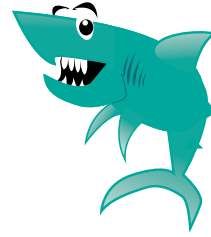


# Don't Be Afraid of Sharks



**F**

# Don't Be Afraid of Sharks



## CONCEPT / TOPICS TO TEACH

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

### Objectives:

- » Students will develop deductive reasoning and logic skills through an activity requiring them to sort out food sharks might eat from other kinds of food sharks may not eat.
- » Students will develop fine motor skills, creative skills, and early literacy through an activity requiring them to think of a favorite fact about sharks, and create an illustration demonstrating their knowledge.
- » Students will develop visual perceptual skills and deductive reasoning through an activity requiring them to match the front and back halves of an assortment of shark shapes.
- » Students will develop problem-solving skills through an activity requiring them to arrange teeth into a shark jaw, and assess why different kinds of sharks have different kinds of teeth.
- » Students will expand their knowledge base and logic skills through a trivia activity.

## Character Education: COURAGE

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

### Ocean Annie and Scuba Divers face fear with COURAGE!

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

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

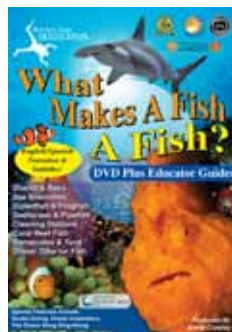
are COURAGEOUS in the classroom and bring COURAGE into their lives on a daily basis.

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

## Getting Started

### Required Materials

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



### TREASURE CHEST

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

### Anticipatory Set Lead-In

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

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

**KWL**

**LGL**

**AG**

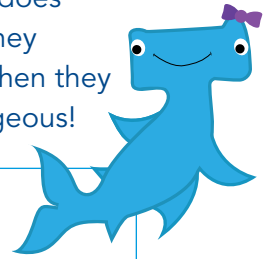
**WP**

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

## Video Review

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

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



## Imagination Values

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

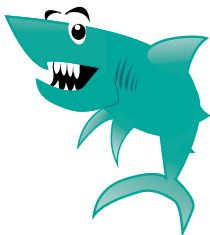
*“On the count of three let’s say the magic word! 1, 2, 3...IMAGINATION! Now imagine you are a shark. What kind of shark would you be? Touch your nose and ears, this is what a shark’s skeleton is made of, cartilage. Sharks and rays are elasmobranchs. Can you say that word? As a shark, your skin would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

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

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

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

## CLASSROOM ACTIVITY STATION F1 SHARK FEED



### Overview

Students will sort through cards depicting food items and assign them to the buckets based on what they determine sharks eat or do not eat. This activity will help students develop *analytical skills and deductive logic*.

**Materials:** 2 Buckets, Finnagain the Shark, Finnagain the Shark with an “X” through its body, Tape, 2 Sets of Food Cards

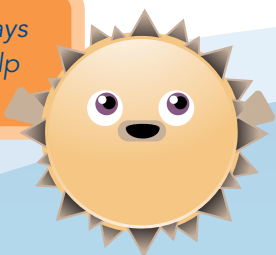
### Talking Points

- ✧ Humans rely on the ocean for many things like food, recreation, and transportation. See if your class can make a list.
- ✧ The ocean supports all life on the planet, and sharks are one form of life. There are more than 450 species of sharks.
- ✧ Sharks also depend on the ocean for food, and although different kinds of sharks depend on different types of animals for food, all sharks depend on the ocean for their food supply.
- ✧ Contrary to what some people think, sharks do not look to harm humans. Sharks are under threat because people are overfishing them and they are losing their habitat. Many shark species are endangered animals.
- ✧ Challenge students to see whether they can figure out what different sharks like to eat.

### Lesson Procedure

1. Tape Finnagain the shark to one bucket for the types of food sharks eat and Finnagain the shark to the other with an “X” through it for foods sharks do not eat.
2. Make cards featuring foods that sharks eat. Use cutouts from this guide, magazines or computers to find pictures and laminate the pictures or tape to index cards. Good choices would include; clams, fish of any kind, squid, shrimp, sea urchins, crabs, etc. Write the word of the food depicted on the card on the other side of the index card so students can associate image with word.
3. Make cards featuring foods that sharks don’t eat. Good choices will be exaggerated examples such as; ice cream cones, pizza, cheeseburgers, cake, macaroni and cheese, etc. Write the word of the animal on the other side of the index card so students can associate image with word.
4. Have students separate the food cards into each bucket according to what sharks eat and what they do not eat.

