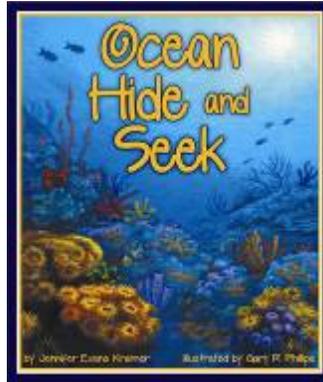


Teaching Activities

for



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Teaching Activities are intended for use at home, in the classroom, and during story-times.

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Questions to ask children before reading the book

- What do you think the book is about by looking at the cover (or one or two of the inside illustrations)? *Sometimes it is easy to tell from the cover, other times it is not.*
- What does the cover illustration show?
- Does the title tell you what the book is about?

What do children already know?

- Young children are naturally inquisitive and are sponges for information. The whole purpose of this activity is to help children verify the information they know (or think they know) and to get them thinking “beyond the box” about a particular subject.
- The children should write down their “concepts” (or adults for them if the children are not yet writing) on the provided chart found on the next page.
- Use the questions to get children thinking about what they already know. Feel free to add more questions or thoughts according to the child(ren) involved.

After reading the book – writing prompts & thinking it through

- Did the cover “tell” you what the book was about?
- What are some of the animals you see on the cover?
- Draw your own cover.
- Write a song about ocean animals hiding.
- Can you think of another title for the book?

Re-read the book looking for more information

Go back and re-read the book studying each page carefully.

- What facts are mentioned in the text?
- What can be seen or inferred from the illustrations that is not or are not mentioned in the text?
- What, if anything, can be inferred from the text?
- Which is the child’s favorite animal mentioned and why?
- Which animal does the child think has the “best” camouflage and why?

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What do children already know—activity chart

Ask children to write down what they think they know before reading the book. If the information is verified while reading the book, they check “yes.” If the information is wrong, they mark “no” and cross it off, then write the correct information. Have the children note how the information was verified.

<u>What do I think I know?</u>	<u>Yes</u>	<u>No</u>	<u>Verified</u>
Why do animals hide?			Text Illustration Info in FCM Other
What are some ways that animals can hide?			Text Illustration Info in FCM Other
What are some ocean animals that pretend to be something else to hide?			Text Illustration Info in FCM Other
How can a shark hide?			Text Illustration Info in FCM Other
What are some ocean animals that are transparent (clear?)			Text Illustration Info in FCM Other
What are some ocean animals that change colors?			Text Illustration Info in FCM Other

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<u>What do I think I know?</u>	<u>Yes</u>	<u>No</u>	<u>Verified</u>
Why do some animals have bright colors?			Text Illustration Info in FCM Other
Why are some animals light colored on their belly (bottom) but dark on their back (top)?			Text Illustration Info in FCM Other
Do all animals that live in the ocean get their oxygen from the water?			Text Illustration Info in FCM Other
Do all fish have bones?			Text Illustration Info in FCM Other
What are some ocean animals that don't have backbones (invertebrates)?			Text Illustration Info in FCM Other
Can any animals make lights come from their bodies? If so, why?			Text Illustration Info in FCM Other
Why are some fish red or yellow?			Text Illustration Info in FCM Other
Is a sea anemone a plant or an animal?			Text Illustration Info in FCM Other

Use this chart for any other thoughts the children might have.

<u>What do I think I know?</u>	<u>Yes</u>	<u>No</u>	<u>Verified</u>
			Text Illustration Info in FCM Other

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What do children already know—activity conclusion

- Do the children have any more questions about ocean animals and camouflage? If so, write them down on the chart.
- Identify whether the information was verified and how.
- If the concept is correct, make a note of how the information was confirmed (illustration, in text, or the “For Creative Minds” section)
- If the concept was not correct, what IS the correct information – with confirmation notes as above.
- If the concept was neither confirmed nor denied, look the information up in a reliable source and note where it was confirmed.
- Wrap it all up by adding notes with new information that the children learned either through the reading or the research while looking up something else.

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Language Arts

Developing a vocabulary “word wall”

If using the book as a way to introduce a topic or subject, this is also a great way to introduce subject-related vocabulary words. If you don't have the time (or the inclination) to develop the “word wall” by playing the Vocabulary Game (below), we have provided a vocabulary list for you.

