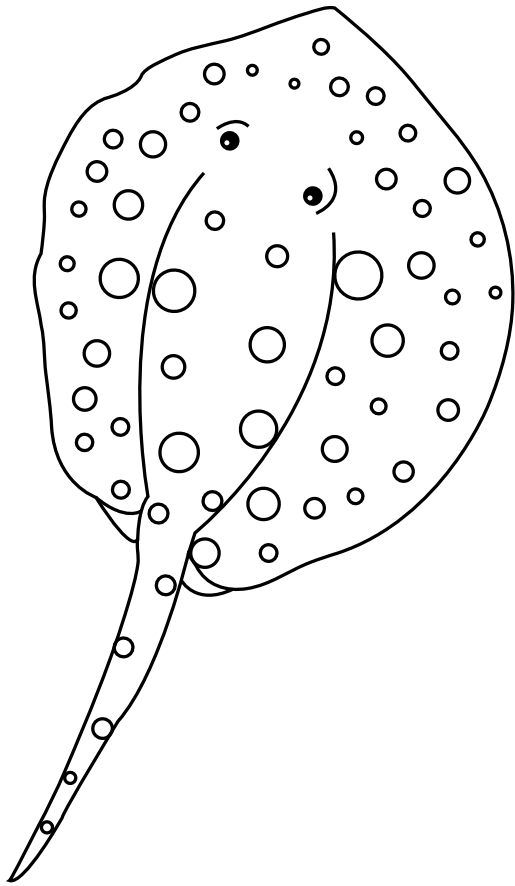
Lives on or near the bottom. They have a flattened body shape, and their eyes are placed on top of the head.

Eel

Hides in crevices and holes in the reef. Their long skinny body shape lends itself to fit into long narrow places. They come out at night to feed.

Flounder

Live along soft, sandy bottoms. Look at their flattened body shape, and their eyes placed on top of the head.



Frogfish

Are typically found around rocks, coral or sponges. Their oddly shaped bodies look like their surroundings, and the growths on their skin helps further camouflage them.

Sharks

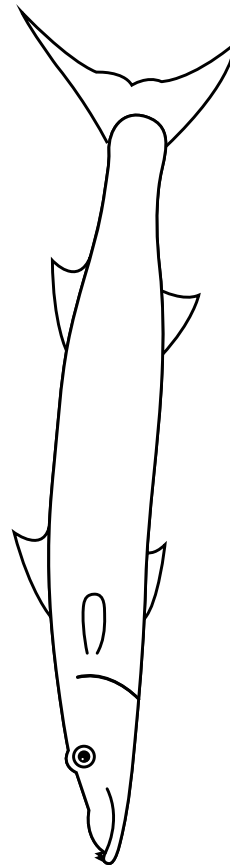
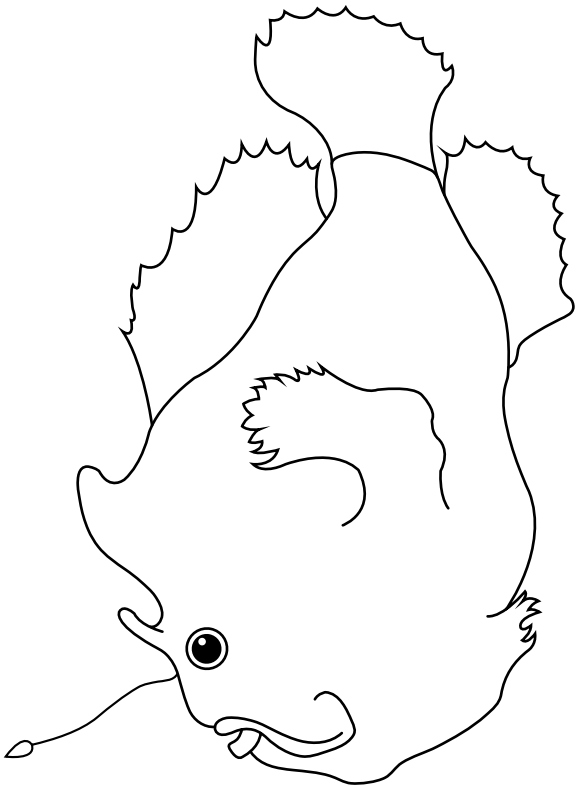
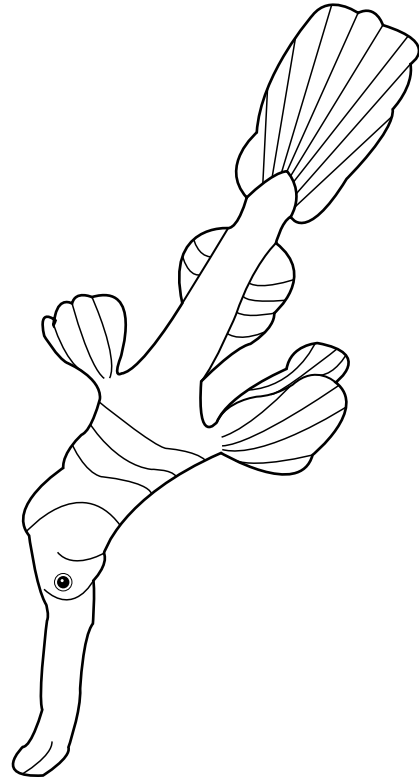
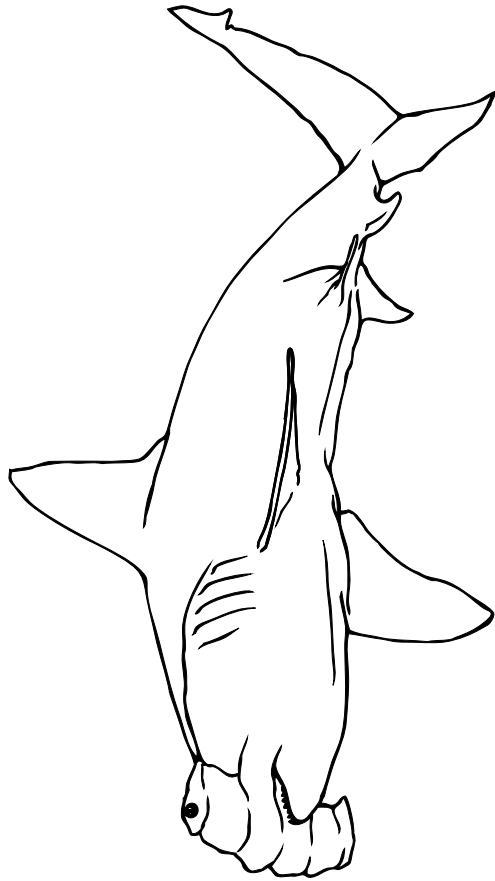
Often found swimming along in the open ocean. Their body shapes are hydrodynamic, meaning they use counter-shading with a dark upper body and lighter belly to blend into the open water.

Barracuda

Are usually found in mid-water around reefs. Their silvery coloring, and the elongated body shaped like a torpedo helps them blend into the water and move very fast!

Pipefish


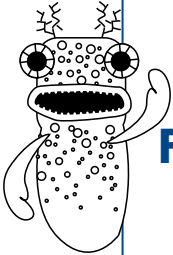
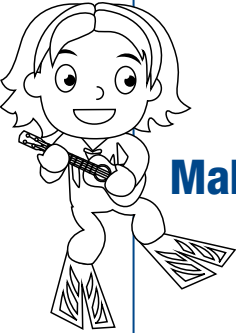

Often found floating with their heads pointed down in order to imitate sea grasses or fingerlike coral where they hide.

