

Teaching Activity Guide

True stories of people helping animals

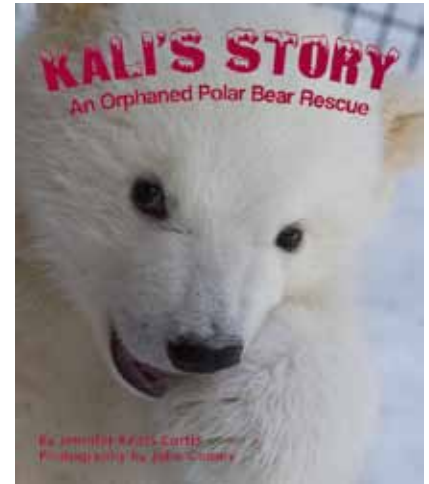
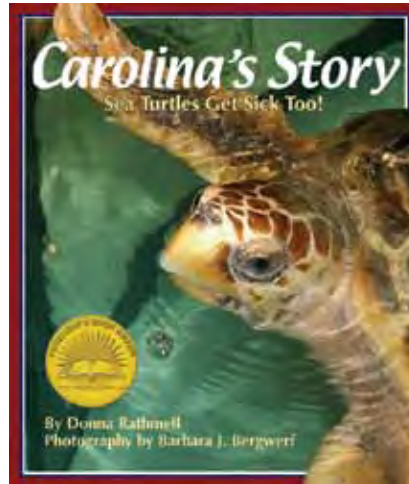
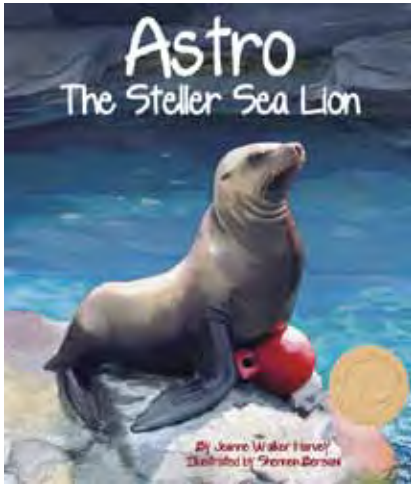


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How to Use This Activity Guide (General)

There are a wide variety of activities that teach or supplement all curricular areas. The activities are easily adapted up or down depending on the age and abilities of the children involved. And, it is easy to pick and choose what is appropriate for your setting and the time involved. Most activities can be done with an individual child or a group of children.

For teachers in the classroom: We understand that time is at a premium and that, especially in the early grades, much time is spent teaching language arts. All Arbordale titles are specifically selected and developed to get children excited about learning other subjects (science, geography, social studies, math, etc.) while reading (or being read to). These activities are designed to be as comprehensive and cross-curricular as possible. If you are teaching sentence structure in writing, why not use sentences that teach science or social studies? We also know and understand that you must account for all activities done in the classroom. While each title is aligned to all of the state standards (both the text and the For Creative Minds), it would be nearly impossible to align all of these activities to each state's standards at each grade level. However, we do include some of the general wording of the CORE language arts and math standards, as well as some of the very general science or social studies standards. You'll find them listed as "objectives" in italics. You should be able to match these objectives with your state standards fairly easily.

For homeschooling parents and teachers in private schools: Use as above. Aren't you glad you don't have to worry about state standards?

For parents/caregivers: Two of the most important gifts you can give your child are the love of reading and the desire to learn. Those passions are instilled in your child long before he or she steps into a classroom. Many adults enjoy reading historical fiction novels . . . fun to read but also to learn (or remember) about historical events. Not only does Arbordale publish stories that are fun to read and that can be used as bedtime books or quiet "lap" reading books, but each story has non-fiction facts woven through the story or has some underlying educational component to sneak in "learning." Use the "For Creative Minds" section in the book itself and these activities to expand on your child's interest or curiosity in the subject. They are designed to introduce a subject so you don't need to be an expert (but you will probably look like one to your child!). Pick and choose the activities to help make learning fun!

For librarians and bookstore employees; after-school program leaders; and zoo, aquarium, nature center, park & museum educators: Whether reading a book for story time or using the book to supplement an educational program, feel free to use the activities in your programs. We have done the "hard part" for you.

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.

Before reading the book, ask the children what they know about the subject. A list of suggested questions is below. The children should write down their “answers” (or adults for them if the children are not yet writing) on the chart found in Appendix A, index cards, or post-it notes.

Their answers should be placed on a “before reading” panel. If doing this as a group, you could use a bulletin board or even a blackboard. If doing this with individual children, you can use a plain manila folder with the front cover the “before reading” panel. Either way, you will need two more panels or sections—one called “correct answer” and the other “look for correct answer.”

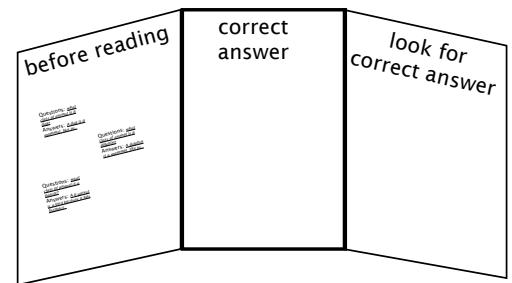
Do the children have any more questions about the subject? If so, write them down to see if they are answered in the book.

After reading the book, go back to the questions and answers and determine whether the children’s answers were correct or not.

If the answer was correct, move that card to the “correct answer” panel. If the answer was incorrect, go back to the book to find the correct information.

If the children have more questions that were not answered, they should look them up.

When an answer has been found and corrected, the card can be moved to the “correct answer” panel.



Pre-Reading Questions

What do you think the story (or stories) are about by looking at the cover(s)?

Do you think it is a real story (non-fiction) or a made-up story (fiction)? Why?

What are some reasons these animals might need help from humans?

What are some ways that humans might help these animals?

What is an animal hospital/rehabilitation center?

Why do animals go to an animal hospital?

Where might animal hospitals be found?

How do some wild animals get to an animal hospital?

What might happen to wild animals that don't go to an animal hospital?

After being treated at an animal hospital, why should the wild animals be released back into their native habitat?

Why do some wild animals go to zoos or aquariums instead?



What is a sea lion?

Why do we put satellite tags on some animals?

What are some things we can learn by following satellite-tagged animals?

Where do Steller sea lions live in the wild?

Describe their habitat.

What do you think baby sea lions (pups) eat?

What would you give an orphaned sea lion to eat?

What are some reasons that Steller sea lions are threatened or endangered?

What are people doing to help Steller sea lions?

What's the difference between a sea lion and a seal?



What is a sea turtle?

How are sea turtles similar to or different than land turtles?

How big do you think sea turtles are compared to you?

Describe the habitat where sea turtles live.

How would people find a sick sea turtle?

What are some ways that sea turtles might get sick or injured?

Where might you find a hospital for sick sea turtles?

What would you do if you found a sick or injured sea turtle?



What is a polar bear?

Where do polar bears live?

Describe their habitat.

Who do you think might find an orphaned polar bear in the wild?

What do baby polar bears (cubs) eat?

What would you give an orphaned baby polar bear to eat?

Why do polar bear cubs need adults to teach them things?

Why is it important for polar bear cubs to have friends when they are little?

Comprehension Questions & Writing Prompts

Objective Core Language Arts, Speaking and Listening: Ask and answer questions about key details in a text read aloud or information presented orally or through other media.

Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.

Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.

Retell stories, including key details, and demonstrate understanding of their central message or lesson.

Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.



What happened to Astro and who found him?

Who took care of Astro and how?

Why did they want Astro to go back to the ocean when he could?

What did Astro do when they left him on the beach?

Why were the people worried about Astro?

Where did they take him next?

What did he do when they tried to get him out of the crate?

Why do you think he did that?

What did he do at the school?