Vocabulary words for the “word wall” may be written on index cards, on a poster board, or on a chalk board. If writing on poster board or chalk board, you might want to sort into nouns, verbs, etc. right away to save a step later. Leaving the words posted (even on a refrigerator at home) allows the children to see and think about them frequently.

Vocabulary game

This activity is designed to get children thinking of vocabulary words which will then be used as the beginning vocabulary list for a science lesson.

Select an illustration and give children a specific length of time (five minutes?) to write down all the words they children can think of about the particular subject. *If you do not have classroom sets of the book, it is helpful to project an illustration on a white board. Check Web site (www.ArbordalePublishing.com) for book “previews” that may be used for this purpose.*

The children's word list should include anything and everything that comes to mind, including nouns, verbs, and adjectives. At the end of the time period, have each child take turns reading a word from his/her list. If anyone else has the word, the reader does nothing. If however, the reader is the only one with the word, he/she should circle it. While reading the list, one person should write the word on a flashcard or large index card and post it on a bulletin board or wall.

At the end, the child with the most words circled “wins.” And you have a start to your science vocabulary list. *Note if a child uses an incorrect word, this is a good time to explain the proper word or the proper usage.*

Putting it all together

The following activities may be done all together or over a period of several days.

- Continue to add words to the vocabulary list as children think of them.
- Sort vocabulary words into nouns, verbs, adjectives, etc. and write what they are on the backs of the cards. When the cards are turned over, all you will see is “noun,” etc. *(These can then be used to create silly sentences, below.)*
- Now sort the vocabulary words into more specific categories. For example, nouns can be divided into plants, animals, rocks, minerals, etc. They can be divided into living/non-living, or into habitat-related words.
- Have children create sentences using their vocabulary words. Each sentence could be written on a separate slip of paper.
- Have children (individually or in small groups) sort and put sentences into informative paragraphs or a story.
- Edit and re-write paragraphs into one informative paper or a story.

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Ocean Hide and Seek

Suggested vocabulary list

<u>nouns--animals</u>	<u>nouns</u>	<u>verbs</u>	<u>adjectives</u>
fish	body	blend	blue
jellyfish	camouflage	hide	bright
octopus	colors	hold	clear
pipefish	plants	hunt	dark
sea snake	predator	survive	grey
seahorse	prey	swim	light
shark	spots		long
	stripes		orange
	tail		red
			transparent
			white

One Fish, Two Fishes

Are there two fish or two fishes? Here's the trick to remember:

- If there are two or more of the same kind, use "fish."
- If there are two or more different types of fish, (even if there is only one of each kind) use "fishes."

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Ocean Hide and Seek

Silly sentence structure activity

This is a fun activity that develops both an understanding of sentence structure and the science subject. Use words from the “word wall” to fill in the blanks. After completing silly sentences for fun, have children try to fill in the proper words by looking for the information in the book.

Animals use _____ to hide from _____
noun noun
(animals that want to eat them) and _____ (animals
noun
they want to eat).

Some animals change _____ s to _____
noun verb
into the background.

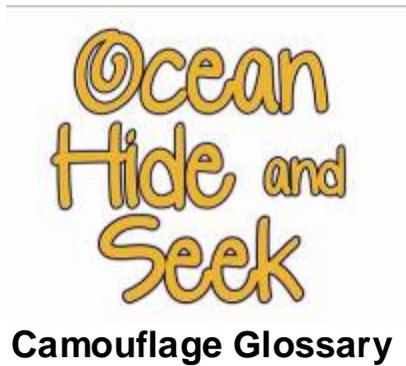
Others have _____ s or _____ s to make it
noun noun
hard for other animals to see how big it is.

Some animals, like jellyfish, are even clear or _____!
adjective

The shape of an animal's _____ is important too. An animal
noun
may look like a _____ or even a rock. Or, it may look like
noun
another, poisonous animal.

An animal's ability to _____ may depend on its ability
verb
to _____.
verb

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The logo features the text "Ocean Hide and Seek" in a large, bubbly, yellow font with a black outline, centered within a white square. Below the square, the words "Camouflage Glossary" are written in a bold, black, sans-serif font.