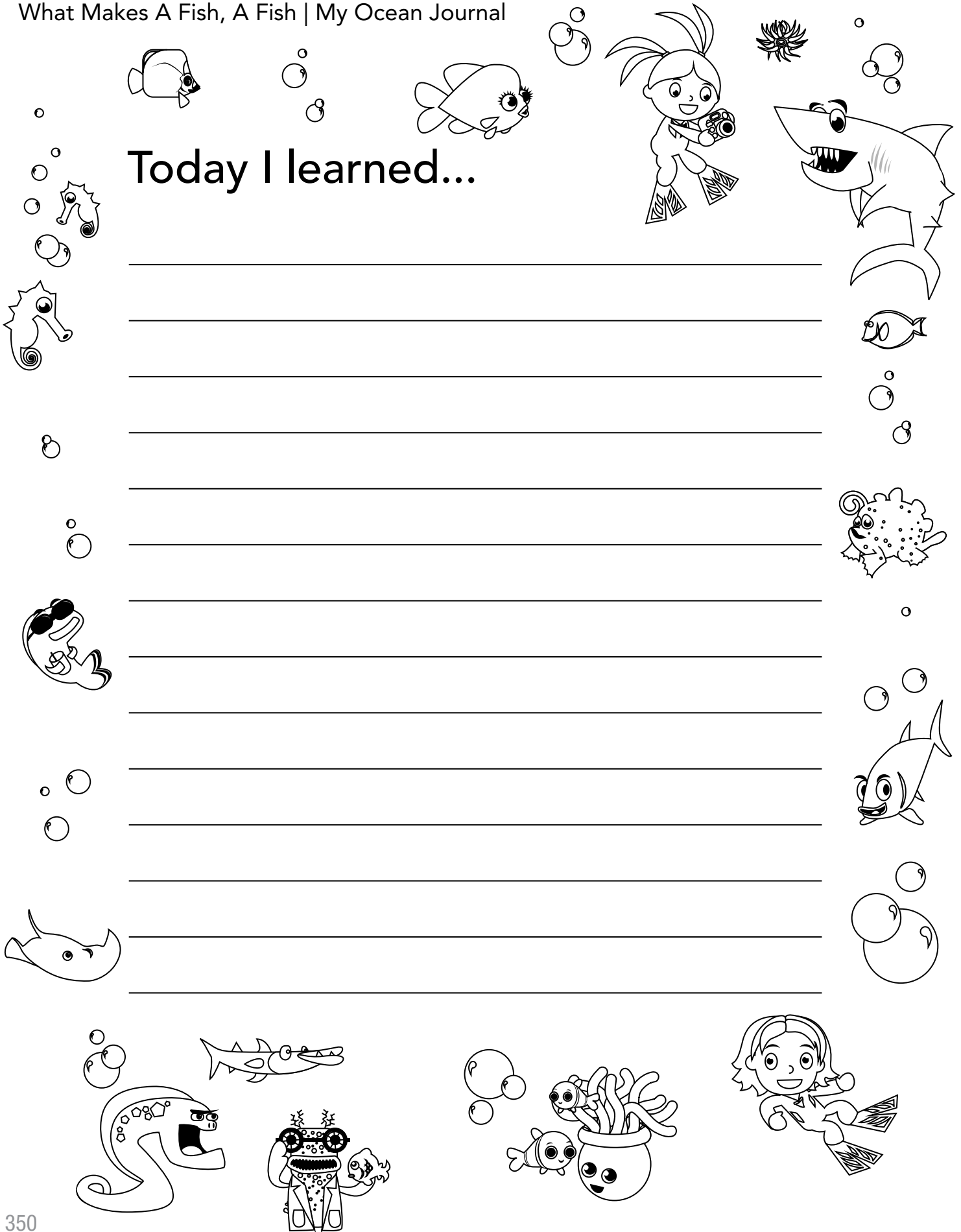


How Does Each Character Express Themselves?

Name _____ Date _____

Directions: Use the interactions with the characters you have observed to fill in this chart.

How Does Each Character Express Themselves?	
 <p>Ocean Annie</p>	<hr/> <hr/> <hr/> <hr/>
 <p>Fringy</p>	<hr/> <hr/> <hr/> <hr/>
 <p>Makaio</p>	<hr/> <hr/> <hr/> <hr/>
 <p>Finnagain</p>	<hr/> <hr/> <hr/> <hr/>



Today I learned...

Treasure Chest Terms



These are definitions to the words used in each chapter of this Guide.

Algae

» Any chlorophyll-containing, mainly aquatic eukaryotic organism ranging from microscopic single-celled forms to multicellular forms 100 ft. (30 m) or more long, distinguished from plants by the absence of true roots, stems, and leaves.

Anemone

» Any of the relatively large, solitary polyps of the phylum Cnidaria. Unlike the closely related corals, they do not create a calcium carbonate skeleton. Most are predators, immobilizing their prey with the aid of specialized stinging cells called nematocysts.

Bacteria

» Single-celled organisms that exist singly or in chains, various species of which are involved in fermentation, putrefaction, infectious diseases, or nitrogen fixing.

Bone

» Hard connective tissue forming the substance of the skeleton of most vertebrates composed of a collagen-rich organic matrix impregnated with calcium, phosphate, and other minerals.

Camouflage

» Concealment by some means that alters or obscures the appearance: *Drab plumage provides the bird with camouflage against predators.*

Cartilage

» A firm, elastic, flexible type of connective tissue of a translucent whitish or yellowish color; gristle.

Cell

» Microscopic body that is the basic structural unit of all organisms.

Chromatophore

» (kruh-mat-uh-fawr) A cell containing pigment, that through contraction and expansion produces color change in the skin, as in fishes and octopuses.

Cleaning Station

» An area on a coral reef where fish gather to be picked free of parasites, dead skin, or to generally be cleaned by other reef animals specialized to perform this task.

Denticles

» A small tooth or toothlike projection.

Disguise

» To change the appearance or guise of so as to conceal identity or mislead, as by means of deceptive garb.

Diversity

» A point or respect in which things differ. Variety or multiformity: *"Charles Darwin saw in the diversity of species the principles of evolution that operated to generate the species: variation, competition and selection"* (Scientific American).

Ectotherm

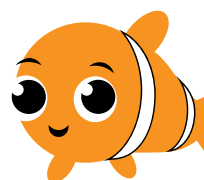
» A member of the group that displays the ability to regulate its internal body temperature largely by exchanging heat with its surroundings.

Elasmobranch

» Any of numerous fishes of the class Chondrichthyes, characterized by a cartilaginous skeleton including the sharks, rays, chimaeras, and skates.

Elasmobranchologist

» A scientist who specializes in the study of sharks and other fish that possess cartilage based skeletons.



Treasure Chest Terms (Continued)

Endemic

- » A group of organisms is endemic when they are found in a particular geographic area.

Esca

- » A piece of flesh that is attached to the illicium and modified to look like a lure or bait that will attract potential prey.

Estuary

- » That part of the mouth or lower course of a river in which the river's current meets the sea's tide.

Fins

- » Limbs used to help the fish find balance and steer swimming.

Fishes

- » Correct plural of fish when referring to multiple fish of different species. "Fish" is the correct form when talking about multiple fish of the same species.

Gills

- » The respiratory organ used by the fish and other aquatic animals to pump gases in and out of the body.

Herbivore

- » An animal that feeds chiefly on plants and algae.

Hover

- » To hang fluttering or suspended.

Hydrodynamic

- » Having a shape or features that allow a shape to move through the water more efficiently.

Hygiene

- » Condition or practice that supports the preservation of health, as cleanliness.

Ichthyologist

- » (ik-thee-**ol**-uh-jist) a scientist who studies fishes.