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



## CLASSROOM ACTIVITY STATION F1 (Continued)

# SHARK FEED

### Extension Ideas

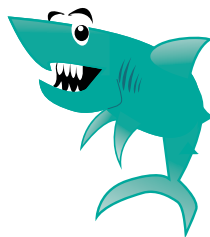
- » Ask students to make a list of things they eat for dinner each night for a week, and see how many meals include seafood. Introduce your class to the Monterey Bay Aquarium or your local Aquarium's Sustainable Seafood Program encouraging students to only eat sustainable seafood. Sustainable seafood means we do not take more animals from an environment than can reproduce to maintain a healthy population. There are many types of fish and other animals at risk or endangered because of people.
- » If your school has a healthy eating program, you can reinforce sustainable seafood. Discuss the importance of a well balanced diet including fruits and vegetables.

### Notes



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

## CLASSROOM ACTIVITY STATION F2 SHARK TALK



### Overview

Students will illustrate one fact they learned about sharks. Have students write down, or dictate to you, the fact their drawing represents. Through this activity students will develop *language skills* and *fine motor skills*. Add these to your student journals or assemble a bulletin board to help the class retain the knowledge they achieved about sharks.

**Materials:** Paper, Markers, Colored Pencils or Crayons

### Talking Points

- ✧ There are many kinds of sharks living in the salty ocean, and the ocean covers most of the planet.
- ✧ Sharks have been part of the ocean environment since before the dinosaurs walked the Earth. The first shark fossils are from 400 million years ago. There are around 500 species of sharks and more than 700 species of rays.
- ✧ Ask students what else they know about sharks and rays.
- ✧ Are sharks fish? What makes a fish, a fish? Yes, sharks are fish, yet many times students do not understand this. Reinforce and have them figure it out by walking them through what makes a fish, a fish and compare with sharks.
- ✧ Sharks skeletons are made of cartilage.
- ✧ Lantern sharks grow only a few inches long/10 centimeters. The largest fish in the sea, the whale shark, grows up to 60 feet long/18 meters. Sharks demonstrate much diversity.

### Lesson Procedure

1. Set out materials at an activity station.
2. Together with students list shark facts they learned. Have them illustrate one of these facts.
3. When students have completed their pages, add them to their journals or build them into a storyboard on a bulletin board.



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

## CLASSROOM ACTIVITY STATION F2 (Continued)

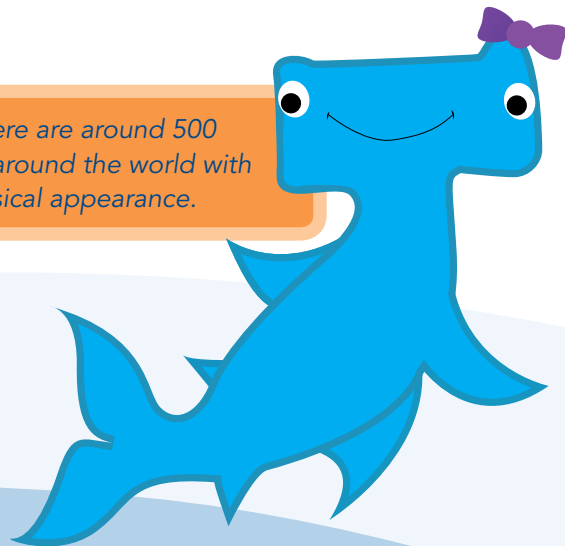
# SHARK TALK

### Extension Ideas

- » Ask students to pair and share their facts with their buddy. Ask them to create a full sentence about their shark facts to share with class.
- » Have students work together and put all of their facts together to make a story, play or a shark game.
- » Play the video with the music only section and have students imagine they are scuba divers watching how sharks swim. See if they can discover how sharks swim with their entire bodies, using their fins for lift and gliding. Sharks cannot open and close their fins like bony fishes. See what else students can observe about the way sharks move. Then have students become the sharks and move around like different kinds of sharks.

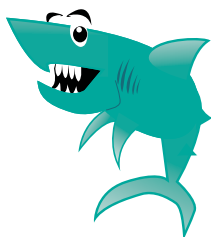
### Notes

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





## CLASSROOM ACTIVITY STATION F3 SHARK MATCH!



### Overview

At this station students will have 2 piles of cards, one set with the front half of sharks on them, and the second set with the back half of sharks on them. Students will be asked to match the front to the correct back half. This exercise will help students *recognize shapes, build visual perceptual skill,* and help them to develop *deductive reasoning* skills.

