



Videoconferencing pre/post materials

Dear Teacher,

We are looking forward to our interactive videoconference with you and your students. During the program your students will have the opportunity to explore the unique animals of the Pacific Ocean.

In order to better prepare your students for their virtual visit to the Aquarium of the Pacific, we have compiled both pre- and post materials. These materials will provide your students with fun activities that will enrich their knowledge of ocean life and challenge what they learned. We have placed the activities in the following categories based on California standards. However, feel free to look through all the materials and use anything that you deem appropriate for your current curriculum.

Shark Mythbusters (Grades 3-5)

* Shark Liar's Club	Activity	Pre or Post
* Shark Tooth Match up	Activity Sheet	Post
* Ultimate Predator	Activity	Pre or Post
* Shark vs. Rays	Activity Sheet	Post
* Shark Writing	Writing Activity	Post
* Shark Liar's Club	Answer Sheet	
* Shark Tooth Match up	Answer Sheet	
* Sharks Vs. Rays	Answer Sheet	

You may find additional activities for your students in pre/post materials from other programs. The programs conducted by the Aquarium, pre-visit materials and post-visit materials incorporate parts or all of the following California Science Standards:

3rd Grade: Life Sciences 3a, 3b, 3c, 3e

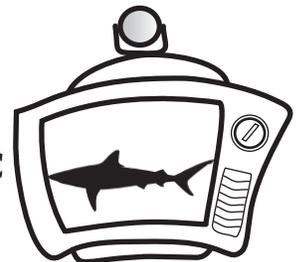
4th Grade: Life Sciences 2a, 2b, 3a, 3b

5th Grade: Life Sciences 2a, 2c

Thank you for your interest in our programs. We are excited to connect with your school!

Sincerely,

Aquarium of the Pacific Education Staff





Overview:

People's information on sharks is often exaggerated or simply false. The truth about sharks can be amazing and often unbelievable. Students will listen to these four stories and see if they can pick out the truth among the lies.

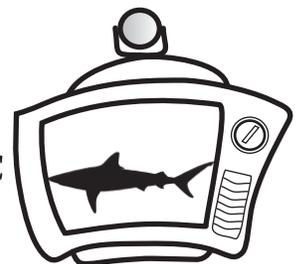
Class Time: 20 minutes

Materials:

- 4 stories included in the pre-visit materials.
- 4 drawings included in pre-visit materials to add a visual component to each story.

Procedure:

- Distribute stories to four different students to read aloud to the class.
- OR Photocopy the stories and/or visual aids onto transparencies for students to see as the teacher reads aloud.
- Explain the rules to students:
 1. Only one story is false.
 2. Students will get to vote at the end for the story they think is false.
 3. Students only get one vote.
- If you have chosen for students to read stories, assemble the "liars" at the front of the class and listen to their stories one at a time.
- Review the stories with the students.
- Students vote for the story they think is not true.
- Teacher will reveal which story is false.
- Read the supplemental information provided for each story.



Ocean Liar Stories

Story #1

Sharks are amazing predators! They use their triangle shaped fins to swim quickly through the water and catch their prey. Some sharks will eat things like krill which are only a couple of inches long, while other sharks with bigger appetites will eat large seals and sea lions as their meal. But some can't seem to make up their minds about what is food and what is not! When studying sharks, some researchers have found strange things inside the belly of a shark. Take a look at this picture. People have found things like license plates, shoes, aluminum cans, a drum set, and various metal objects inside the belly of a shark!

Story #2

Did you know that all sharks need to swim all the time to be able to breathe? Sharks have gills, just like fish and need to be constantly moving so that the water pushes past their gills. If sharks were to stop swimming, they would sink down to the bottom of the ocean, and not be able to breathe.

Story #3

Everyone put your hand over your heart. Is your heart beating? Yes. Did you know that you have electricity in you body? Your body needs electricity to make your heart work. Did you know that sharks can sense electricity? Small fish and animals have hearts just like people. Sharks use this sixth sense to find and catch their prey that may be hiding underneath rocks or shells.

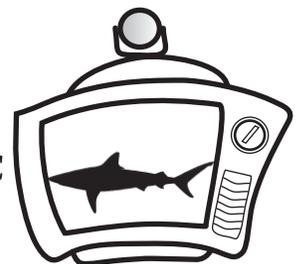
Story #4

All of these statements are true:

You are more likely to be hurt by a coconut falling from a tree than from being attacked by a shark.