Ocean Hide and Seek Camouflage Glossary

camouflage	Physical adaptations that allow an organism to blend into its surroundings becoming effectively invisible
counter illumination	An animal creates it's own light to illuminate itself to avoid creating shadows
counter shading	A color pattern of a light underside and a dark top, making it blend into the light sky or darker ground -- common in birds and ocean animals
cryptic camouflage	When an organism's color matches its environment
disruptive camouflage	Patterns, spots, or stripes that make it difficult to tell how big the animal is
mimicry	The resemblance of one organism to another or to an object in its surroundings for concealment and protection from predators and prey
predator	An animal that hunts and eats other animals
prey	An animal that is eaten by other animals
transparent	See-through, clear
warning coloration	Bright colors that warn potential predators of poison

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Ocean Hide and Seek

Word search

Find the hidden words. Even non-reading children can try to match letters to letters to find the words!
Easy – words go up to down or left to right.

For older children, identify the coordinates of the first letter in each word (number, letter).

	A	B	C	D	E	F	G	H	I	J
1	P	A	I	L	I	G	H	T	P	Y
2	O	O	A	S	T	B	F	O	R	E
3	W	C	B	P	S	H	I	D	E	X
4	D	T	L	R	E	U	S	A	Y	C
5	S	O	C	E	A	N	H	R	A	O
6	H	P	E	D	O	T	A	K	B	U
7	A	U	W	A	R	N	I	N	G	N
8	K	S	B	T	S	H	A	R	K	T
9	C	A	M	O	U	F	L	A	G	E
10	Y	S	A	R	I	C	O	L	O	R

___, ___ CAMOUFLAGE
 ___, ___ PREDATOR
 ___, ___ COUNTER
 ___, ___ OCEAN
 ___, ___ OCTOPUS

___, ___ PREY
 ___, ___ WARNING
 ___, ___ HIDE
 ___, ___ FISH
 ___, ___ SEA

___, ___ COLOR
 ___, ___ HUNT
 ___, ___ DARK
 ___, ___ SHARK
 ___, ___ LIGHT

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Science

Edible sorting and classifying activity

Gather together a cup of edible “sorting items.” For example:

- As many different kinds of M&Ms as you can find
- Chocolate & peanut butter chips
- Hershey kisses
- Peanuts or other type of nuts



Ask the child to sort the items into groups. There is no right and wrong, only what makes sense to the child. When finished, ask the child:

What criteria or attribute (color, size, ingredient, etc.) did you use to sort the items?

- Are there some items that fit more than one group or don't fit any group?
- Is it easy to sort or were there some items that were a little confusing?

If more than one person did this, did everyone sort by the same criteria? To really extend the learning, graph the attributes used to sort the items. *(blank graph below)*

Sorting by attribute graph

Graph the attributes that children used to sort their items.

What was the most common attribute (size, shape, color, etc.) used?

10					
9					
8					
7					
6					
5					
4					
3					
2					
1					
Attribute:					

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Classifying animals

Animals can be sorted too. What are some attributes you might use to sort animals?

- By habitat
- Do they have a backbone?
- Do they have arms or legs?
- How many legs do they have?
- Do they have stripes or patterns on their bodies?
- Do they walk, swim, jump, or fly?

Some things are very easy for scientists to sort or classify, other things are not so easy. The first question they will ask is whether the item is (or was) alive or not. Both plants and animals are living things.

If the item in question is an animal, like the animals in the story, scientists will then ask other questions:

- Does it have hair or fur, feathers, or dry skin or scales?
- Does it get oxygen from air (lungs) or from water (gills)?
- Are the babies born alive or hatched from eggs?
- Does the baby eat drink from its mother?
- Is it warm or cold-blooded?
- How many body parts does the animal have?

By answering these (and other) questions, scientists can sort or classify the animals into “classes” such as mammal, bird, reptile, fish, amphibian, or insect.