Why were the people from The Marine Mammal Center worried about Astro?

Where did he go next?

What were they researching with Astro?

What is the "bridge and target" training they did with Astro and why?

How did he get to Connecticut?

Where is Astro now?

Why didn't Astro go back to the ocean where he belonged?



What do you think made Carolina sick? *The "flu" that Carolina had is really called "Debilitated Sea Turtle Syndrome" and is found in juvenile (early teens) sea turtles up and down the east coast. By the time the turtles wash up on the beach, they are entirely dehydrated, covered with parasites, worms & barnacles and are lethargic. Scientists don't yet know what is causing this.*

What are some other reasons that a sea turtle might wash up on the beach or need to go to a sea turtle hospital?

What type of technology was used to help Carolina to get better?

What medical procedures did Carolina or some of the other turtles on the last page have that were the same as you or someone you know?

How did people know she was getting better?

What happened to Carolina when she was well again and where do you think she is now?



Why did the man pull the polar bear cub out of the den?

How did he take the cub to his village?

What did the villages do to help the cub?

Where did the cub's name come from?

How did Kali get to the Alaska Zoo?

On the night he arrived at the zoo, what did the zookeepers give Kali to eat?

Why couldn't the Alaska Zoo keep Kali?

What were some skills that Kali had to learn from the zookeepers?

What were some of the things that Kali used to learn to "hunt?"

When the U.S. Fish and Wildlife officials found a new home for Kali, what did the people do to help Kali prepare for the trip?

What is the name of Kali's new friend at the Buffalo Zoo?

Language Arts: Comparing Stories

Objective Core Language Arts,:

RI.2.9 Compare and contrast the adventures and experiences of characters in stories,

RL.1.9 Compare and contrast the most important points presented by two texts on the same topic,

RL.2.3 Describe how characters in a story respond to major events and challenges.

RI.3.9 Compare and contrast the most important points and key details presented in two texts on the same topic.

All of these stories are based on true stories of how people helped animals. Compare and contrast the stories, characters, and events by answering the following questions or explaining the statements:

- What types of animals were involved?
- What are some of the things these three animals have in common?
- How are the three animals different?
- Why did the animals need help?
- How did people discover that the animals needed help?
- Who came to the rescue and how?
- To what types of places were the animals taken and why?
- What types of things did people do to care for the animals (provide food, medicine, etc.)?
- Two of the animals are mammals that still needed milk from their mothers. What are some of their other needs that the people had to think about? (Hint...instinct versus learned behavior.)
- Were any of these animals treated like pets? Why or why not?
- Where are these animals now?
- Why could one animal go back to the wild but not the other two?
- Are any of the animals threatened or endangered?
 - If so, why is it particularly important to care for any of these individual animals?
 - Are there any human-caused impacts on the habitats of these animals? If so, what are the impacts and is there anything you can do to lessen the impact?
 - What naturally-occurring changes might affect the habitats or the animals?

Cross-Curricular Vocabulary Activities

Objective Core Language Arts:

Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade-level reading and content.

Identify new meanings for familiar words and apply them accurately (e.g., duck is a bird & the verb to duck). Use words & phrases acquired through conversations, reading/being read to, and responding to texts.

Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade-level topic or subject area.

Explain the function of nouns, pronouns, verbs, adjectives, and adverbs in general and their functions in particular sentences.

Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section.

Use frequently occurring adjectives.

Vocabulary Game: This activity is a very general idea and is designed to get children thinking of vocabulary words that will then be used as the beginning vocabulary list for a science lesson.

Select an illustration from the book and give the children a specific length of time (five minutes?) to write down all the words they can think of about the particular subject. It is helpful to project an illustration on a whiteboard. Use eBook or book preview found at www.ArbordalePublishing.com.

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, have each child take turns reading a word from his/her list. If anyone else has the word, the reader does nothing. However, if 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.

Glossary/Vocabulary Words: Word cards may be used (see Appendix) or have children write on index cards, a poster board, or on a chalkboard for a "word wall." If writing on poster board or chalkboard, you might want to sort words into nouns, verbs, etc. right away to save a step later if using for Silly Sentences (on the next page). Leaving the words posted (even on a refrigerator at home) allows the children to see and think about them frequently. The glossary has some high-level words. Feel free to use only those words as fit your situation.

Using the Words: The following activities may be done all at once or over a period of several days.

- 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 for the "silly sentences" on the next page).
- After the cards have been sorted, go over the categories to ensure that all cards have been placed correctly. (Mistakes are a great opportunity to teach!)
- Choose two words from each category and write a sentence for each word.
- Write a story that uses at least ten vocabulary words from the word sort.
- 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.

Silly Sentence Structure Activity: This "game" 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 correct information in the book.

Word Bank

Adjective	Noun			Verb
black	aquarium	humans	pups	born
bottom	beach	jellyfish	rookeries	camouflage
clear	blanket	light	sea turtle	crawl
coarse	blubber	loggerhead	shell	dig
cold	breath	mane	skin	dive
external	carapace	moon	snowshoes	drink
hollow	ear	nest	stars	eat
inner	females	orca whales	sea lions	hatch
long	flippers	oxygen	underfur	insulate
native	fur	paws	warmth	molt
outer	hair	plastron	water	pull
plastic	hatchling	polar bears	zoo	swim
sharp	head	predator		trap
thick	hospital	prey		walk
top				
warm				
white				

Cross-Curricular: Silly Sentences

1. Steller sea lions _____ deeper than 1,300 feet (400 m) to find food!
verb
2. Males have _____, _____ hair on their necks that looks like a male lion's _____.
adjective adjective noun
3. _____s are isolated, rocky coastal areas and islands where _____ gather to mate and where females give birth to their _____.
noun noun noun
4. _____ eat walleye pollack, mackerel, herring, capelin, sand lance, cod, and salmon.
noun
5. _____, humans, and some sharks will _____ Steller sea lions.
noun verb
6. Only _____ Alaskans who rely on the sea lions are allowed to hunt them.
adjective
7. Steller sea lions' dry _____ is a _____ and light tan to red brown.
noun adjective
8. They have a thick layer of fat (_____) that keeps them _____ in cold water.
noun
9. Steller sea lion _____ are _____ in late May through July.
noun verb



1. The _____ ^{adjective} part of a turtle's _____ ^{noun} is called a _____ ^{noun}. The _____ ^{adjective} part is called the _____ ^{noun}. The shell is part of the turtle's body.
2. Sea turtles cannot _____ ^{verb} their _____ ^{noun}s into their shells as land turtles can.
3. A female loggerhead sea turtle _____ ^{verb}s onto the _____ ^{noun}, _____ ^{verb}s a nest and lays _____ ^{number} to 150 eggs. The eggs are about the size of ping-pong balls and _____ ^{verb} after about two months.
4. The female loggerhead _____ ^{noun}s that survive into adulthood will return to the same region to lay their eggs.
5. For the mom and the hatchlings, one way back to the ocean is to follow the reflected _____ ^{noun} of the _____ ^{noun} or stars.
6. Sea turtles hatchlings, love to eat _____ ^{noun} because the jellyfish can't swim away. Sea turtles often mistake floating _____ ^{adjective} bags for jellyfish. The plastic can hurt turtles and other animals.
7. Some sea turtles can hold their _____ ^{noun} for up to _____ ^{number} hours while they sleep. They like to hide in rocky areas to sleep.