Ichthyology

- » (ik-thee-**ol**-uh-jee) The branch of zoology dealing with fishes.

Illicium

- » the first spine of the dorsal fin is modified into a moveable fishing rod or luring apparatus.

Invasive Species

- » A species that is not native to a certain area and potentially out-competes natural species.

Invertebrate

- » Any animal lacking a backbone.

Mating

- » To pair for the purpose of reproduction.

Naturalist

- » One who is an expert or interested in botany or zoology (particularly out in the field) and studies plants and animals in their natural surroundings.

Omnivore

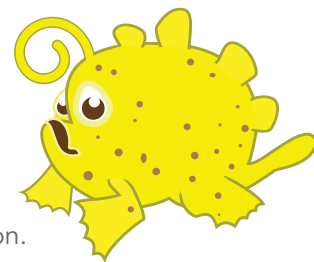
- » An animal whose normal diet includes both plants and animals.

Organ

- » A grouping of tissues into a distinct structure, as a heart or kidney in animals or a leaf or stamen in plants, which performs a specialized task.

Parasite

- » Organism that lives on or in another species from which it receives a benefit while negatively impacting the host organism.



Treasure Chest Terms (Continued)

Piscivore

» A carnivorous animal, which lives on eating fish.

Planktivore

» An animal feeding primarily on plankton.

Plankton

» A generic term for organisms that float in the sea and cannot swim against a current.

Population

» The assemblage of a specific type of organism living in a given area.

Predator

» Any organism that exists by preying upon other organisms.

Scales

» One of the hard, bony or dentinal plates, either flat or denticulate, forming the covering of certain other animals, as fishes.

Scientist

» A person having expert knowledge of one or more sciences, especially a natural or physical science.

SCUBA

» The commonly used acronym for "self-contained underwater breathing apparatus" referring to portable equipment containing compressed air and used for breathing under water. SCUBA divers carry their air supply with them below the surface of the water.

Skeleton

» The bones of a human or an animal considered as a whole, together forming the framework of the body.

Species

» The basic category of biological classification, composed of related individuals that resemble one another, are able to breed among themselves, and produce offspring capable of breeding.

Swim bladder

» Gas-filled organ that allows some fish to control their buoyancy.

Symbiosis

» Any interdependent or mutually beneficial relationship between two organisms.

Tentacles

» Elongated flexible organs present in some animals, especially invertebrates. Usually, they are used for feeding, feeling and grasping.

Type

» A number of things or persons sharing a particular characteristic, or set of characteristics, that causes them to be regarded as a group.

Vertebrate

» An organism that has a brain enclosed in a skull or cranium and a segmented spinal column.

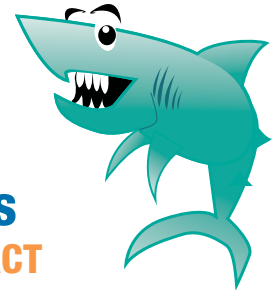
Water

» a transparent, odorless, tasteless liquid, compound composed of hydrogen and oxygen.

Zoologist

» A scientist who specializes in the study of the structure, function, behavior, and evolution of animals.





SPECIAL SECTION: Ocean Annie teaches you about Scuba Diving!

Essential Communication Skills for Scuba Divers

COMMUNICATION SKILLS: STOP, THINK, BREATHE SLOWLY, THEN ACT

When snorkeling or scuba diving you wear a mouthpiece for breathing so you need to learn how to talk with your hands, not your voice when under water. Scuba divers use hand signals, eye contact, and special waterproof slates to write notes to one another. Scuba divers dive in buddy teams. You can dive in groups of 3, 4 or more, but you always want to have one special buddy. There are several important hand signals to learn so you can communicate effectively with your buddy.

Let's start with OK. When you signal your buddy OK, you are saying, I am OK. Are you? Then you need to wait for your buddy to respond. If there is something wrong, you need to let your buddy know.

One of the most important rules while scuba diving is to move slowly, breathe slowly and never hold your breath. When students get really excited, such as during play or before tests, they start to breathe really fast or may even forget to breathe altogether. Scuba divers must learn to control breathing because we carry tanks of air and we need our air to last. When a scuba diver breathes fast they tend to move fast, use air quickly, and miss seeing marine life. If you move fast you appear as a bubble-blowing monster and can scare all the animals. Fish swim away if you move and breathe fast. When you breathe slowly, you move slowly. Remember the golden rule is to Stop, Think, Breathe Slowly, and then Act.

You can establish a positive atmosphere in any classroom or household using hand signals and these breathing techniques. Use the mantra with your students: Stop, Think and Breathe Slowly. Share this lesson with parents to provide consistency in the classroom and at home.

Once you master these hand signals and concepts with your students, set the stage to go scuba diving during imagination play with your students before every activity. You can either use this as a script or create your own!

Before we dive into our imagination and travel under water, let's go through the steps to become scuba divers!

1. Get together with your buddy.
2. Get your equipment in place. Put your mask on, get your fins on and review hand signals with your buddy, remember we are silent when we go scuba diving.
3. Signal your buddy that you are OK to go down.
4. On the count of three, let's use our imagination and become scuba divers, scientists and underwater explorers! Let's say the magic word (imagination) 1, 2, 3...Imagination!

Anytime your students get off task, use the mantra with your hand signals: Stop, Think and Breathe Slowly!



Communication Signals

"Are you OK?" or "OK!"

Use to ask your buddy if they are OK or to signal to your buddy that you are OK

1. Make a circle with your thumb and forefinger
2. Extend remaining three fingers
3. Combine with other signals to form sentences



"Go up" or "Are you ready to go up?"

Use to signal to your buddy that you are ready to go to the surface

1. Make a fist with one hand
2. Point your thumb toward the surface
3. Combine with the "OK" signal



"Go down" or "Are you ready to go down?"

Use to signal to your buddy that you are ready to go dive

1. Make a fist with one hand
2. Point your thumb down
3. Combine with the "OK" signal



"Get with your buddy"

Use to signal to a group that each person should get closer to their buddy

1. Make a fist with both hands
2. Extend index fingers
3. Bring hands together



"Hold hands"

Use to signal to your buddy that they need to hold your hand to stay close

1. Clasp your hands together
2. Show your buddy your clasped hands



"Look at" or "Watch"

Use to signal to your buddy when you want them to look at something or watch you

1. Make a fist with one hand
2. Point your index and middle finger toward your eyes
3. And point to what you want them to look at



"Me" or "I"

Use to signal to indicate to yourself to your buddy

1. Point to your chest with your thumb or index finger
2. Combine with other signals to form sentences



"Stop"

Use to signal to your buddy that you would like them to stop

1. Raise your hand
2. With your fingers together, turn your palm toward your buddy
3. Move hand slightly forward
4. Combine with other signals to give instructions



"Think" or "Remember"

Use to signal to your buddy when you want them to think or remember something

1. Make a fist
2. Point index finger to your head
3. Combine with other signals to form sentences

**"Slow down"**

Use to signal to your buddy that they should slow their breathing or to stop moving fast

1. With your fingers together, press your palm down
2. Move hand up and down slowly
3. Combine with other signals to form sentences

**"Something is wrong"**

Use to signal to your buddy that something is not right

1. With your palm facing down, spread your fingers apart
2. Rotate your hand at the wrist back and forth
3. Combine with other signals to form sentences

**"Danger!"**

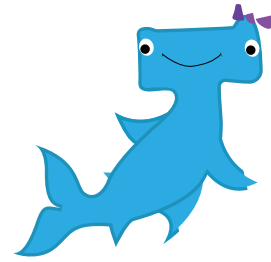
Use to signal to your buddy that something is dangerous and they should be careful

1. Make a fist with one hand
2. Extend your fist in the direction of danger
3. Combine with other signals to form sentences



SPECIAL SECTION: Ocean Annie teaches you about Scuba Diving!