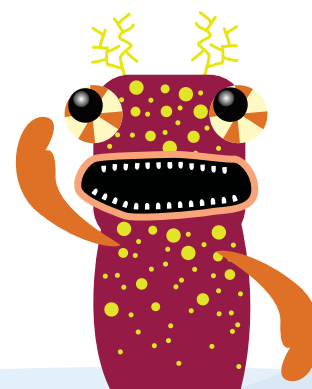
**Materials:** Shark Stencils, Heavy paper or tag board, Scissors

### Talking Points

- ✧ Sharks are amazing animals in the sea. In order for them to survive, they need a clean and healthy ocean. How can we keep the ocean healthy and why do we need to do this?
- ✧ People need to keep the ocean healthy because all pollution comes from people.
- ✧ People can keep the shoreline clean by not littering. People can keep the ocean healthy by picking up litter and recycling.
- ✧ People can protect ocean animals and seaweeds by not collecting them and by keeping their habitats safe and healthy.
- ✧ Although sharks are sometimes portrayed as dangerous in the movies, we need to remember and understand that some movies are fictional, meaning they are not based on facts.
- ✧ Ask students to use their imagination: Can you imagine you are a scuba diving shark scientist wanting to tell true shark stories?
- ✧ Sharks occupy every part of the ocean while a few species swim up rivers to breed or search for food.
- ✧ Sharks adapted and evolved unique body shapes and sizes specialized to the area of the ocean in which they are found.

### Lesson Procedure

1. Glue stencils, or trace the shark shapes, on to heavy paper.
2. Cut out the shapes, divide them in half, and set them into two piles. One pile will include all of the front halves and the other will include the back halves.
3. Challenge students to match the front and back halves of each highly specialized shark in their pile of cards.



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

## CLASSROOM ACTIVITY STATION F3 (Continued)

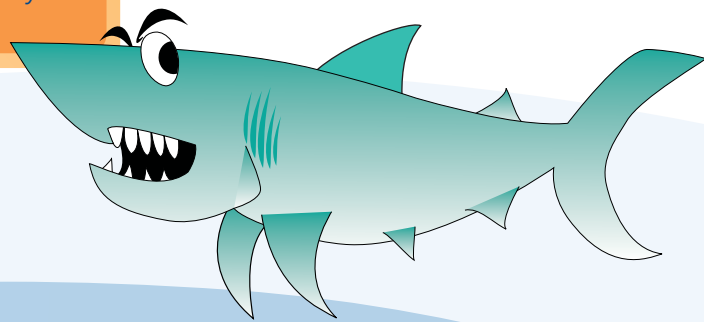
# SHARK MATCH!

### Extension Ideas

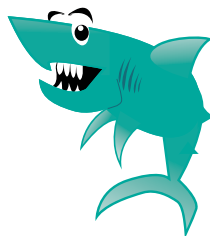
- » Place the cards face down, and have students take turns picking up pairs. When students find a match, they will hang on to the cards. The player who can pick up the most pairs wins.
- » Let students design their own shark inspired by the different styles and body shapes depicted on the cards. Have them explain why they created their sharks in relation to where they live and the food they eat.
- » Print out the shark stencils without cutting them in half. Have students color them. Create your own "School of Sharks" board in class using new vocabulary terms for students. If you have students bring in a photograph of themselves they can cut out their faces and paste them on the front of their shark to create a special school of sharks.

### Notes

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



## CLASSROOM ACTIVITY STATION F4 HOW MANY TEETH?



### Overview

Students will look at charts of shark jaws and a variety of teeth. Arrange teeth in each jaw, and observe the shapes of the teeth to try and guess why different kinds of sharks have uniquely shaped teeth. To help students understand this concept, ask them to look at their own teeth to see if they are all shaped the same way. Through this exercise students will get practice with *counting and numbers*, develop *deductive reasoning*, and *body awareness*.