1. Polar bears have _____ skin under their _____
adjective noun
 to trap warmth and hold onto heat. They have _____ layers
number
 of fur. The thick underfur is like a blanket— it
 _____s the bears to keep them warm. The _____
verb adjective
 layer of fur contains long guard hairs that are _____ and
adjective
 hollow like straws. These _____s act like a wet suit to
noun
 keep the underfur warm and dry.
2. We see _____ or cream-colored fur because of the way
adjective
 the sun reflects off the _____ hairs. The fur helps the
adjective
 bears blend (_____) into the snow and ice.
verb
3. Polar bears shed and replace their fur (_____) every
 year during May or June when it is relatively warm.
4. Like other types of meat eaters, polar bears have _____
adjective
 teeth to grab _____ and tear meat.
noun
5. Polar bear _____s can be up to _____ inches
noun number
 (30 cm) wide. The width helps to spread the bears' weight
 over the snow, acting like _____s.
noun
6. Polar bears _____ for long distances. They have an
verb
 extra, _____ eyelid so they can see underwater with
adjective
 their eyes closed!



Classifying Animals

Objective: Classify organisms according to one selected feature, such as body covering, and identify other similarities shared by organisms within each group formed.

Describe several external features and behaviors of animals that can be used to classify them (e.g., size, color, shape of body parts).

Identify observable similarities and differences (e.g., number of legs, body coverings, size) between/among different groups of animals.

Just as we sort candy, scientists sort all living things into groups to help us understand and connect how things relate to each other. Scientists ask questions to help them sort or classify animals.

Based on the answers to the questions, scientists can sort the living organisms. The first sort is into a Kingdom. There are five commonly accepted Kingdoms: Monera, Protista, Fungi, Plantae, and Animalia. All of the living things in this book belong to Animalia or the Animal Kingdom.

The next big sort is into a Phylum. One of the first questions that a scientist will ask is whether the animal has (or had at some point in its life) a backbone. If the answer is “yes,” the animal is a vertebrate. If the answer is “no,” the animal is an invertebrate.

Each Phylum is broken down into Classes, like mammals, birds, reptiles, fish, amphibians, insects, or gastropods (snails). Then each class can be broken down even further into orders, families, genus and species, getting more specific.


The scientific name is generally in Latin or Greek and is the living thing’s genus and species. People all over the world use the scientific names, no matter what language they speak. Most living organisms also have a common name that we use in our own language.

Some questions scientists ask:

- Does it have a backbone?
- What type of skin covering does it have?
- Does it have a skeleton? If so, is it inside or outside of the body?
- How many body parts does the animal have?
- Does it get oxygen from the air through lungs or from the water through gills?
- Are the babies born alive or do they hatch from eggs?
- Does the baby drink milk from its mother?
- Is it warm-blooded or cold-blooded?

Using what you know, and information and pictures in the book, see how many Animal Chart squares you can fill in for each animal.

Animal Chart

	Animals	Stellar Sea Lion 	Loggerhead Sea Turtle 	Polar Bear 
Appendages	legs (how many)			
	flippers/fins			
	wings			
	tail/no tail			
Feet or hands: if they have; may have more than one	horns/antlers			
	claws			
	web			
	toes			
Movement: may do more than one	opposable thumbs/toes			
	hooves			
	walks/runs			
	crawls			
	flies			
	slithers			
	swims			
Backbone	climbs			
	hops			
Skeleton	backbone/vertebrate			
	no backbone/invertebrate			
	inside skeleton (endoskeleton)			
Body covering	outside skeleton (exoskeleton)			
	no skeleton			
	hair/fur/whiskers/quills			
	feathers			
	dry scales or bony plates			
	moist scales			
Color/patterns	smooth, moist skin			
	hard outer shell			
	hard outer covering			
	stripes or spots			
Gets oxygen	mostly one color			
	skin color changes			
Body temperature	bright, vivid colors			
	lungs			
Babies	gills			
	warm-blooded (endothermic)			
	cold-blooded (ectothermic)			
Teeth	born alive			
	hatch from eggs			
	born alive or hatch from eggs			
Food	sharp			
	flat			
	no teeth (bill/beak)			
Food	plant eater (herbivore)			
	meat eater (carnivore)			
	both (omnivore)			

Vertebrate Classes

Objective: Classify organisms according to one selected feature, such as body covering, and identify other similarities shared by organisms within each group formed. Describe several external features and behaviors of animals that can be used to classify them (e.g., size, color, shape of body parts). Identify observable similarities and differences (e.g., number of legs, body coverings) between/among different groups of animals.

Mammals:

hair, fur, whiskers, or quills at some point during their lives
backbone (vertebrate)
inside skeleton (endoskeleton)
lungs to breathe
most give birth to live young
produce milk to feed young
warm-blooded

Birds:

feathers
backbone (vertebrate)
inside skeleton (endoskeleton)
lungs to breathe
hatch from hard-shelled eggs
warm-blooded

Reptiles:

dry scales or plates
backbone (vertebrate)
inside skeleton (endoskeleton); most turtles also have a hard outer shell
lungs to breathe
most hatch from leathery eggs
cold-blooded

Warm-blooded animals make their own heat and have a constant body temperature

Cold-blooded animals' body temperature comes from their surroundings

Fish:

most have scales covered with a thin layer of slime
backbone (vertebrate)
inside skeleton (endoskeleton)
gills to breathe
babies are either born alive or hatch from jellylike eggs
cold-blooded

Amphibians:

soft, moist skin
backbone (vertebrate)
inside skeleton (endoskeleton)
most hatchlings (jellylike eggs) are called larvae or tadpoles and live in water, using gills to breathe
as they grow, they develop legs and lungs and move onto land
cold-blooded

Sort the animals into their class.

Steller Sea Lions

This photo comes from the Encyclopedia of Life:
<http://www.eol.org/pages/328617>
Look at the difference in sizes of the pup, female, and male
Notice the “hairy mane” on the male to see where the sea “lion” came from!



There are currently six different types of sea lions. Most Americans are familiar with the **California** sea lion as they are the most common sea lions on the west coast of the US. The **Steller** sea lions are the largest sea lions but they are currently threatened or endangered. Other types of sea lions are the **Australian, Galapagos, New Zealand, and South American**. The **Japanese** sea lions have disappeared from the face of the earth (extinct).

All sea lions have long front flippers and can pull their rear flippers under them so they can “walk” on land. They also have external ear flaps.

Steller sea lions were named after the naturalist Georg Wilhelm Steller (1700s).

Steller sea lions’ fur is a coarse and light tan to red brown when dry. When wet, it is smooth and slick and lies flat against their skin.

They have a thick layer of fat (blubber) that keeps them warm in cold water.

Steller sea lions dive deeper than 1,300 feet (400 m) to find food!

Loggerhead Sea Turtles

There are seven major types of sea turtles found in the world: flatback, green, hawksbill, Kemp's ridley, leatherback, loggerhead, and olive ridley.

Like all turtles, sea turtles are reptiles. Because they get oxygen from the air, they must come to the surface of the water to breathe. Like land turtles, they often bask in the sun. Unlike land turtles, they float on the top of the water to do so. However, these behaviors put them at risk of being hit and injured by passing boats.

Unlike land turtles, sea turtles have flippers to help them move quickly through water.

While some land turtles pull their heads into their shells for protection, sea turtles cannot do that.

Sea turtles have strong beaks that can break through shells to get at the animals inside.

"Carolina" is a loggerhead sea turtle. In the United States, female loggerheads emerge from the water to dig nests on the beaches of the Gulf of Mexico and the Southeast.

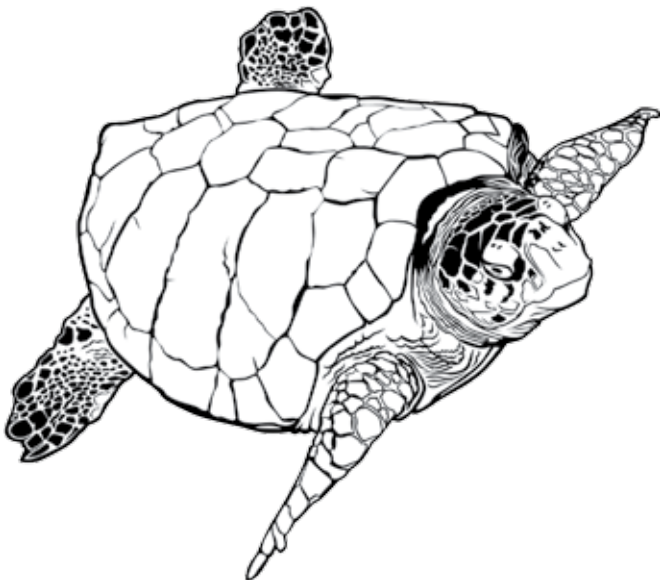
Female sea turtles return to the same area where they hatched to lay their eggs.