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Animal classification chart at class level (vertebrates)

Information on the five classes of **vertebrates** (animals with backbones) is given in the table below. Using information found in the book or below, fill in the blanks for each of the animals mentioned in the book (text and the *For Creative Minds* section). Some of the information may be determined by looking at the illustrations. For example, if the animal gets its oxygen from the water, it will be shown living in the water. If the information is not in the book, it has already been filled in. Have the children use the chart to determine to which class of animals each animal belongs. The chart may also be used to complete a Venn diagram.

	Gets oxygen from air / water	Warm or cold-blooded*	Lays eggs or live birth	Hair, scales, or feathers
Mammals	Air	Warm	Mostly live**	Hair
Birds	Air	Warm	Eggs	Feathers
Fish	Water	Cold	Varies	Scales
Reptiles	Air	Cold	Mostly eggs***	Scales
Amphibians	Water, then air	Cold	Eggs in water to larva	Moist skin that is naked & smooth
seahorse	water	cold	eggs	scales
clownfish	water	cold	eggs	scales

*Warm blooded (endothermic): animals make their own heat and have a fairly constant body temperature. Cold-blooded (ectothermic): body temperature comes from the animals' surroundings

**A few mammals are hatched from eggs.

***Some snakes give live birth

Invertebrates:

While we are usually more familiar with vertebrates, more than 95% of all animals on Earth are invertebrates (animals without backbones)!

- Arthropods include (among others)
 - insects (butterflies, bugs, beetles, etc.)
 - crustaceans (lobsters, shrimp, crabs, etc.)
 - arachnids (spiders and scorpions)
- Mollusks include (among others)
 - gastropods (slugs & snails)
 - bivalves (oysters & clams)
 - cephalopods (octopus, squid, etc.)
- Sponges
- Flatworms
- Roundworms
- Segmented worms
- Cnidarians include:
 - jellyfish and hydroids
 - sea anemones
 - coral
- Echinoderms include
 - sea stars
 - sand dollars
 - urchins

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Adaptations: Physical and Behavioral

Adaptations help animals to live in their habitat: to get food and water, to protect themselves from predators, to survive weather, and even to help them make their homes. The following is not a complete list by any means, but should help.

- Physical Adaptations:
 - body parts
 - teeth – depend on type of food it eats
 - feet, flippers, fins – ability to move
 - placement of eyes
 - how does it get oxygen (gills, lungs, osmosis)
 - body covering & insulation
 - hair
 - feathers
 - fur
 - scales
 - blubber
 - Camouflage
 - color of skin or pattern to blend into background.
 - mimicry: pretending to be something else to fool predators
- Behaviors
 - instinct: behaviors or traits that the animals are born with
 - learned behavior: traits that animals learn to improve their chances of survival or to make their life easier
 - social groups versus solitary living
 - communication with other animals
 - defense/camouflage
 - reaction to cycles (day/night, seasons, tides, etc)
 - migration: the seasonal movement of animals from one location to another
 - hibernation: a long, deep sleep in which the animals breathing and heartbeat are slower than usual.

Physical or Behavioral?

Each of the animals in the book uses either a physical or behavioral adaption to camouflage itself. Using the information on the next page, see if you can figure out which is which:

	Physical	Behavioral
shark with a light belly and a dark top; counter illumination		
leafy sea dragon holds onto a plant with tail		
leafy sea dragon looks like plants		
clownfish lives in the protective cover of a sea anemone		
blue tang fish changes color from blue to gray		
crabs put pieces of kelp on their shell to hide		
octopus pretends to be a sea snake		
clear jellyfish are nearly invisible		

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Clownfish

Have you ever seen one of these animals in real life? _____ yes _____ no

If so, where did you see it? _____

To what animal class does it belong? circle the answer:

Vertebrate:

- fish
- mammal
- bird
- reptile
- amphibian

Invertebrate:

- arthropod (insects, crustaceans & arachnids)
- sponges
- flatworms
- segmented worm
- echinoderms
- mollusk
- roundworms
- cnidarian