Special Equipment Needs For Scuba Diving



SCUBA stands for Self Contained Underwater Breathing Apparatus. The basic equipment needed for snorkeling and scuba diving include a mask, snorkel, fins and wetsuit. In addition to this, scuba divers need a SCUBA tank, BCD and regulator. Below is a detailed description of all of the equipment needed for scuba diving, so that you can become a scuba instructor in your class:

Mask

Humans need air in front of their eyes in order to see otherwise everything under water would be blurry. When you go swimming, you might wear swim goggles, but when snorkeling and scuba diving, you need to wear a mask so your nose is enclosed within the air space. Water pushes the mask to your face as the pressure of the water increases with depth. Exhaling through your nose adds air to the mask and balances the pressure, a process called equalization. When snorkeling and scuba diving we need the mask to enclose our noses.

Snorkel

A snorkel is a hollow tube attached to the mask that allows snorkelers and scuba divers to comfortably float or swim on the surface of the water without having to lift the head to breathe.

Fins

Human feet are very small and do not provide great propulsion in water, so when swimming in the water legs become tired quickly. Wearing fins that lengthen the leg and widen the feet improves propulsion which is why scuba divers and snorkelers wear fins that help them move like a fish. Many marine animals have different shaped fins because they have adapted to different lifestyles in the sea. There are different fin styles snorkelers and scuba divers can choose too!

Wetsuit

Under water heat leaves our bodies 25 times faster than it does on land, so people get colder more quickly in water. Wearing a wetsuit made of neoprene rubber helps keep people warm. If the wetsuit fits properly it will be snug over the entire body, and trap in water that will be warmed by the heat given off by the wearer.

The ocean has many different water temperatures. Near the equator where it is warm, snorkelers and scuba divers may only need a rash guard or thin wetsuit to stay warm. When diving in cold water, they wear a thicker wetsuit or a drysuit. A drysuit is warmer because it prevents water from entering the suit. The drysuit connects to the scuba tank, keeping air next to the body instead of water. Air does not conduct heat away from the body as quickly as water so people stay warmer under water in a drysuit.

SCUBA Tank

Humans need oxygen in air in order to live. Air is composed of approximately 79% nitrogen and 21% oxygen. Because scuba divers submerge completely under water, they need to carry air to breathe. The SCUBA tank is an aluminum or steel cylinder filled with pressurized air. The tank is what allows scuba divers to breathe air underwater in combination with our SCUBA regulator.

SCUBA BCD

BCD stands for Buoyancy Control Device. The BCD is a jacket-like device that straps the SCUBA tank in place. In addition to carrying the tank, the BCD helps controls buoyancy. Air is added to the BCD because it has a bladder inside of it like a balloon. By filling it up with air, you will float. If the air is deflated from the BCD, you will sink. When scuba diving, we add and subtract the air in the BCD in order to be neutrally buoyant underwater. Scuba divers don't float or sink when scuba diving, they are like astronauts in space with zero gravity. Did you know astronauts learn how to scuba dive to practice what it will feel like before going into outer space?

Ocean Annie teaches you about Scuba Diving! (Continued)

SCUBA Regulator

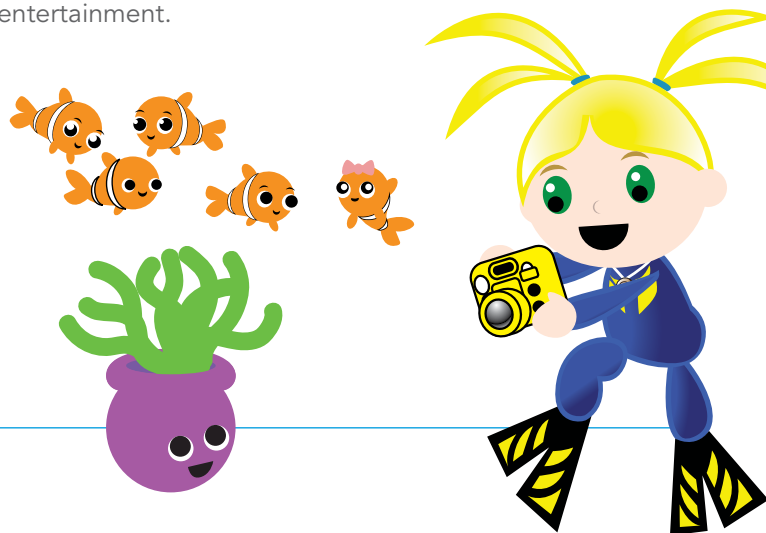
The SCUBA regulator is the device attached to our SCUBA tanks that converts high pressure air into one that the user can breathe under water.

SCUBA Gauge

Scuba divers have to know how much air is inside the scuba tank. The deeper you dive, the more air you use which affects how much time can be spent underwater. A scuba gauge provides the information needed so you can monitor the air in the SCUBA tank. Many gauges also have a compass attached to them that can help the wearer determine the direction of travel while under water.

Underwater Camera

There are special underwater cameras and lights snorkelers and scuba divers use to document the dives. Photographs and videos taken under water can be used for scientific reasons, education or entertainment.



RESPECT THE ENVIRONMENT AND OUR BUDDY

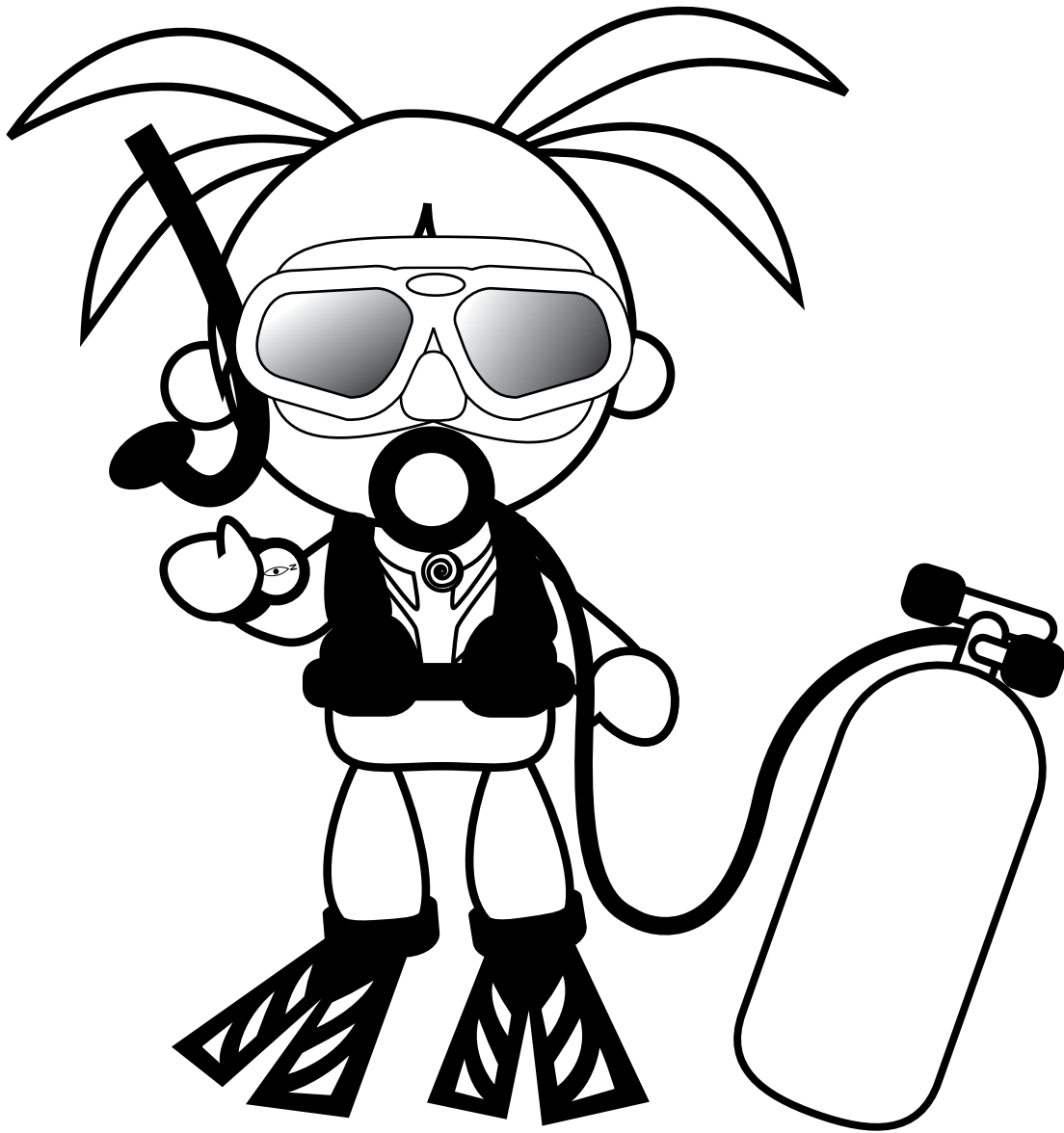
Before we go scuba diving, we have to learn how our equipment works and about the environment we will enter. Sometimes we will scuba dive in a pool, lake or in the ocean. In class, you will be scuba diving into your imagination and exploring the world through the knowledge you are learning with books, DVDS and these activities. When we enter the water we must not only respect the equipment and our buddy, but we also must respect the animals we will encounter. It is tempting to touch the animals because they look so amazing, yet we have to understand that we are only allowed to touch with our eyes, thoughts and minds. Underwater we keep our hands to ourselves. Some animals have special skin and if we touch them, we can damage them. Other animals have poisonous spines they use for protection that can be easily damaged.