On average, a single female loggerhead lays four nests a summer about two weeks apart. She lays between 80 and 150 eggs in each nest. Once she lays the eggs, she returns to the sea. The sea turtle lays so many eggs to make sure that some of the hatchlings will survive. She lays nests every two or three years.

The eggs look like ping-pong balls! They are leathery so they won't break when they are laid in the nest.

When they emerge from the eggs, the hatchlings head towards the brightest light. Many beachfront areas post "lights out for turtle" signs so that the brightest light will be the moon or stars reflecting off the ocean water. Turtles survive purely on instinct.

Scientists don't know how the turtles find their way "home" to lay their eggs but think that the hatchlings "imprint" the area when they walk from the nest to the ocean. For that reason, it is important to let the hatchlings walk across the beach and not carry them.



Polar Bears

There are eight different kinds of bears: Asiatic black, black, brown, giant panda, polar, sloth, spectacled, and sun. Bears live in many different types of climates and habitats all over the world.

Polar bears live in the arctic regions of North America, Europe, and Asia.

Underneath their fur, polar bears have black skin that helps to better trap the Sun's heat.

Polar bears have black skin under their fur to trap warmth and hold onto heat.

They have two layers of fur. The thick underfur is like a blanket—it insulates the bears to keep them warm. The outer layer of fur contains long guard hairs that are clear and hollow like straws. These hairs act like a wet suit to keep the underfur warm and dry. Polar bears can easily shake off water, snow, and ice.

We see white or cream-colored fur because of the way the sun reflects off the hollow hairs. The white-looking fur helps the bears blend (camouflage) into the snow and ice.

Polar bears swim for long distances. They have an extra, clear eyelid so they can see underwater with their eyes closed! When swimming, their ears lie flat and their nostrils close so water doesn't get in.

Polar bear cubs are usually born between November and January. When born, they don't have much fur and they can't yet see. They spend their first few months cuddled with their mothers to stay warm and to drink milk.



Who Am I?

Use the information in the books and the previous few pages to identify the animal (Steller sea lion, loggerhead sea turtle, or polar bear).

1. I am a large marine mammal with large, furry paws to help me walk on ice and swim through the water.
2. I am a large marine mammal with flippers to help me swim through the water.
3. I am a large marine reptile with flippers to help me swim through the water.
4. I pull myself onto rocky areas called rookeries to give birth to a pup.
5. I pull myself onto a sandy beach to dig a nest and lay eggs.
6. I dig a den where I'll spend the winter months with tiny cubs.
7. My skeleton is outside of my body and I have a strong shell to protect me.
8. I have black skin and two layers of fur to keep me warm.
9. I have lots of blubber to keep me warm in the cold water.
10. I can use my beak to break open shells to get to the meat inside.
11. I use my sharp claws to grab prey and my sharp teeth to eat the meat. I really like to eat seals.
12. I eat all kinds of fish.



Satellite Tagging

When wild animals are cared for and then released, scientists sometimes use satellite tags to track where the animals go. In some cases, wild animals are trapped and put to sleep (tranquilized) so that scientists can study the animals, add a satellite tag, and then wake up and go on their way.

The information helps scientists understand more about the animal habits than we would know otherwise, especially for those animals that live in the ocean. Scientists can learn where the animals go and how fast or slow they swim.

The tags do not hurt the animals and might stay attached as long as a year before they simply fall off.

Here are some sites to follow tagged animals:

www.seaturtle.org/tracking/

whale.wheelock.edu/whalenet-stuff/stop_cover.html

alaska.usgs.gov/science/biology/polar_bears/tracking.html

polarbearsinternational.org/about-polar-bears/tracking/bear-tracker

Writing Prompts:

Many of the animals featured in the above sites were rescued and cared for before releasing to the wild. Pick a featured animal and write the story similar to the books featured in this teaching activity.

Pretend you are a scientist and want to learn more about a specific animal. How would you follow it? What animal would you want to track and why? What are some things you might learn from it?



Science Journal (Vocabulary)

Steller sea lion

my definition

my drawing

loggerhead sea turtle

my definition

my drawing

polar bear

my definition

my drawing

marine

my definition

my drawing

Marine Animals True or False?

Circle whether you think the statement is true or false:

1. T/F Marine animals live in the ocean.
2. T/F Marine mammals and reptiles live in the ocean but come to the surface of the water to breathe air.
3. T/F Marine mammals have hair or fur at some point in their lives.
4. T/F Marine reptiles include sea turtles and sea snakes.
5. T/F Many marine mammals have thick layers of blubber to keep them warm in cold water.
6. T/F Most marine mammals give birth to twins.
7. T/F Marine mammal mothers feed their calves or pups milk from their body just as land mammals do.
8. T/F Unlike land mammals, marine mammals are cold-blooded. They get their warmth from the water around them.
9. T/F Sea turtles are marine reptiles.
10. T/F Marine mammals never crawl onto land.
11. T/F Marine animals live depend on the ocean for food.
12. T/F Sharks are marine mammals.
13. T/F Humans don't have any impact on marine habitats because we live on land, not in the ocean.
14. T/F It's not possible for humans to help marine animals because humans don't know if they need help or not.
15. T/F Polar bears are considered to be a marine mammal.

In Danger!

Extinct: no longer found anywhere on Earth; completely gone

Endangered: an animal or plant in danger of extinction within the near future throughout all or a significant portion of its range

Threatened: a species in trouble; it may become endangered if people don't help

Species of Concern/Vulnerable: species that might need conservation actions

The Eastern Steller sea lions are threatened. The Western Steller sea lions are endangered.

Depending on the location of the population, loggerhead sea turtles are either threatened or endangered.

Polar bears are considered to be vulnerable.

What are some things that may have caused these animals to become threatened or endangered?

Changing habitat

- habitat destruction due to development, roads, agriculture, etc.
- fragmentation (breaking up) of habitat, making it difficult for animals to get to food, water, or nesting areas
- loss of nesting areas
- climate change causing decrease in food supply

Over fishing or hunting

- advanced technology allows fishermen to see where the fish are, increasing their catch—sometimes beyond what is sustainable
- some animals are hunted on purpose, due to fear (wolves) or competition (fishermen shooting sea lions competing for fish)

Pollution

- including fertilizers and chemical run offs or oil spills
- run-off from construction and development
- animals may eat garbage “thinking” that it is food (i.e. plastic bags being mistaken for jellyfish)
- animals get trapped in garbage

Missing link in the food chain due to another extinction

Diseases

Human threats:

- being hit by fast-moving cars
- being hit by boats when aquatic reptiles or mammals surface to breathe
- getting trapped in fishing nets

Math: Reading Calendars

Use the information and calendar below to answer the questions.

In early May, the adult males (bulls) fight for and claim their rookery territory.

The females (cows) arrive at the rookery at the end of May or early June and look for good birthing areas

Pups are born in late May through July

The mother stays with the pups for a week or two before leaving it alone while she goes off to find food in the ocean.

When the pups are 4 to 6 weeks old, they swim for the first time.

Pups molt (shed) their fur when they are about 4 or 5 months, and the new fur is lighter in color.