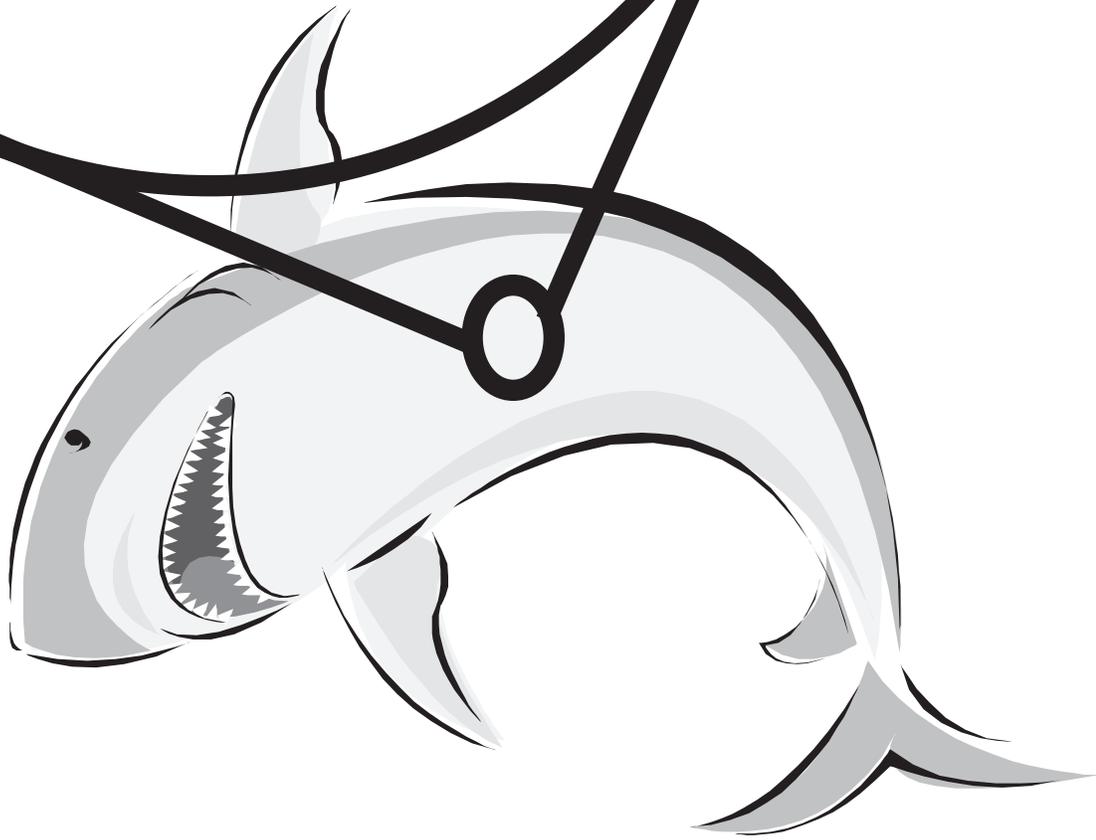
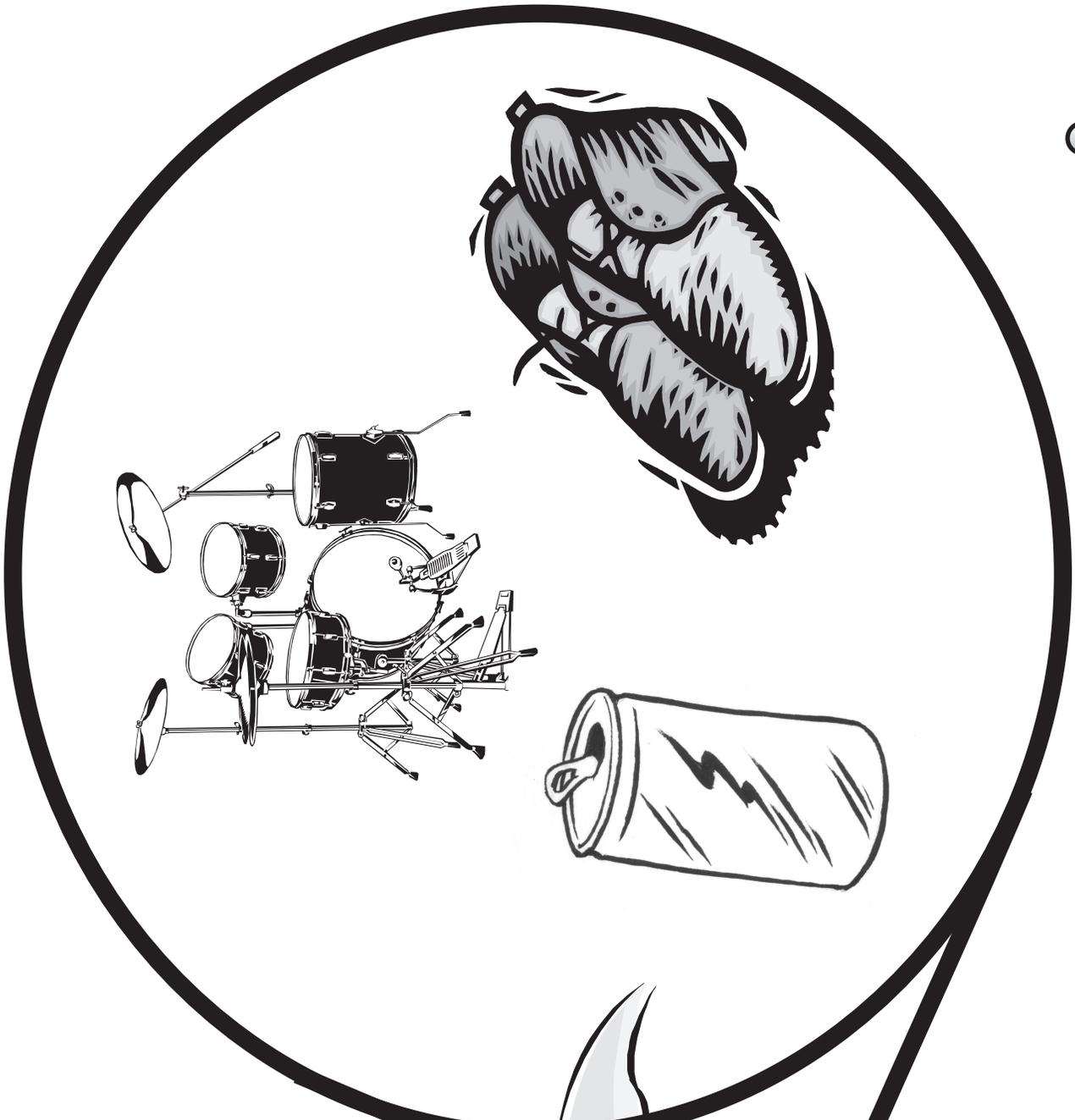
More people get attacked by pigs than by sharks every year.