How does it move and what parts of its body does it use to move? _____

How does it see? _____

What does it eat? _____

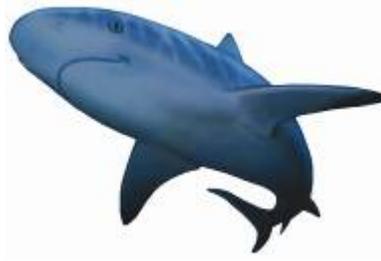
How does it get its food? _____

Explain how this fish depends on a sea anemone. _____

Explain how the sea anemone benefits from the clownfish _____

How does it sleep? _____

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Shark

Have you ever seen one of these animals in real life? yes no

If so, where did you see it? _____

What are the babies called? _____

How are the animals born? hatched from eggs born alive

How many brothers and sisters might be born at the same time? _____

How big is the baby (length, height, weight, etc.) when born? _____

Who raises the young: both parents mother only father only

neither parent – the baby survives on pure instinct

What does the baby eat and for how long? _____

Some animals are only born at specific times of the year (to coincide with food availability). This baby is born: anytime of the year or usually in the month of _____ or the season of _____

To what animal class does it belong? circle the answer:

Vertebrate:

- fish
- mammal
- bird
- reptile
- amphibian

Invertebrate:

- arthropod (insects, crustaceans & arachnids)
- sponges
- flatworms
- segmented worm
- echinoderms
- mollusk
- roundworms
- cnidarian

In what type of habitat and ecosystem does this animal live? _____

How does it move and what parts of its body does it use to move? _____

How does it see? _____

How does it hear? _____

What does it eat? _____

How does it get its food? _____

Does it live alone or with a group? _____

How does it sleep? _____

When does it sleep? _____

Is food easily available all year? _____

How does the animal deal with seasonal changes (if applicable)? _____

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Whale Sharks

Have you ever seen one of these animals in real life? yes no

If so, where did you see it? _____

What are the babies called? _____

How are the animals born? hatched from eggs born alive

How many brothers and sisters might be born at the same time? _____

How big is the baby (length, height, weight, etc.) when born? _____

Who raises the young: both parents mother only father only

neither parent – the baby survives on pure instinct

What does the baby eat and for how long? _____

How long will the babies stay with the parent (if parents are involved)? _____

When is the “baby” considered an adult? _____

Some animals are only born at specific times of the year (to coincide with food availability). This baby is born: anytime of the year or usually in the month of _____ or the season of _____

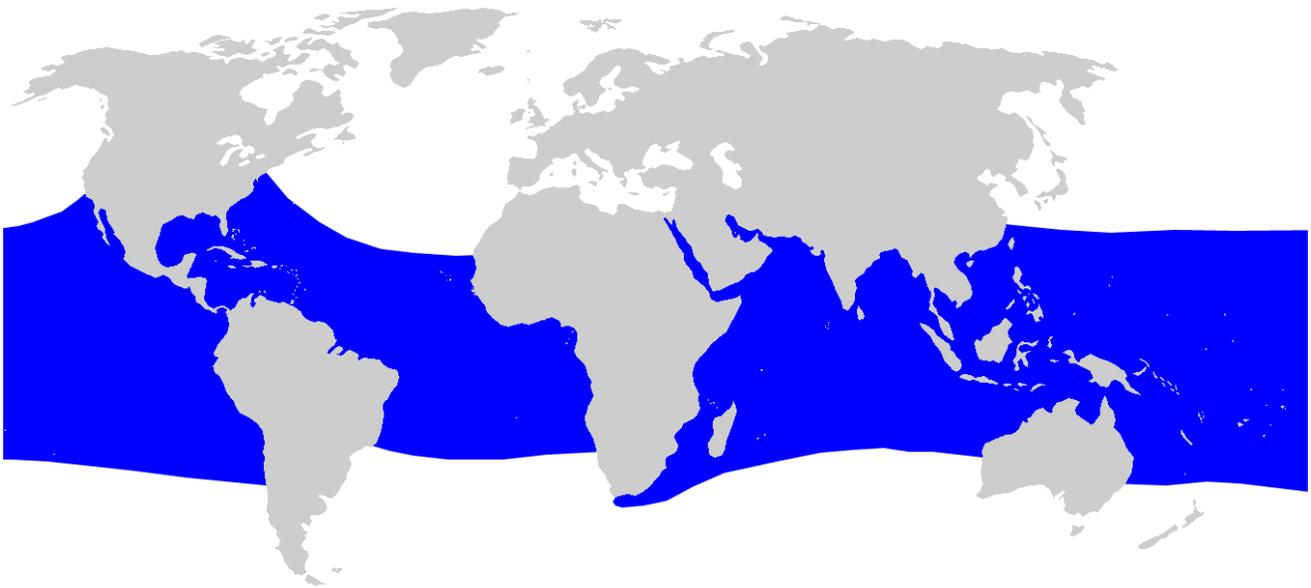
To what animal class does it belong? Circle the answer:

Vertebrate:

fish
mammal
bird
reptile
amphibian

Invertebrate:

arthropod (insects, crustaceans & arachnids)
sponges
flatworms
segmented worm
echinoderms
mollusk
roundworms
cnidarian



Range and distribution of Whale Sharks: http://en.wikipedia.org/wiki/Whale_shark

What do you notice about where whale sharks live? _____

Do you think it prefers warm or cold water? _____

In what type of habitat and ecosystem does this animal live? _____

How does it move and what parts of its body does it use to move? _____

What does it eat? _____

How does it get its food? _____

Does it live alone or with a group? _____

How does it “communicate” with others of its kind? _____

Is food easily available all year? _____

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Animal card games

Use the cards on the next page for any of the following:

Memory Card Game Make two copies of each of the sorting card pages and cut out the cards. Mix them up and place them face down on a table. Taking turns, each player should turn over two cards so that everyone can see. If the cards match, he or she keeps the pair and takes another turn. If they do not match, the player should turn the cards back over and it is another player's turn. The player with the most pairs at the end of the game wins.

Who Am I? Copy or download the cards. Poke a hole through each card and tie onto a piece of yarn. Each child should put on a "card necklace" so that the card is on his/her back. Children should ask "yes/no" questions to guess the animals.

Go Fish Make two copies of the cards to play "Go Fish." Deal four cards to two players or three cards to three or four players. Instead of asking for the animal by name, the child must ask for the card using some kind of animal description, such as "do you have an invertebrate that can pretend to be a snake??" The other player verifies the animal with "do you want an octopus?" before giving away the card. If the person does not have a match, they say "go fish" and the first child draws a card from the pile. A match is set down and the child continues with his/her turn until he/she has no more matches and the play goes to the next child. The first child to get rid of all his/her cards, wins.

Sorting Use the cards to sort into piles according to animal classification or according to ways that the animals camouflage themselves.

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Activity Cards

	Jellyfish		Whale Shark
	Clownfish		Shark
	Catshark		Pipefish
	Bristlemouth Fish		Octopus

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Science journal

Have children draw a picture to define the vocabulary word or concept.

camouflage

predator

prey

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mimicry

counter shading

color changing

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Understanding Camouflage

Hiding in plain site: Take out two sheets of paper. On one sheet, glue small pieces of bright colored tissue paper, like reds and yellows. On the other, glue dull colors like blue and grey. Then cut out two fish shapes. Decorate one fish with the bright colors. Decorate the other with the dull colors. Hold each fish up to each sheet. What colors hide each fish best?