- If a Steller sea lion is born on June 15, what day of the week is it?
- If the mother leaves the pup alone for the first time two weeks after its birth, what is the date?
- If the pup swims when it is 4 weeks old, what month would it be?
- If the pup sheds its fur when it is 4 months old, what month would it be?

- APRIL -							- MAY -							- JUNE -									
S	M	T	W	TH	F	S	S	M	T	W	TH	F	S	S	M	T	W	TH	F	S			
					1	2	3						1			1	2	3	4	5			
4	5	6	7	8	9	10	2	3	4	5	6	7	8	6	7	8	9	10	11	12			
11	12	13	14	15	16	17	9	10	11	12	13	14	15	13	14	15	16	17	18	19			
18	19	20	21	22	23	24	16	17	18	19	20	21	22	20	21	22	23	24	25	26			
25	26	27	28	29	30	23	24	25	26	27	28	29	27	28	29	30							
							30	31															
- JULY -							- AUGUST -							- SEPTEMBER -									
S	M	T	W	TH	F	S	S	M	T	W	TH	F	S	S	M	T	W	TH	F	S			
				1	2	3	1	2	3	4	5	6	7				1	2	3	4			
4	5	6	7	8	9	10	8	9	10	11	12	13	14	5	6	7	8	9	10	11			
11	12	13	14	15	16	17	15	16	17	18	19	20	21	12	13	14	15	16	17	18			
18	19	20	21	22	23	24	22	23	24	25	26	27	28	19	20	21	22	23	24	25			
25	26	27	28	29	30	31	29	30	31	26	27	28	29	30									



Math: Measuring

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!

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, or shoes?

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

It is easy to say that a female Steller sea lion can be 9 feet (2.9 m) long or a male can be 11 feet (3.25 m) long, but what does that really mean?

Using the right measuring tool (yard stick or measuring tape) and chalk, mark off how big 6 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 female Steller sea lion?



If a female Steller sea lion weighs 400 lb. (181 kg), and you and each of your friends weighs 50 lbs., how many children would it take to equal the weight of the female sea lion?

How do you measure up to a loggerhead?

A full-grown loggerhead's shell is 3 to 3½ feet in diameter. A full-grown loggerhead sea turtle can weigh 360 pounds.

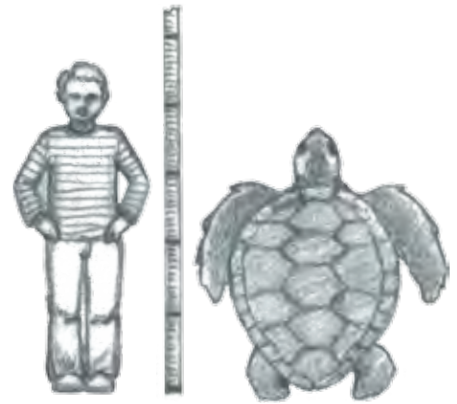
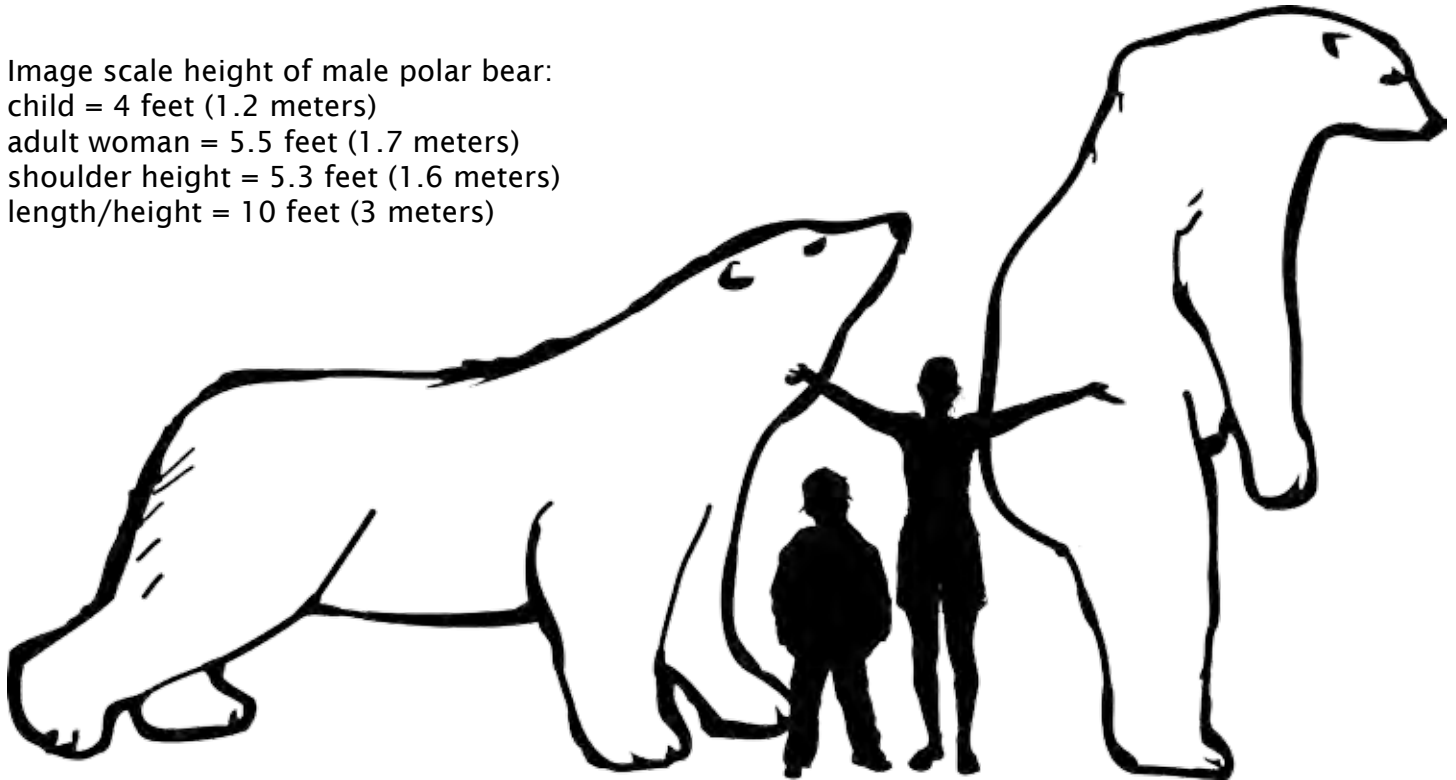


Image scale height of male polar bear:
 child = 4 feet (1.2 meters)
 adult woman = 5.5 feet (1.7 meters)
 shoulder height = 5.3 feet (1.6 meters)
 length/height = 10 feet (3 meters)



wingspan/armspan	height or length	weight
female adult Stellar sea lion	9 feet / 2.9 meters	400 lb. / 181 kg.
female loggerhead sea turtle	3 feet / .9 meters	360 lb. / 163 kg.
male polar bear	10 feet / 3 meters	1,500 lb. / 700 kg.
you		
an adult (parent/teacher)		

Map Activity

Objective: reading maps, geography, know that plants and animals live in different locations