More people are hurt on a toilet than by a shark.



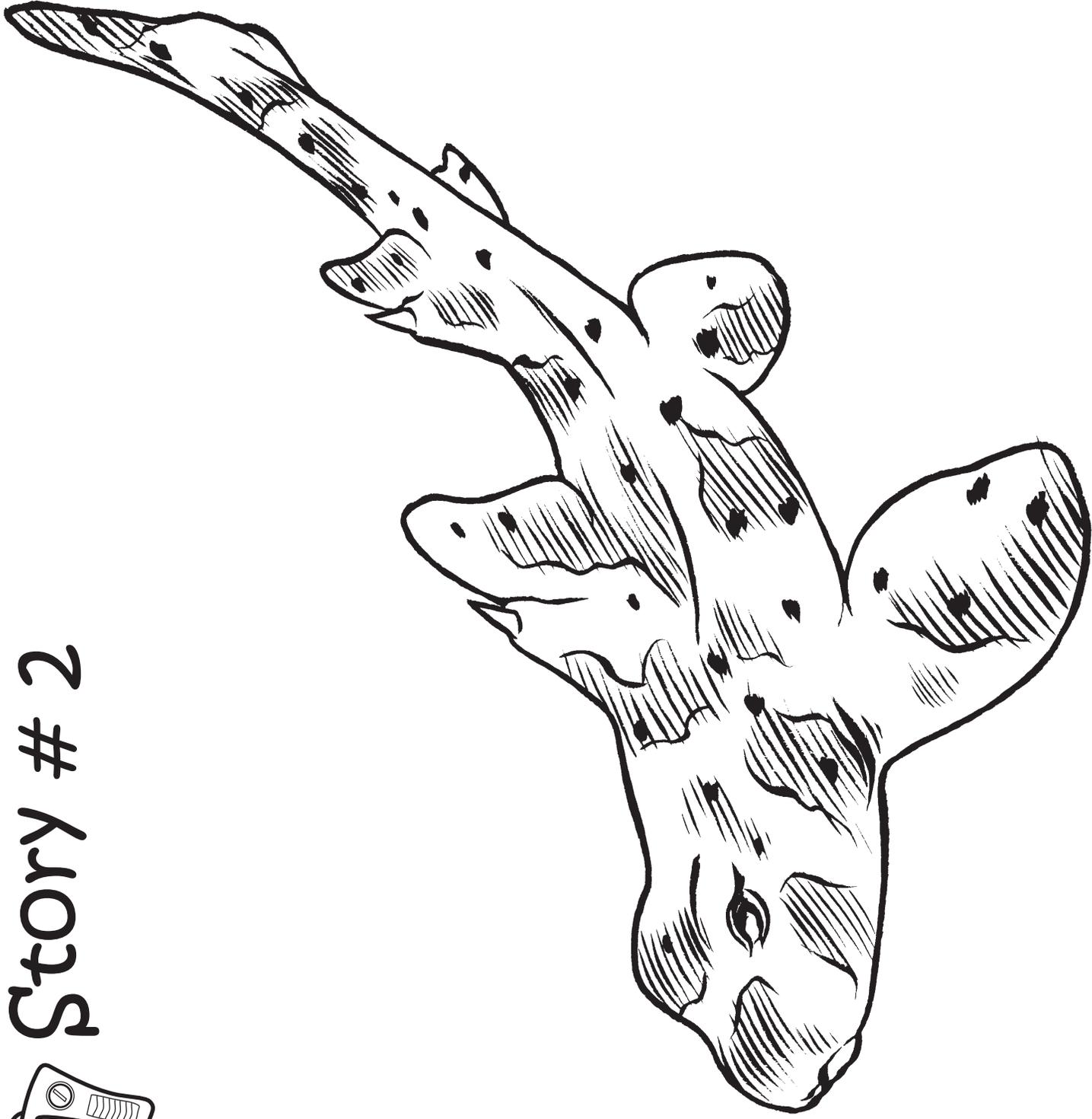


Story #1