It is important to use and show respect in all areas of our lives! So remember, we don't need to touch our buddies to work with them, just like we don't need to touch the animals to observe and experience them!

The more we learn about the Ocean, the more you will want to protect it. Our ocean is responsible for 70% of the Oxygen our planet needs, all of our water and many people rely on the food from the sea as their only source of protein. Everything we do on land affects the Ocean. We rely on the Ocean for the health of our planet. I hope you will want to help protect our sea!



Can you identify Ocean Annie's SCUBA gear?



Mask
BCD
Air tank
Regulator

Compass
Fins
Wet suit
Snorkel

Educator Key**CLASSROOM ACTIVITY STATION A2 - SCRAMBLED FISH**

- | | |
|--------------|------------------|
| 1. SWIMS | 7. SKELETON |
| 2. BONE | 8. HOVER |
| 3. SCUBA | 9. SCALES |
| 4. SCIENTIST | 10. SWIM BLADDER |
| 5. FINS | 11. FISHING |
| 6. GILLS | 12. MOVE |

OCEAN ANNIE'S SUPER SCUBA CHALLENGE:
MOST FISH SWIM

CLASSROOM ACTIVITY STATION A5 - SPLISH-SPLASH FISH MATH - EDUCATOR KEYS A,B,C**FORM A**

1. 3
2. 2
3. 9
4. 3
5. 8
6. 3
7. 8
8. 2
9. 6
10. 10

FORM B

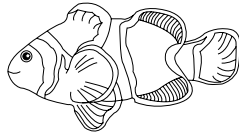
1. 5
2. 7
3. 10
4. 8
5. 10
6. 5
7. 9
8. 4
9. 3
10. 8

FORM C

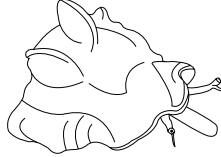
1. 15
2. 13
3. 8
4. 4
5. 14
6. 2
7. 20
8. 16
9. 6
10. 20

CLASSROOM ACTIVITY STATION B1 - "C" IS FOR CLOWNFISH! - LABELED ART

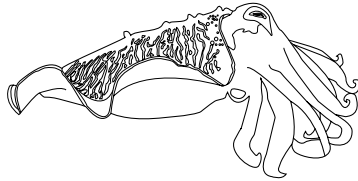
Clownfish



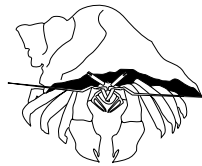
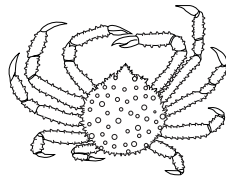
Conch



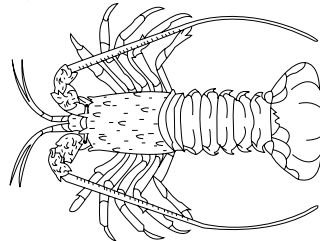
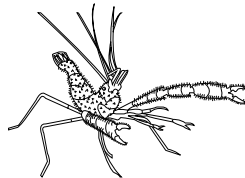
Cuttlefish



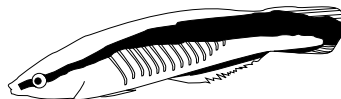
Crab



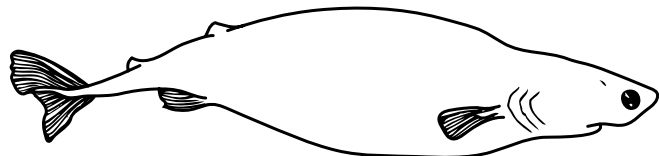
Crustaceans



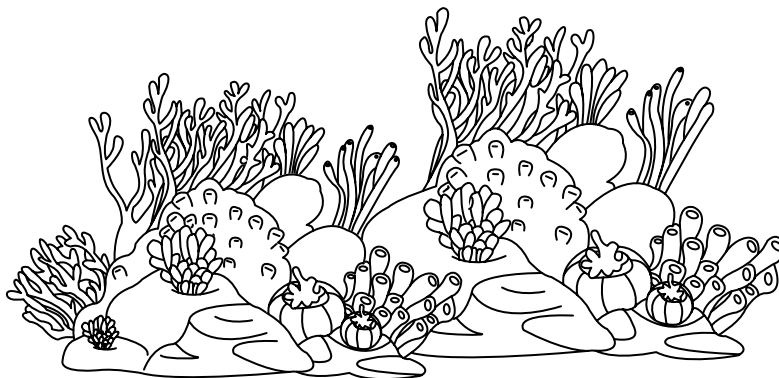
Cleaner wrasse



Cookie Cutter Shark



Coral



CLASSROOM ACTIVITY STATION B5 - SYMBIOSIS IS LIVING TOGETHER

- | | |
|------------------|--------------|
| 1. ANEMONE | 6. TENTACLES |
| 2. HOVERING | 7. NEST |
| 3. ANIMALS | 8. STING |
| 4. TOGETHER | 9. MUTUAL |
| 5. INVERTEBRATES | 10. RETREAT |

CLASSROOM ACTIVITY STATION C4 - HIDE 'N SEEKABLE SYLLABLES

WORDS	NUMBER OF SYLLABLES	WRITE AND SEPARATE SYLLABLES
PIGMENT	2	PIG/MENT
DISGUISE	2	DIS/GUISE
COLORATION	4	COL/OR/A/TION
HIDE	1	HIDE
ENVIRONMENT	4	EN/VI/RON/MENT
CAMOUFLAGE	3	CAM/OU/FLAGE
CONCEAL	2	CON/CEAL
OBSCURE	2	OB/SCURE
TRANSPARENT	3	TRANS/PAR/ENT
ELUSIVE	3	EL/U/SIVE