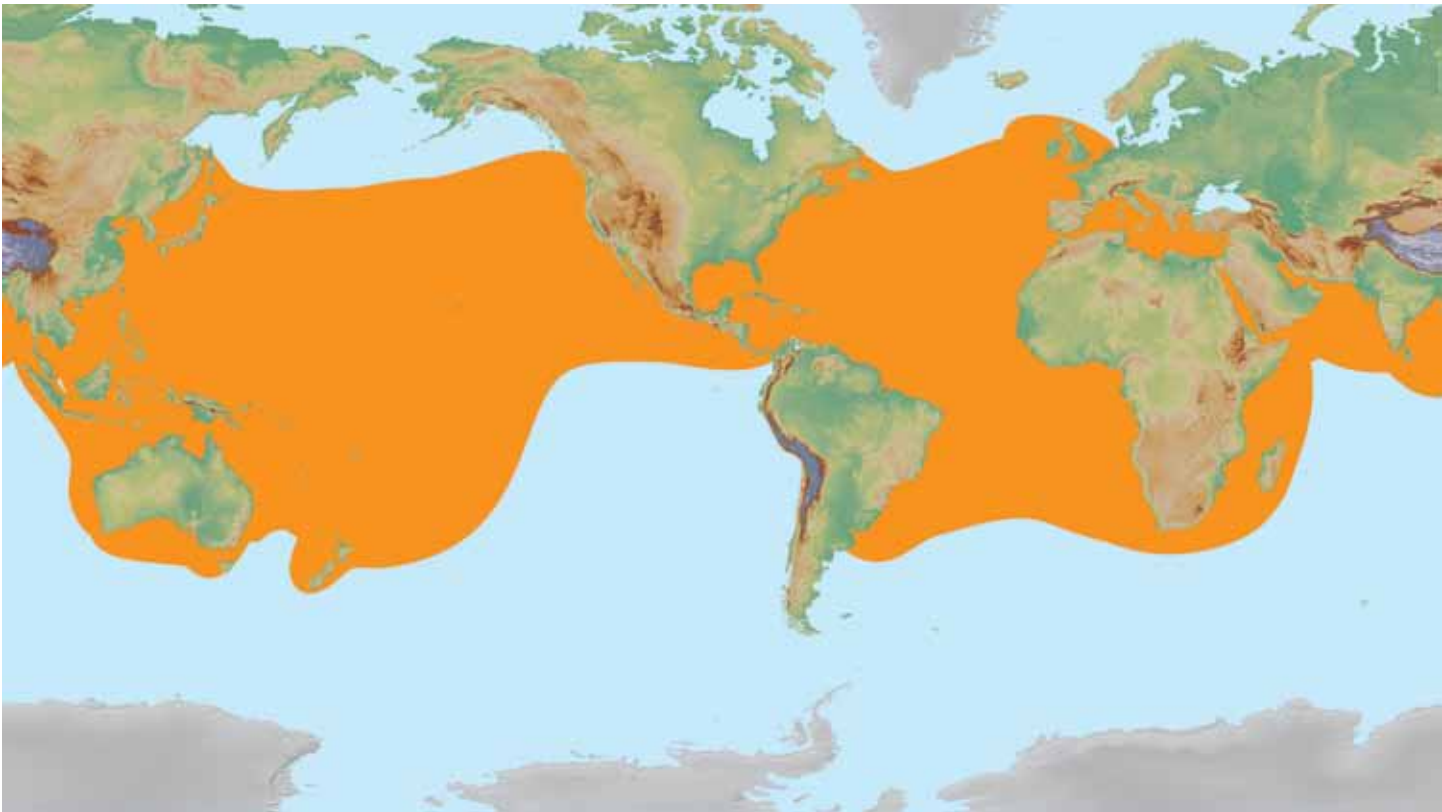
Using these maps as a reference, color the areas where these animals live on the blank map (in appendix).

Do any of the animals live in the same areas as each other?

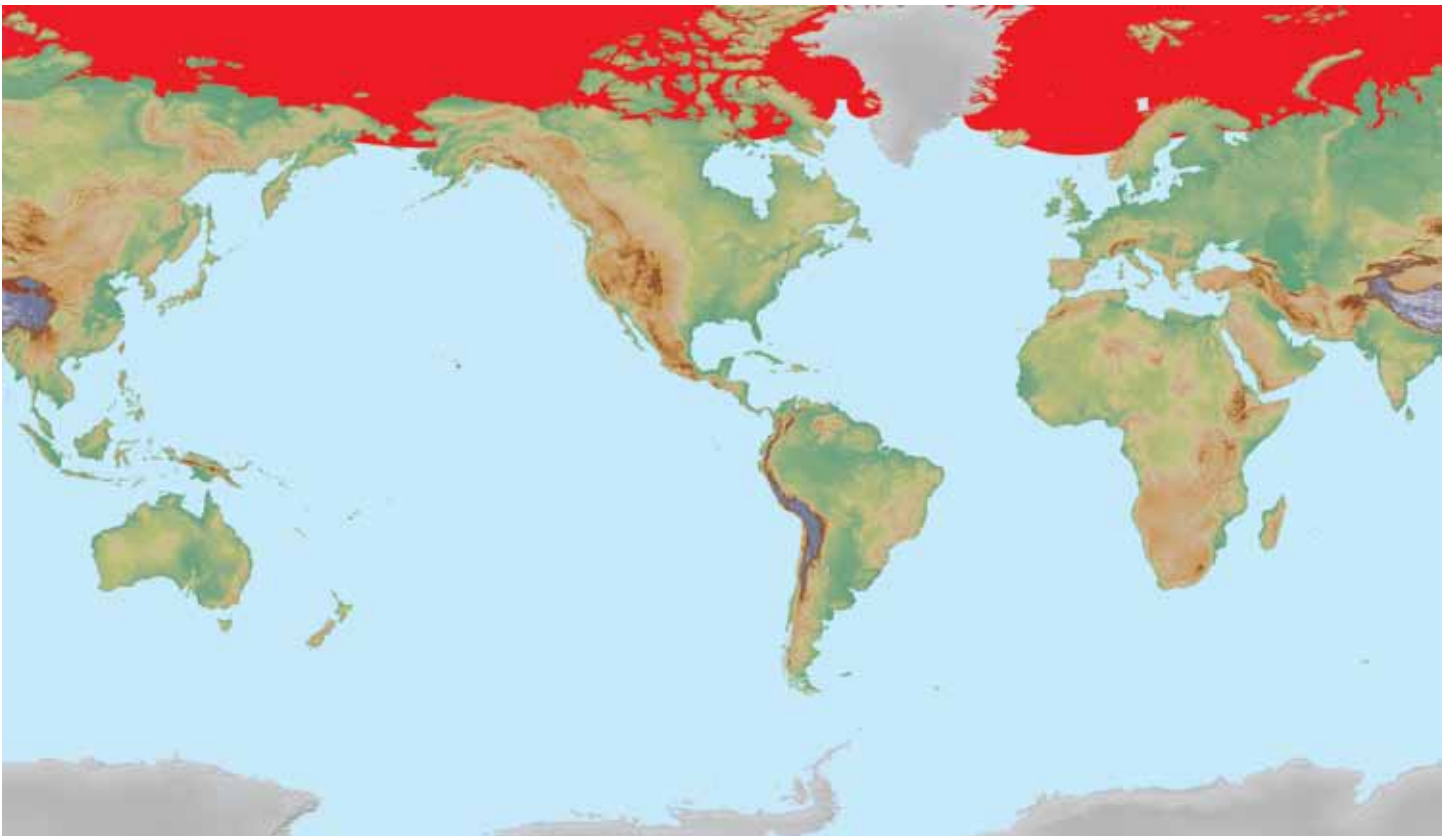
Do any animals live in the same area as you?