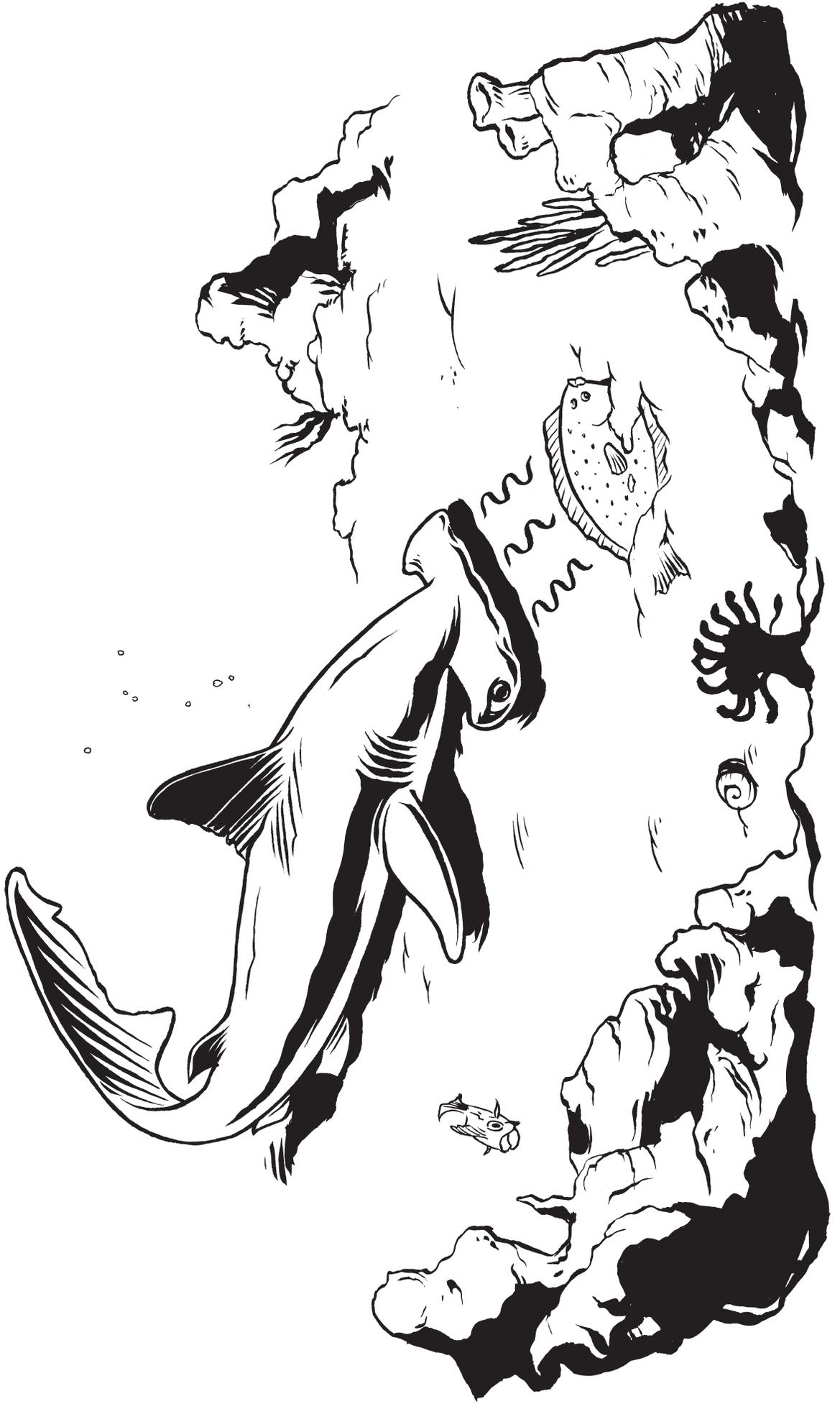


Story # 2



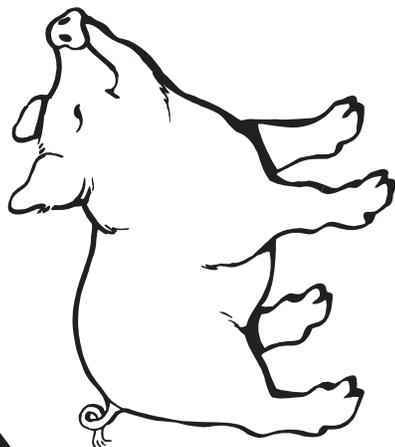