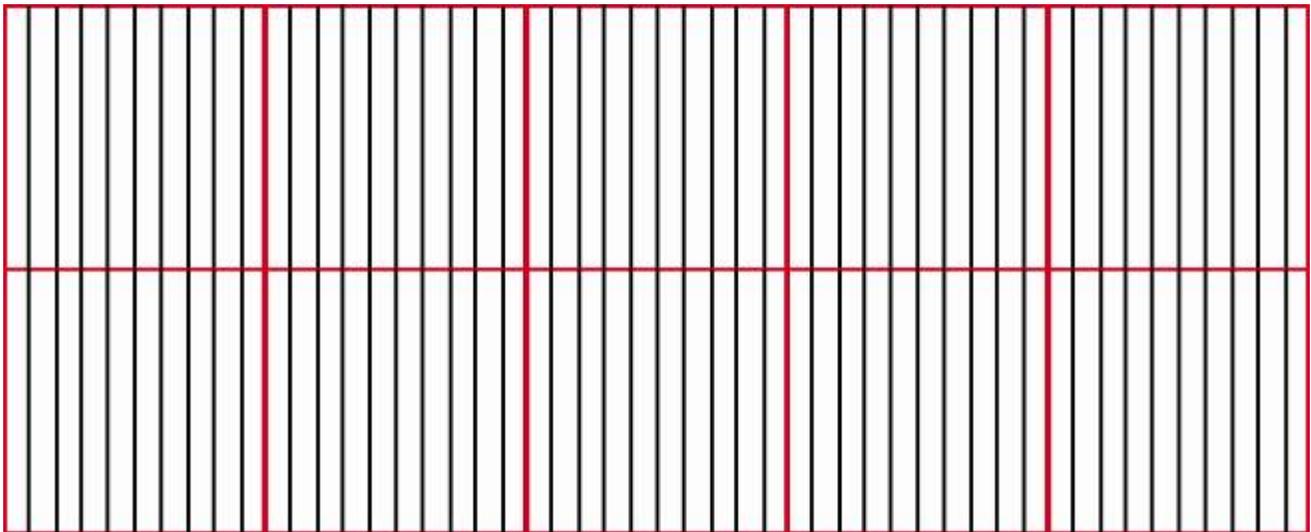
Getting rid of shadows: Using the sun or a bright light, hold out your hand. Can you see the shadow? Now take out a flashlight and have someone shine it on your hand from underneath. See if the two of you can make the shadow disappear.

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Math Ocean Water

The following data was obtained from the [Smithsonian's Ocean Planet's Educational Resources](#):

- The ocean covers 71% of the face of our Earth.
 - There are ten equal sized red squares.
 - Each red square contains ten equal sized rectangles.
 - Color 71 of the rectangles below in blue.
 - How many red squares will you color?
 - How many rectangles of the next square?
 - Color the rest of the squares and rectangles green.
 - What do you think the blue represents?
 - What do you think the green represents?
- The salt water from the ocean is 97% of all of the water on the planet.
- Less than 1% of the water on the planet is fresh water found in rivers or lakes.
- Between 2 and 3% of the rest of the water is in glaciers and polar ice caps.
 - Color two of the blue rectangles with red (to make purple).
 - What do you think the purple represents?



Answers:

Blue represents all water on the face of the earth.

Green represents all land on the face of the earth.

Purple represents all fresh water on the face of the earth, but less than 1/3 of the fresh water is easily available to us.

Food for thought

Do you think it's important for us to be careful with the fresh water we have? Why or why not?

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Measuring (comparing and contrasting)

Animals come in all shapes and sizes. Some animals are so small, they can only be seen with a microscope. Other animals (blue whales) are so big that they are the size of a school bus when they are born!

Comparing and contrasting by size and weight.

<u>animal</u>	<u>approximate adult size</u>
bristlemouth fish	3 inches
cat shark	2 feet
clownfish	2-3 inches
leafy sea dragon	about 1 foot
reef shark	5 feet
whale shark	25 feet

It is easy to say that a reef shark is 5 feet long or an adult whale shark is 25 feet, but what does that really mean?

What standard measuring tool would you use to measure something in:

- Inches or centimeters
- Feet or meters
- Pounds or kilograms

Try to imagine how big or small the animal is compared to something you know:

If it is small, what are some other things about the same size? *How many pennies, paperclips, quarters, hands, shoes, etc.)*

If it is very big, how many “things” would equal it?

How big is that 25-foot whale shark?

- Using the right measuring tool (yard stick or measuring tape) and chalk, mark off how big 25 feet is on the playground, sidewalk, or driveway.
- If you were to lie down on or next to the line, how many times would you have to lie down in order to equal the size of the whale shark?
- If someone shorter or taller than you did it, how many times do they have to lie down?
- How many times would an adult have to lie down?

Number Line

Using the same chalk line, measure and mark off how big each of the other animals would be.

- Can you draw a picture of the animal in chalk next to the size?
- Which animal is closest to you in size? (with length equal to height)
- Which two animals are approximately the same size?