CLASSROOM ACTIVITY STATION C5 - "A-REEF-MATIC" - FORM A

1. The yellow seahorse ate six shrimp. 9
2. The tiger shark swam seven miles. 8
3. The grouper had eight eggs. 6
4. The purple magnificent sea anemone had eight tentacles. 16
5. The brown oyster made six pearls. 2
6. There were four red sea stars on a rock. There were seven brown sea stars on the coral reef.
3
7. There were five hawksbill sea turtles sleeping in a cave. 6
8. 10

OCEAN ANNIE'S SUPER SCUBA CHALLENGE:

If you add all the answers together, what is the final number? 60

CLASSROOM ACTIVITY STATION C5 - "A-REEF-MATIC" - FORM B

1. The yellow seahorse ate six shrimp. 20
2. The tiger shark swam seven miles. 15
3. The grouper had eight eggs. 13
4. The purple magnificent sea anemone had eight tentacles. 25
5. 13
6. There were four red sea stars on a rock. 4
7. There were nine hawksbill sea turtles sleeping in a cave. 21
8. 25

OCEAN ANNIE'S SUPER SCUBA CHALLENGE:

If you add all the answers together, what is the final number? 136

CLASSROOM ACTIVITY STATION C5 - "A-REEF-MATIC" - FORM C

1. ~~The yellow seahorse ate six shrimp.~~ _____ 36 _____
2. ~~The tiger shark swam seven miles.~~ _____ 40 _____
3. ~~The grouper had eight eggs.~~ _____ 17 _____
4. ~~The purple magnificent sea anemone had eight tentacles.~~ _____ 25 _____
5. _____ 13 _____
6. ~~There were four red sea stars on a rock.~~ _____ 4 _____
7. ~~There were nine hawksbill sea turtles sleeping in a cave.~~ _____ 21 _____
8. _____ 25 _____

OCEAN ANNIE'S SUPER SCUBA CHALLENGE:

If you add all the answers together, what is the final number? _____ 257 _____

CLASSROOM ACTIVITY STATION D2 - SIZE IT UP - FROGFISH SAME SIZE

1. B, D
2. A, B
3. C, D
4. A, C
5. B, C
6. A, D
7. A, C
8. A, B

CLASSROOM ACTIVITY STATION D4 - FROGFISH OPPOSITES

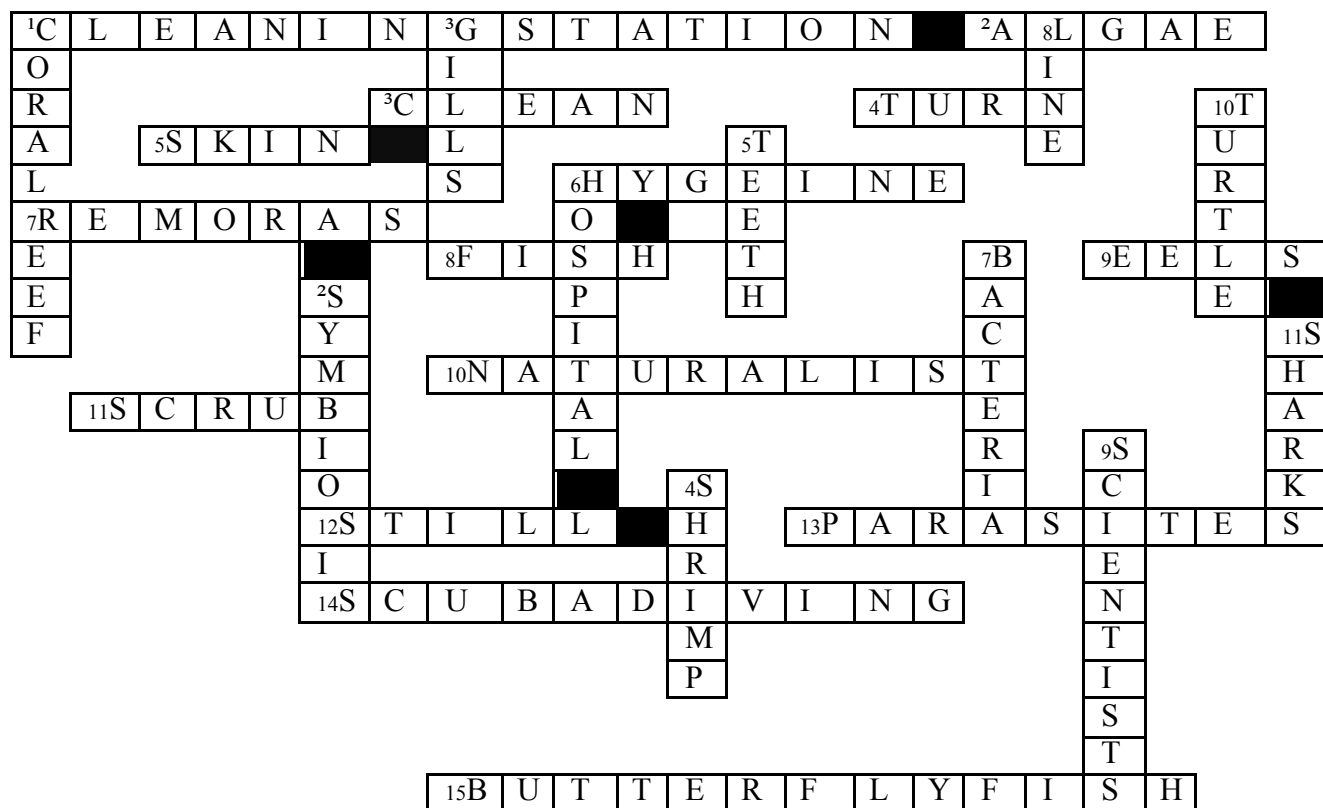
1. If some frogfish are bumpy, then some frogfish are SMOOTH.
2. Though one frogfish is SLOW, then another is fast.
3. When that frogfish is AWAKE, then that one is asleep.
4. This frogfish is wide, and another one is NARROW.
5. That frogfish is BIG and that one is small.
6. When that frogfish wiggles, this one lies STILL.
7. Though that frogfish are thick, that one is THIN.
8. This frogfish is strong, and another one is WEAK.
9. That frogfish is long, but this one is SHORT.
10. Though that frogfish is LIGHT, another is dark.

CLASSROOM ACTIVITY STATION D5 - FROGOMETRY

1. If students are uncertain, help coax them with questions such as:
Thick or thin? Big or small? Long or short? Bumpy or smooth?
2. Two
3. The first one is smaller, shorter, slighter, minor, littler, or petite. The second one is bigger, taller, major, larger, greater, higher, or longer.
4. If the starting observation was that the second spine was somehow longer, taller, or bigger than the first, then you were right!
5. Answers vary.
6. NO – the pectoral fin is longer, bigger, larger, superior, and greater than the pelvic fin.
7. YES – the pectoral fin is longer than the pelvic fin.
8. Students will probably offer a variety of answers, but for frogfish, a long pectoral fin is important because it is used to help the animal balance, and to work as modified “arms” that help it to crawl.
9. Nine inches
10. In some areas the dorsal fin is: taller, thicker, wider, broader, higher, longer or elongated.
11. It will be found in the area at the base of the pectoral fin.
12. It will be found at the base of the tail.