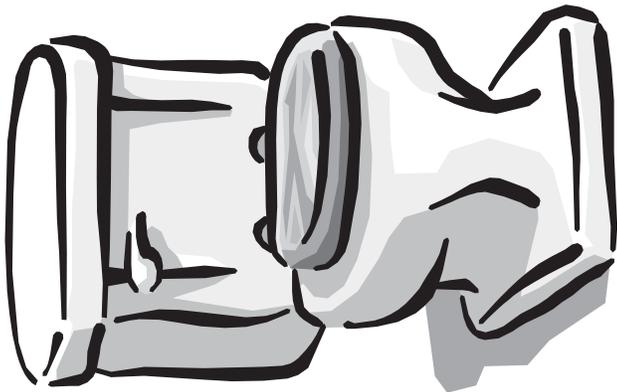
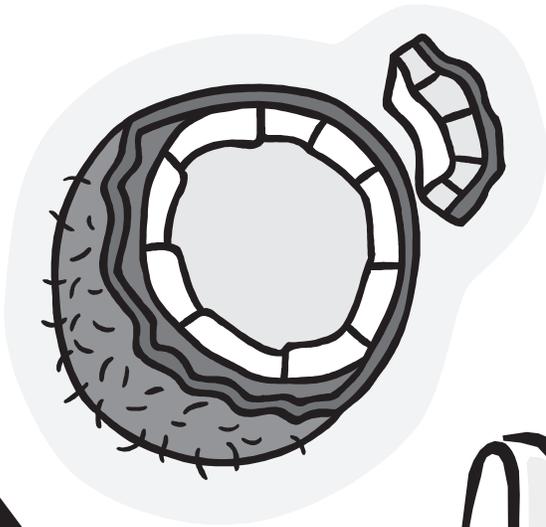
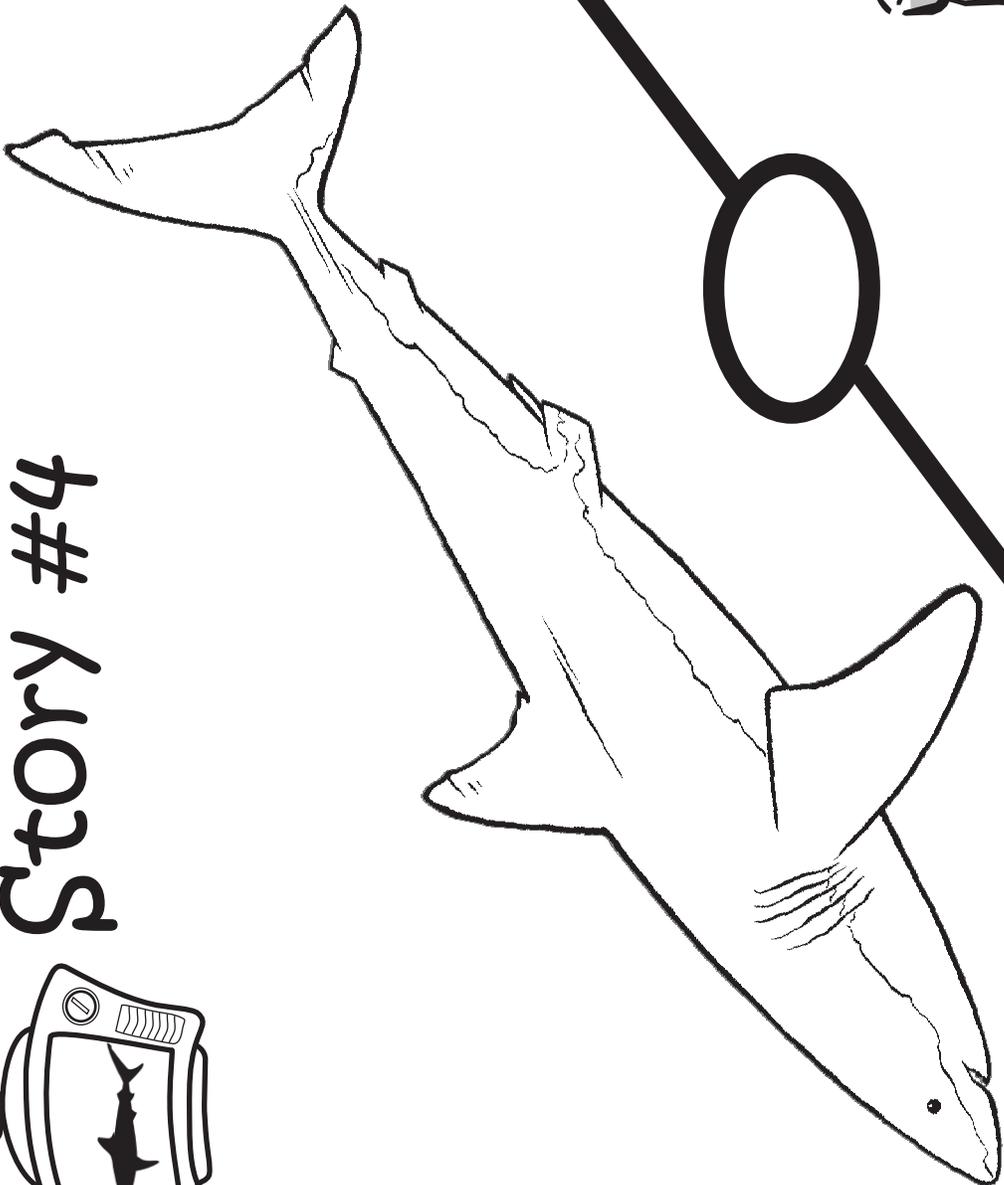