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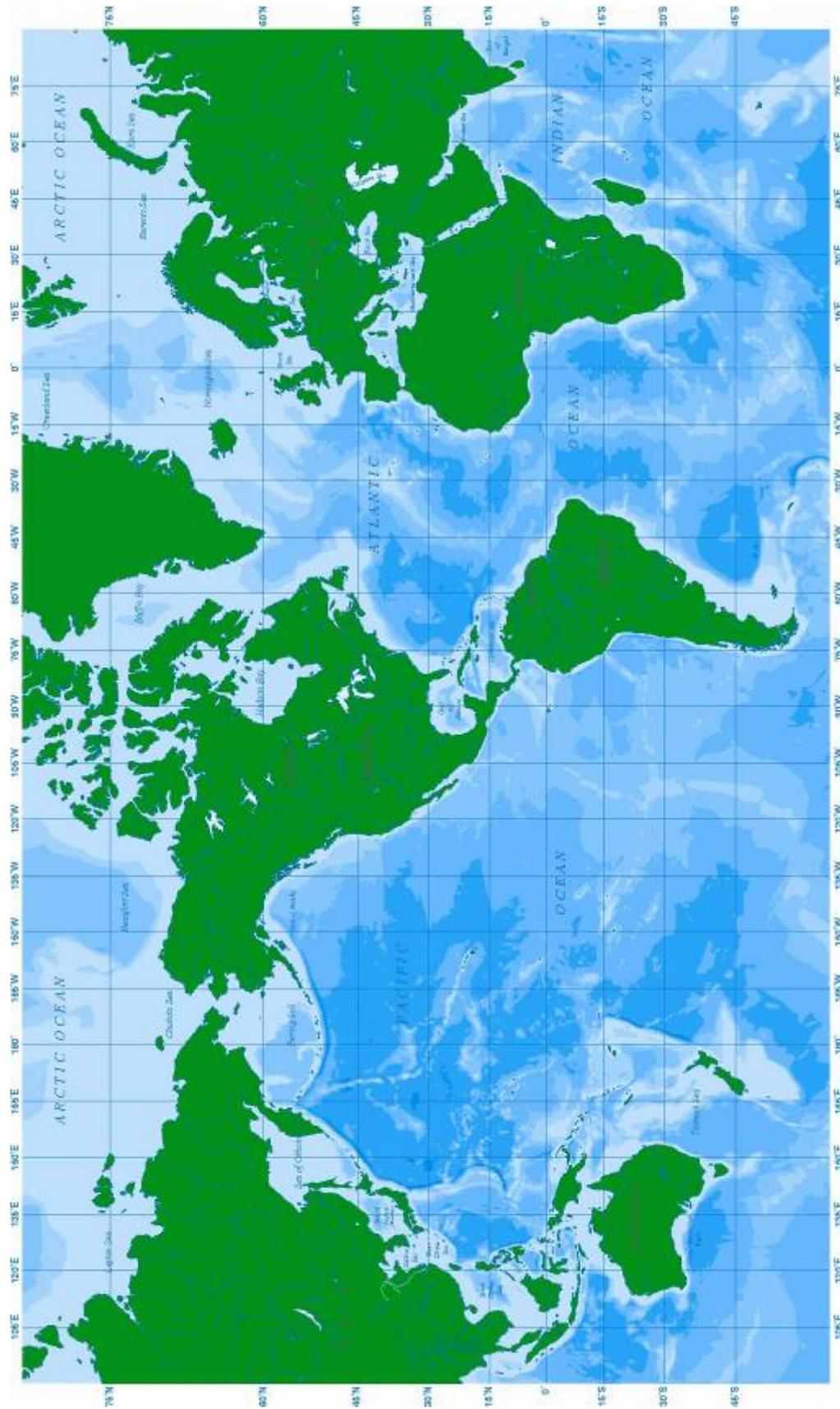
Geography

The earth has one big ocean that has different names in different parts of the world.

Use the map on the next page to answer the following questions. You'll note that the map only has outlines of land.

- Can you trace a water path from the upper left (Arctic Ocean) to the lower right (Indian Ocean) without going over any land?
- What are the names of the bodies of water you went over?
- Can you find the oceans?
 - Arctic
 - Indian
 - North Atlantic
 - North Pacific
 - South Atlantic
 - South Pacific
- How many seas do you see?
- What are their names?
- How many gulfs?
- What are their names?
- How many bays?
- What are their names?
- What is the ocean closest to where you live?
- Have you even been there?

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Ocean
Hide and
Seek

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Gary R. Phillips

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