Stellar sea lion range



loggerhead sea turtle range



polar bear range

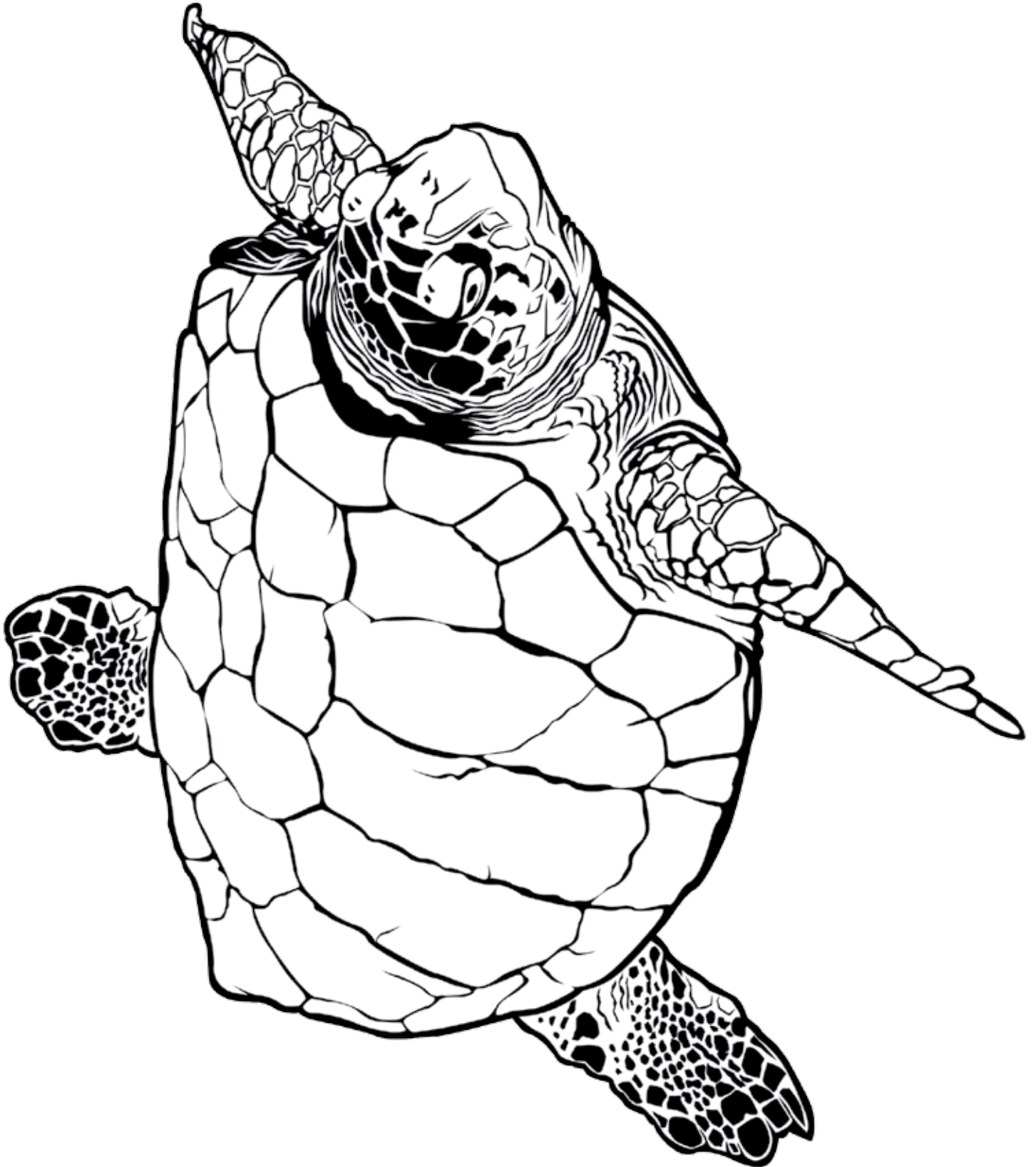
Coloring Pages

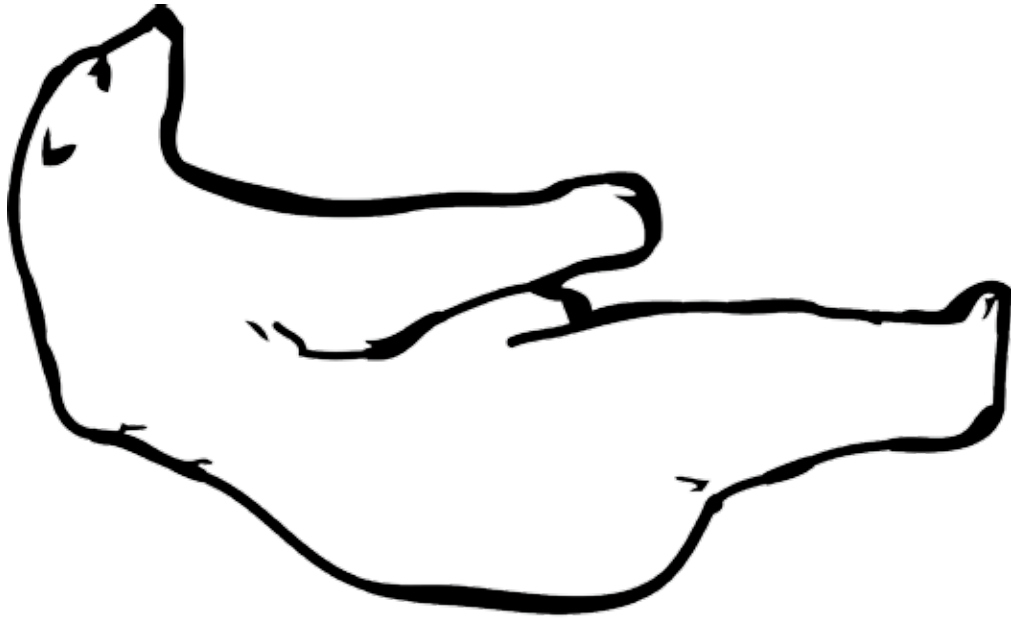


Astro
The Steller Sea Lion

Carolina's Story

Sea Turtles Get Sick Too!





KALI'S STORY
An Orphaned Polar Bear Rescue

Answers

Silly Sentences

(Astro the Steller Sea Lion)

1. Steller sea lions dive deeper than 1,300 feet (400 m) to find food!
2. Males have long, coarse hair on their necks that looks like a male lion's mane.
3. Rookeries are isolated, rocky coastal areas and islands where sea lions gather to mate and where females give birth to their pups.
4. Steller sea lions eat walleye pollack, mackerel, herring, capelin, sand lance, cod, and salmon
5. Orca whales, humans, and some sharks will eat Steller sea lions.
6. Only Native Alaskans who rely on the sea lions are allowed to hunt them.
7. Steller sea lions' dry fur is a coarse and light tan to red brown.
8. They have a thick layer of fat (blubber) that keeps them warm in cold water.
9. Steller sea lion pups are born in late May through July.

(Carolina's Story)

1. The top part of a turtle's shell is called a carapace. The bottom part is called the plastron. The shell is part of the turtle's body.
2. Sea turtles cannot pull their heads into their shells as land turtles can.
3. A female loggerhead sea turtle crawls onto the beach, digs a nest and lays 100 to 150 eggs. The eggs are about the size of ping-pong balls and hatch after about two months.
4. The female loggerhead hatchlings that survive into adulthood will return to the same region to lay their eggs.
5. For the mom and the hatchlings, one way back to the ocean is to follow the reflected light of the moon or stars.
6. Sea turtles, especially hatchlings, love to eat jellyfish (among other things)—because the jellyfish can't swim away. Sea turtles often mistake floating plastic bags for jellyfish. The plastic can hurt turtles and other animals.
7. Some sea turtles can hold their breath for up to four hours while they sleep. They like to hide in rocky areas to sleep.

(Kali's Story)

1. Polar bears have black skin under their fur to trap warmth and hold onto heat. They have two layers of fur. The thick underfur is like a blanket—it insulates the bears to keep them warm. The outer layer of fur contains long guard hairs that are clear and hollow like straws. These hairs act like a wet suit to keep the underfur warm and dry.
2. We see white or cream-colored fur because of the way the sun reflects off the hollow hairs. The white-looking fur helps the bears blend (camouflage) into the snow and ice.
3. Polar bears shed and replace their fur (molt) every year during May or June when it is relatively warm.
4. Like other types of meat eaters, polar bears have sharp teeth to grab prey and tear meat.
5. Polar bear paws can be up to 12 inches (30 cm) wide. The width helps to spread the bears weight over the snow, acting like snowshoes.
6. Polar bears swim for long distances. They have an extra, clear eyelid so they can see underwater with their eyes closed!