Story #3





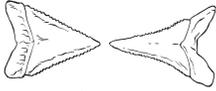
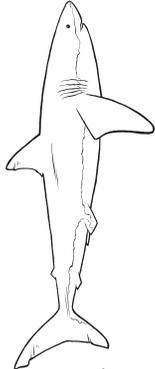
Story #4



Shark Tooth Match-up

Draw a line from each shark to the food it likes to eat.

Great White



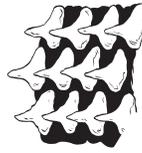
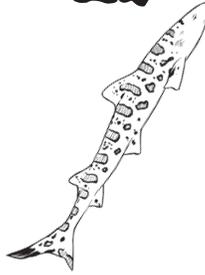
Large jaws and serrated teeth

Mako



Large Jaws and sharp pointy teeth

Leopard



Small jaws and small pointy teeth

Horn



Small jaws and flat crushing teeth

Crabs and small shelled animals



Large fish and squid



Small fish and shrimp



Seals and sea lions



Ultimate Predator

Instructions for Teachers

Overview:

This activity will help students explore different predator adaptations used for hunting and defense. This activity will help students explore their imaginations and think of amazing animals adaptations.

Class Time: 30 minutes

Prep Time: 5 minutes

Materials:

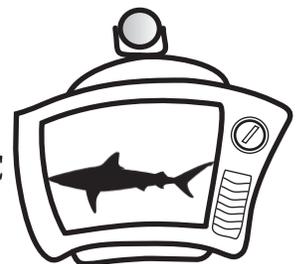
Large sheets of paper (butcher paper)

Crayons

Tape or tacks

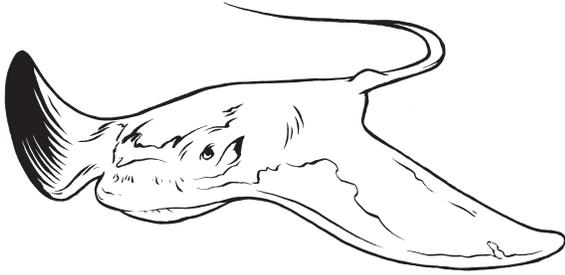
Procedure:

1. Discuss various types of shark and ray adaptations.
2. Divide students into three groups (or more if necessary).
3. Assign each group a section of the predator's body (group 1 - head, group 2 - body, group 3 - tail, etc.). Students will draw their section equipped with the best adaptations for hunting and defense that they can come up with. Encourage them to be creative.
4. Ask students to come up to the front of class one group at a time, attach their section to the wall and present their adaptations to the class.



Sharks vs. Rays

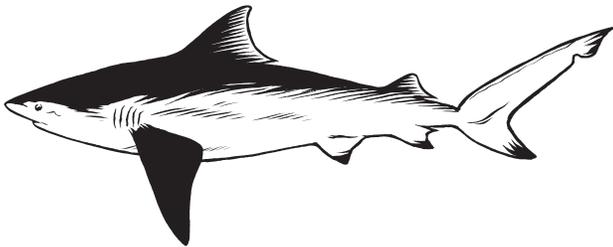
List some difference between sharks and rays in the spaces provided below.