CLASSROOM ACTIVITY STATION D6 - MYSTERY FROGFISH DICHOTOMOUS KEY

1. a. If specimen has long, thin illicium (S) go to 2
b. If specimen has short, wide illicium with finger-like projections (H)..... go to 3
2. a. If the specimen has 18 rays in its dorsal fin go to 6
b. If the specimen has 23 rays in its dorsal fin (S)..... go to 4
3. a. If the specimen has 12 rays in its dorsal fin (H) go to 5
b. If the specimen has 15 rays in its dorsal fin..... go to 6
4. a. If the specimen has a spotted pattern on its skin (S)..... go to 5
b. If the specimen has a banded pattern on its skin go to 6
5. a. If specimen has stripes around the eye (S & H)..... go to 6
b. If specimen has no stripes around the eye go to 8
6. a. If specimen has fleshy bumps on the skin (H) go to 7
b. If specimen has smooth skin (S) go to 8
7. a. If specimen has appendages at the end of its esca (S) go to 8
b. If specimen has finger-like appendages in front of its esca (H)..... go to 9
8. a. If specimen has a wedge-shaped esca..... go to 9
b. If specimen's esca has 5 tear-shaped projections (S) go to 10



CLASSROOM ACTIVITY STATION F2 - SWIMMING IN SEQUENCE

1. add XX to third shark
2. add XX to second shark
3. add XX to first shark
4. add XX to third shark
5. add XX to second shark
6. add XX to third shark
7. add XX to second shark
8. add XX to first shark

CLASSROOM ACTIVITY STATION F3 - SHARK TRIVIA ANSWERS

Questions for Students	Answers for Teachers
Some sharks spend much of their day resting nearly motionless on the sand.	<i>TRUE, it is a common misunderstanding that sharks must swim all the time in order to pass water through their gills to breathe. Many types of sharks remain still for long periods of time and "breathe" by using muscles in the gills to pump the water in and out rather than swimming.</i>
Some sharks can swim into river areas for periods of time.	<i>TRUE, though there is no such thing as a "fresh water" shark, some types of shark can tolerate fresh water for long periods and are known to travel impressive distances up rivers. Bull sharks and saw sharks both have been documented in river mouths.</i>
Sharks always swim alone.	<i>FALSE, sometimes sharks are seen in groups of hundreds. Certain hammerhead sharks are famous for exhibiting this schooling behavior.</i>
Sharks can swim in water as shallow as 2ft and as deep as or deeper than 4,000 feet.	<i>TRUE, sharks do not have the sensitive gas-filled swim bladder that most fish have, so they are able to tolerate a wide variety of water depths and the change in pressure that goes with it.</i>
Like all fish, sharks have only one pair of gills.	<i>FALSE, sharks usually have five, but may have six or even seven pairs of gills.</i>
Some sharks have an endless supply of teeth and can replace as many as they loose for as long as they live.	<i>TRUE, some sharks replace entire rows of teeth while others replace individual teeth that are lost. Some sharks will grow thousands of teeth during their lives.</i>
Some sharks lay eggs.	<i>TRUE, shark eggs are very leathery and some look like cork screws, while others look like pouches and are often called mermaid's purses.</i>
Shark parents work hard raising their young to protect them in the ocean.	<i>FALSE, new born sharks are tiny versions of adults, capable of protecting themselves and are on their own from the day they are born.</i>
Some sharks can jump over twenty feet in the air.	<i>TRUE, mako sharks are known for their ability to leap from the water and have been reported to jump as high as thirty feet! Also Great White Sharks have been observed jumping out of the water when hunting.</i>
Sharks were swimming in the ocean even before dinosaurs walked the earth.	<i>TRUE, the oldest shark fossils go back about 420 million years, while the oldest dinosaur fossils only date back about 240 million years!</i>

OCEAN ANNIE'S SUPER SCUBA CHALLENGE

What part of the sharks' bodies do we find as fossils? Do you know why?	<i>TEETH! Sharks bodies do not usually fossilize because they are made of cartilage. Have students look at a skeleton of a human body and skull. You never see a person's nose or ears because these are made of cartilage. Teeth are the only part of a shark that can fossilize!</i>
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CLASSROOM ACTIVITY STATION F6 - SHARK-A-MANIA MATH**FORM A**

1. 48
2. 21
3. 48
4. 12
5. 52
6. 56
- Challenge
- 1200

FORM B

1. 84
2. 28
3. 144
4. 6
5. 104
6. 126
- Challenge
- 2400

FORM C

1. 72
2. 28
3. 216
4. 8
5. 12
6. 6
7. 104
8. 105
- Challenge
- 7500

CLASSROOM ACTIVITY STATION G1 - Munch-A-Bunch**FORM A**

1. 7
2. 10
3. 4
4. 9
5. 4
6. 6
7. 10
8. 20

FORM B

1. 17
2. 18
3. 10
4. 18
5. 9
6. 6
7. 24
8. 21

FORM C

1. 37
2. 79
3. 40
4. 29
5. 5
6. 11
7. 32
8. 40

CLASSROOM ACTIVITY STATION G2 - FISHING FOR OPPOSITES

1. HUNTED
2. SPINES
3. SLOW
4. BIG
5. PREY
6. LONG
7. THIN
8. SHALLOW
9. DULL
10. FRIENDLY

CLASSROOM ACTIVITY STATION G5 - THE OCEAN FOOD WEB

PARROTFISH – Consume coral and algae. Since coral is an animal the parrotfish is considered an omnivore.	GREEN SEA TURTLE – As adults they eat sea grasses and algae. They are herbivores.
BRITTLE STAR – Typically feed on decaying remains of plants or animals. They are known as detritivores or scavengers.	LOBSTER – Consume fish, crabs, clams, mussels, sea urchins, and sometimes even other lobster. They are carnivores, scavengers and detritivores.
SEA ANEMONE – Use stinging tentacles to capture and eat small fish, shrimp, krill, isopods, and various other forms of plankton. The sea anemones are carnivores.	BANDED CORAL SHRIMP – They are cleaners that remove dead tissue, algae and parasites from other animals. They are considered omnivores, scavengers, and detritivores.
WHITE TIP REEF SHARK – Usually hunt fish, crustaceans & octopus. They are carnivores.	NUDIBRANCH – Feed on sponges, hydroids, sea slugs, barnacles, or even other nudibranchs. They are carnivores.
JELLIES – Use stinging tentacles to stun prey that they find drifting in the ocean which may include things such as eggs or larvae from a wide range of marine animals, fish, or even other jellies, and a wide array of plankton. They are carnivores.	CORAL – Use stinging cells to catch zooplankton, small drifting animals. They also get food from tiny symbiotic algae living in their skin tissue. They are omnivores.
OCTOPUS – Consume crabs, snails, fish, scallops, and other crustaceans. They are carnivores.	GROUPE – Often eat fish, crustaceans like shrimp and crabs, and even the occasional octopus. They are carnivores.
SALLY LIGHTFOOT CRAB – Consumes algae and also dead animal matter. It is considered an omnivore, detritivore, or scavenger.	HUMANS – Are adept predators, and eat kelp, fish, shrimp, lobster, sea urchins, and so much more. What else can you think of that human beings eat from the sea?
BLUE TANG – Feeds entirely on algae, so it is an herbivore.	CROWN OF THORNS SEA STAR – Dines exclusively on coral. It is a carnivore.

CLASSROOM ACTIVITY STATION H2 - "FIN-ONYMS!"