Who Am I?

1. I am a large marine mammal with large, furry paws to help me walk on ice and swim through the water. **polar bear**
2. I am a large marine mammal with flippers to help me swim through the water. **Steller sea lion**
3. I am a large marine reptile with flippers to help me swim through the water. **loggerhead sea turtle**
4. I pull myself onto rocky areas called rookeries to give birth to a pup. **Steller sea lion**
5. I pull myself onto a sandy beach to dig a nest and lay eggs. **loggerhead sea turtle**
6. I dig a den where I'll spend the winter months with tiny cubs. **polar bear**
7. My skeleton is outside of my body and I have a strong shell to protect me. **loggerhead sea turtle**
8. I have black skin and two layers of fur to keep me warm. **polar bear**
9. I have lots of blubber to keep me warm in the cold water. **Steller sea lion**
10. I can use my beak to break open shells to get to the meat inside. **loggerhead sea turtle**
11. I use my sharp claws to grab prey and my sharp teeth to eat the meat. I really like to eat seals. **polar bear**
12. I eat all kinds of fish. **Steller sea lion**

Marine Animal True or False

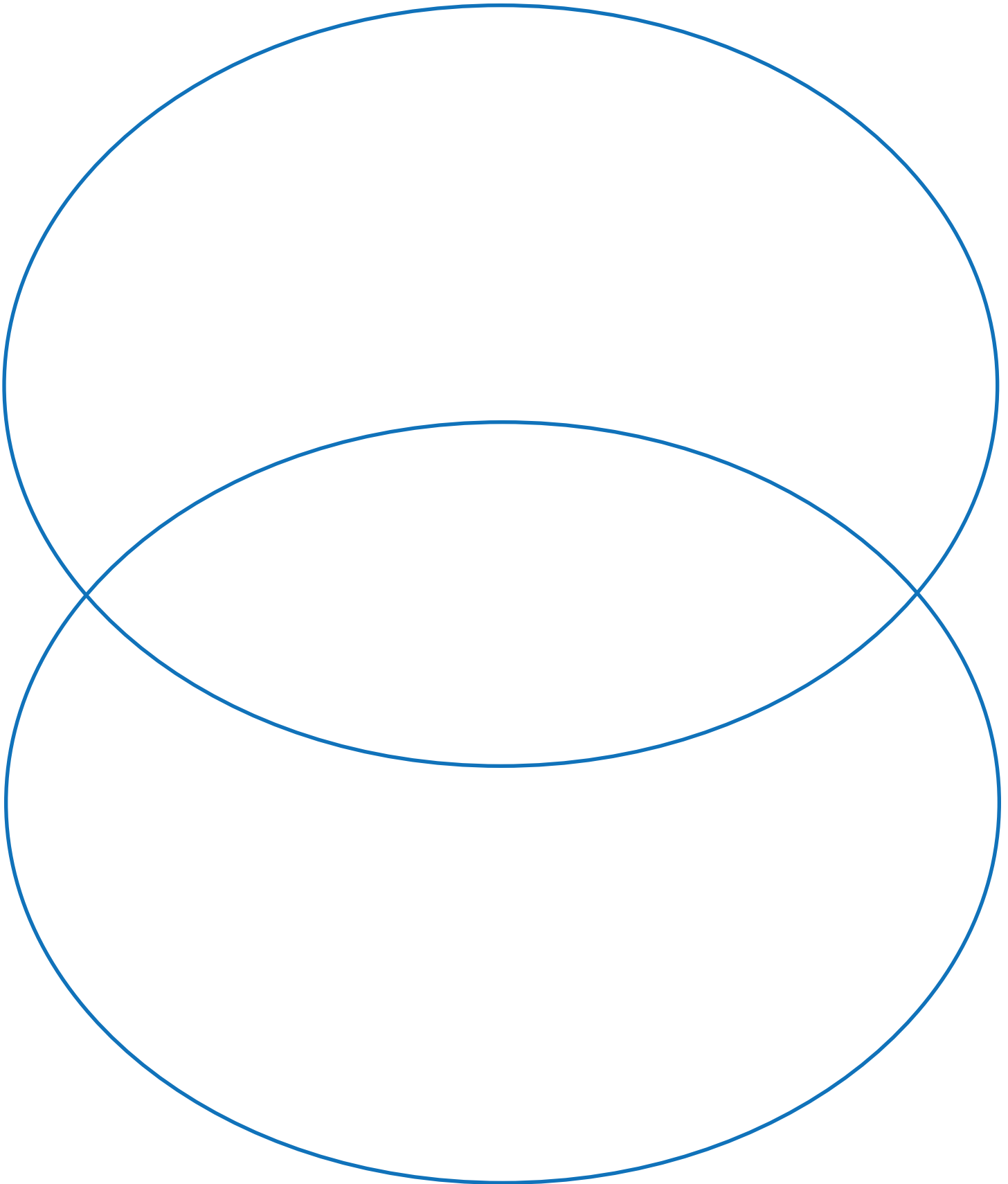
13. Marine animals live in the ocean. **True**
14. Marine mammals and reptiles live in the ocean but come to the surface of the water to breathe air. **True. Many marine mammals reptiles are injured by boat propellers as they surface to breathe**
15. Marine mammals have hair or fur at some point in their lives. **True. Seals and sea lions have fur. When born, dolphins and whales have a few bristles around the head or mouth.**
16. Marine reptiles include sea turtles and sea snakes. **True**
17. Many marine mammals have thick layers of blubber to keep them warm in cold water. **True**
18. Most marine mammals give birth to twins. **False: Most marine mammals have one calf or pup at a time. Exceptions: polar bears do usually have twins.**
19. Marine mammal mothers feed their calves or pups milk from their body just as land mammals do. **True, that is a definition of mammal.**
20. Unlike land mammals, marine mammals are cold-blooded. They get their warmth from the water around them. **False.**
21. Sea turtles are marine reptiles. **True**
22. Marine mammals never crawl onto land. **False: seals, sea lions, and walruses frequently haul themselves onto land. Polar bears, considered to be a marine mammal, spend much of their time on land.**
23. Marine animals live depend on the ocean for food. **True**
24. Sharks are marine mammals. **False, sharks are a type of fish.**
25. Humans don't have any impact on marine habitats because we live on land, not in the ocean. **False, humans have a large impact on the ocean and the marine habitats.**
26. It's not possible for humans to help marine animals because humans don't know if they need help or not. **False. While it is true that humans may not find all sick, injured, or orphaned marine animals, any that come ashore might be found.**
27. Polar bears are considered to be a marine mammal. **True**

Appendix A—“What Children Know” Cards

<p>Question:</p> <p>My answer:</p> <p>This information is correct! This information is not correct; can you find the correct information?</p>	<p>Question:</p> <p>My answer:</p> <p>This information is correct! This information is not correct; can you find the correct information?</p>
<p>Question:</p> <p>My answer:</p> <p>This information is correct! This information is not correct; can you find the correct information?</p>	<p>Question:</p> <p>My answer:</p> <p>This information is correct! This information is not correct; can you find the correct information?</p>

Appendix B—Venn Diagram

Compare and contrast two



Appendix C—World Map



Appendix D—Vocabulary Cards

aquarium

blubber

breath

camouflage

carapace

coarse

external

flippers

hatch

hatchling

hollow

hospital

inner

insulate

jellyfish

loggerhead

mane

molt

native

outer

oxygen

paws

plastron

polar bears

predator

prey

pups

rookeries

sea lions

sea turtle

skin

snowshoes

Steller

trap

underfur

zoo