1. _____

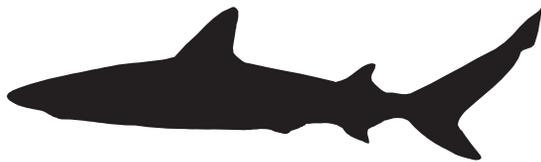
2. _____

3. _____



4. _____

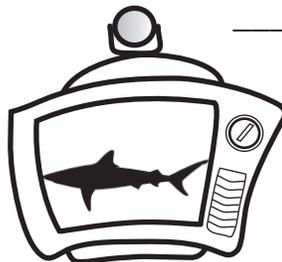
5. _____



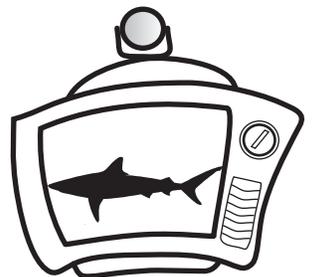
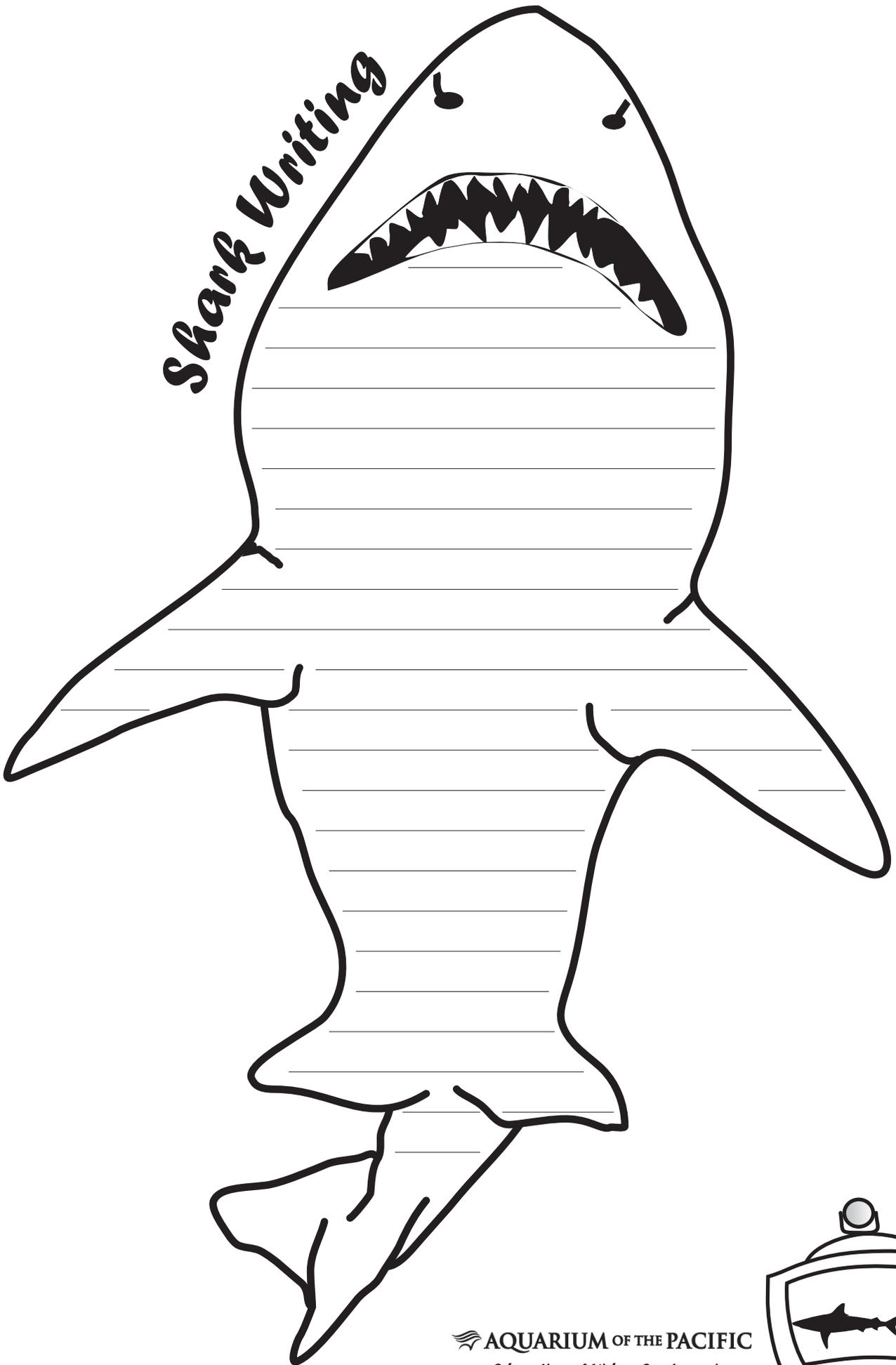
Cartilage Vs Bone

What sinks faster, bone or cartilage?