1. spiny, pointy, spiky, thorny, barbed, bristly
2. soft, squashy, spongy
3. greasy, oily, slippery, slick
4. powerful, tough, muscular
5. big, great, huge, bulky
6. little, minute, petite, slight, diminutive, tiny
7. glossy, gleaming, sparkly, glittering, shimmering
8. swift, speedy, quick, rapid, hasty
9. sluggish, leisurely, dawdling
10. broad, fat, wide, chunky, bulky, solid

CLASSROOM ACTIVITY STATION H1 - CURRENCY FISH**Forms A, B, C****Form A**

1. YES, YES, Nickel
2. YES, YES, Nickel and Penny
3. YES, YES, Four Pennies
4. YES, YES, Dime
5. YES, YES, Quarter and Nickel
6. YES, YES, Quarter
7. YES, YES, Dime and Two Pennies
8. YES, YES, Nickel and Three Pennies

Form B

1. YES, YES, Two Quarters
2. YES, YES, Dime, Nickel, And Two Pennies
3. YES, YES, Quarter and Dime
4. YES, YES, Two Quarters, Nickel and Penny
5. YES, YES, Quarter, Two Dimes and Three Pennies
6. YES, YES, Two Quarters and Two Dimes
7. NO, NO, total of all coins is 84¢, not enough money, not exact change
8. YES, YES, Quarter and Nickel

Form C

1. YES, YES, Dollar Bill and Four Quarters
2. YES, YES, Dollar Bill, Two Quarters, and Dime
3. YES, YES, Dollar Bill and Three Nickels
4. YES, YES, Dollar and Three Dimes, OR Dollar, Quarter, and Nickel
5. YES, YES, Five Dollar Bill, One Dollar Bill, Three Quarters, and Two Dimes
6. NO
7. YES, YES, Dollar, Five Dollar, and Quarter (OR Two Dimes and Nickel)
8. YES, YES, Dollar, Three Quarters, and Two Dimes

CLASSROOM ACTIVITY STATION H1 - FISH JUMBLE & TUMBLE ANSWERS

- | | |
|----------------------|----------------------------|
| 1. Scales | 30. Yes |
| 2. False (Salmon) | 31. False |
| 3. Gills | 32. Yes |
| 4. School | 33. True |
| 5. Camouflage | 34. Yes |
| 6. True | 35. True |
| 7. Omnivore | 36. Yes |
| 8. No | 37. False |
| 9. No | 38. Illicium Or Esca |
| 10. Yes | 39. True |
| 11. True | 40. Symbiosis |
| 12. Yes | 41. Yes |
| 13. Whale Shark | 42. True |
| 14. True | 43. False |
| 15. Herbivore | 44. Stonefish |
| 16. Yes | 45. True |
| 17. Swim Bladder | 46. Cartilage |
| 18. True | 47. Yes |
| 19. Cleaning Station | 48. Yes |
| 20. Ichthyologist | 49. True |
| 21. Carnivores | 50. Yes |
| 22. True | 51. Extinction |
| 23. Scuba | 52. Yes |
| 24. Yes | 53. Reusable Water Bottles |
| 25. Fins | 54. True |
| 26. True | |
| 27. True | |
| 28. No | |
| 29. Migration | |

Annie Crawley

DIVE INTO YOUR IMAGINATION

The Many Faces of Award Winning Author, Photographer,
Producer and Empowering Speaker Annie Crawley



Keynote Speaker & Professional Development

Annie Crawley brings the Ocean to LIFE!

Cross Curricular Connections Embedding ALL Content Areas & Flexible, Customizable Teacher Professional Development

Journalist, underwater filmmaker, youth leader, and curriculum designer, Annie Crawley incorporates empowering messages while integrating all content areas, including character education into every inspiring presentation.

Master Storyteller Ocean Annie tailor makes her presentations specifically for each audience, then combines the message with real ocean images and video.

Every presentation, seminar, or professional development is catered to meet your teacher and student needs. Annie Crawley's multi-media programs engage and empower your students Kindergarten through College! Whether you want Annie to address science, the environment, self-esteem, or motivate your teachers to embrace change, Ocean Annie has the qualifications and experience to do it. Combining life's lessons she learned from the sea, Annie uses SCUBA diving, sharks, dolphins, cephalopods and more to educate and inspire.

Annie Crawley is a dynamic and entertaining speaker that your group will value:

- Communicates ideas effectively while incorporating humor, education, conservation, and ocean metaphors.
- Customizes presentations based on organizational needs.
- Passionate delivery captivates the audience and leaves a lasting impression to instill positive environmental change.

These programs can be given to individual classrooms or in large auditoriums with hundreds of students. When speaking to larger groups we recommend breaking the grade levels: K-2; 3-4; 5-6; 7-8; High School; College/University.

Samples of Annie's Topics:

Sharks, Mantas, and You

Dive Into Your Imagination &
Explore Our Blue World

Let's Talk Trash

The Great Pacific Garbage Patch
and how you can help

The Camera Coach

Learn to Shoot Photography,
Video & Editing

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or Professional Development

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AnnieCrawley.com

DiveIntoYourImagination.com



Contact **Annie@AnnieCrawley.com** or call **(805) 453-1947** to book her today!

Annie Crawley

DIVE INTO YOUR IMAGINATION

The Many Faces of Award Winning Author, Photographer,
Producer and Empowering Speaker Annie Crawley



Keynote Speaker

Create Your Life

"Annie Crawley was born to inspire people. She lives the message she brings to the world, empowering people to use their imagination to live out of their vision of themselves, rather than their history. Annie Crawley is what the world needs now more than ever before." – Les Brown

What will you do with your moment in time? Annie Crawley was born to inspire. Drawing upon the past two decades of experience as an underwater expert, world traveler and entrepreneur, she uses Ocean metaphors, video and photography in her multi-media and thought provoking presentations. Annie Crawley, reaches thousands of people every year as a renowned inspirational and motivational speaker.

Utilizing her techniques, you will understand how to create a more fulfilling life and career by helping you change your mindset to get you focused and motivated. Her presentations and workshops are unique because she uses the Ocean as a metaphor, teaching you to dive deeply into possibilities, breathe differently, face your fears, set goals, anchor your life, adapt to changes and focus on what is important today in order to reach your full potential. Annie Crawley gives you the power to believe in yourself as you dive into your greatness.

Annie Crawley's programs are tailored to your corporate, group or school's needs. Please review Annie's topics and choose one that suits your group best or contact us to create a personalized program.

Contact Annie Crawley at Annie@AnnieCrawley.com or call (805) 453-1947 to talk with her today!

Meet Annie Crawley

Through public speaking tours, workshops and programs, Annie Crawley reaches a worldwide audience. While creating a successful business, Dive Into Your Imagination, Annie Crawley, aka Ocean Annie, continues to travel and document the world focusing on life in our Ocean. She is uniquely qualified to speak about our ocean, obtaining success by taking calculated risks, living your dreams and creating your greatest life. Originally from Chicago and trained as a photo and broadcast journalist, Annie Crawley spent the past two decades living and working around the world. After learning to scuba dive and sail, she became a PADI Master Scuba Diving Instructor and a 100 ton US Coast Guard Boat Captain. Annie Crawley specializes in the Underwater Realm as an underwater photographer, filmmaker, field biologist and expert. As a producer, Annie Crawley created an award winning series of ocean books, DVDs and educator lesson plans after being awarded four grants from the Save Our Seas Foundation. She was also responsible for single-handedly producing, shooting, and editing a series of programs taken on the SEAPLEX expedition with Project Kaisei and Scripps Institution of Oceanography in the Great Pacific Garbage Patch. She has worked with National Geographic, BBC, the Food Network and is published in magazines worldwide. Annie Crawley relates the lessons she learned traveling in a way that will inspire you to protect our environment and Ocean.

What are you waiting for, Dive Into Your Imagination and bring inspirational speaker Annie Crawley to your area today!

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