Why might a shark have a skeleton made of cartilage instead of bone?



Shark Writing



Ocean Liar Story Answers

Story # 1

This story is completely true! Sharks are curious animals with a big appetite. Because these animals do not have hands, like us, to feel objects, they use their mouths and teeth to feel. They have been known to take a bite out of many objects in the ocean to get a "taste".

Story # 2

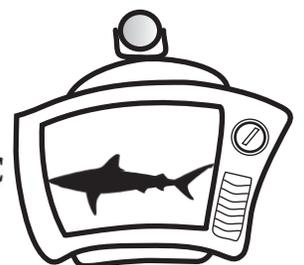
This story is false. There are about 350 different species of sharks in our ocean, many of which can be found resting at the bottom of a rocky reef or a sandy bottom. Some sharks, like the swell shark and horn shark (like the one in the illustration), are able to push oxygen past their gills while lying lazily on the bottom of the ocean. While others need to be swimming constantly to breathe. Blacktip Reef sharks and Great White sharks are examples of sharks that need to be swimming all day and all night in order to stay alive. Imagine if you always needed to be moving to breathe!

Story # 3

True! Sharks are amazing predators that have lived on earth for 450 million years! They have a sixth sense which allows them to hunt the sneakiest prey! Small spots located beneath their nose (rostrum) called ampullae de Lorenzini allows them to sense the electrical fields emitting from their prey. This allows them to dig underneath sand, rocks and objects their prey may be hiding under.

Story # 4

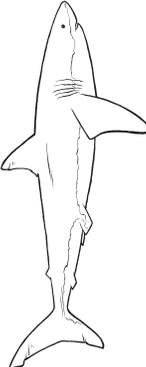
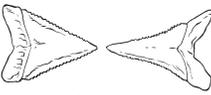
Can you believe that all of these statements are true! Sharks are extremely misunderstood animals and many shark fatalities are a cause of mistaken identity. On average, only 10-12 shark attacks occur every year. This number is relatively small compared to the thousands of sharks that are killed by people every year for food or recreation. Although most people think that sharks are hunting for humans, in reality they are looking for blubbery seal or sea lion. Surfers are easily mistaken for these animals and sometimes fall victim to a shark attack.



Shark Tooth Match-up

Answer Key

Great White

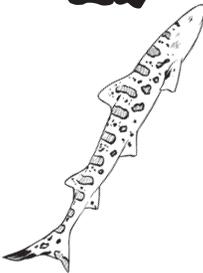
Large jaws and serrated teeth

Mako



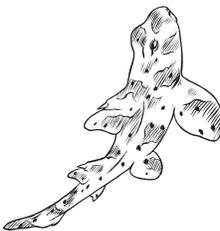

Large Jaws and sharp pointy teeth

Leopard




Small jaws and small pointy teeth

Horn




Small jaws and flat crushing teeth

Crabs and small shelled animals



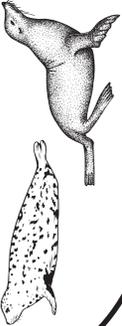
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Sharks vs. Rays

Answer Key

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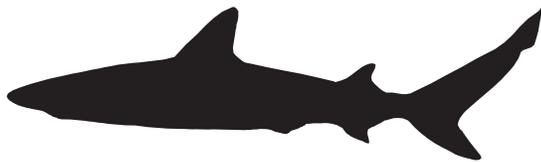
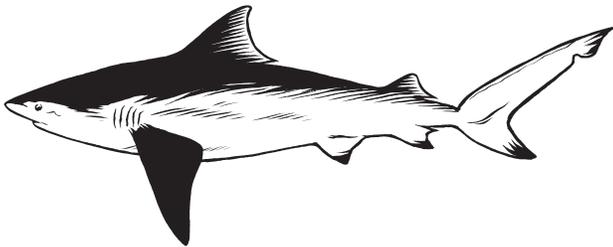
1. Fins. Rays move forward using their pectoral fins. Sharks move their caudal fin to move forward.

2. Many rays have a stinger on their tail.

3. All rays give live birth. Some sharks lay eggs and others give live birth.

4. All rays have spiracles on the top of their body. Some sharks, not all, have spiracles.

5. Many rays have flat, crushing teeth while most sharks have triangular shaped teeth.



Cartilage Vs

What sinks faster, bone or cartilage?

Bone because it is more dense.



Bone

Why might a shark have a skeleton made of cartilage instead of bone?

A cartilaginous skeleton helps the shark float in the water. Many bony fish have a swim bladder used for regulating their buoyancy. A shark's cartilaginous skeleton also helps with flexibility.