**Materials:** Jaw Charts, Sharks Teeth, Mirror

### Talking Points

- ✧ There are nearly 500 species of sharks in the ocean in a wide variety of shapes and sizes.
- ✧ Different kinds of sharks eat unique kinds of foods and have teeth that are specially designed to eat certain food.
- ✧ Ask students to feel the teeth in their own mouths, and whether their teeth are all shaped exactly the same. Affirm that there are different shaped teeth in their mouths because they are designed to do different jobs, just as sharks' teeth are shaped different because they are designed to do different jobs too.
- ✧ Ask students to imagine that they are scientists learning about sharks and what sharks eat.
- ✧ Human beings can only move their bottom jaws. Sharks can move their entire jaw because it is not attached to their skull the way a human jaw is.

### Lesson Procedure

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

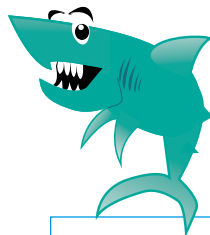
**CLASSROOM ACTIVITY STATION F4 (Continued)**

**HOW MANY TEETH?**

<b>Questions for Students</b>	<b>Answers for Educators</b>
How Many Shark Teeth MAKO?	<p><i>A mako mouth is a semi-circle filled with large, triangular, narrow hooked teeth that are razor-sharp with smooth edges. The teeth in the upper and lower jaw are similar size and shape and are designed to catch fast moving open water fish and squid.</i></p>
How Many Shark Teeth HORN SHARK?	<p><i>Horn sharks have more than one type of tooth made for clutching and grinding. The front teeth are small pointed hooks designed for holding. The back teeth are like molars and made for crushing the small fish, crabs, and sea urchins they like to eat.</i></p>
How Many Shark Teeth SAND TIGER?	<p><i>Sand tiger sharks have long, skinny teeth that curve back into the mouth like hooks. The teeth at the corners of the mouth are smaller and greater in number than they are in the front. The ragged looking teeth of the sand tiger are well suited to small bony fish, squid, and even crustaceans like crab and lobster.</i></p>
How Many Shark Teeth BULL SHARK?	<p><i>The upper teeth of bull sharks are wide triangles with sharp, serrated edges like a knife. The teeth in the lower jaw have a broad base, and are narrow, serrated and triangles ideal for catching large bony fish and other large animals that sometimes include sharks, turtles, and stingrays.</i></p>

## CLASSROOM ACTIVITY STATION F4 (Continued)

### HOW MANY TEETH?



#### Extension Ideas

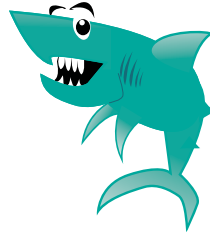
- » Take one of the shark teeth cut outs and copy it so each student can have their own shark tooth necklace. Have students design their shark tooth. Take twine and either wrap it around the top or punch a hole in it so students can wear it around their necks.
- » Ask students to clip magazine pictures of different animal mouths so that they can examine the different sizes and shapes of teeth. Hypothesize with students about how these animals use their mouths and what food they think they eat.
- » Assign each student a type of seafood such as: clam, sea urchin, octopus, tuna, etc. Ask students to draw a picture of teeth that are best suited to eat the food.
- » On land students are familiar with cows eating grass and lions eating meat. In the ocean whale sharks filter feed on plankton and Great White Sharks are carnivores like lions. There are more than 450 species of sharks. Ask students how many sharks they know and what kind of food they eat. You can make a class list of all the sharks your students know. Challenge your students to learn what kind of food the sharks they know eat.

#### Notes

*Sharks have streamlined bodies with bones made of cartilage giving them extreme flexibility. Cartilage is lighter than bone, increasing their speed.*



## CLASSROOM ACTIVITY STATION F5 SHARK TRIVIA!



### Overview

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

**Materials:** Trivia Questions, Popsicle sticks, One Red and Blue cup per student

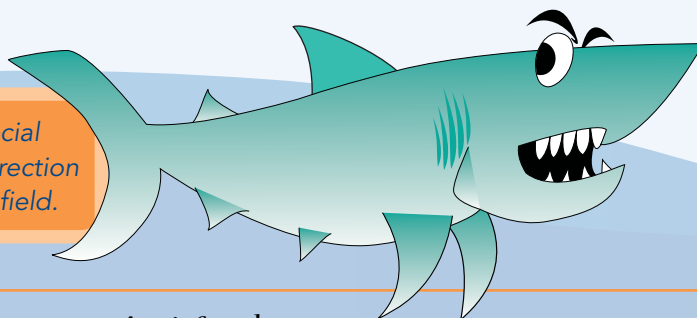
### Talking Points

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

### Lesson Procedure

1. Gather students and provide each with ten Popsicle sticks and two different colored cups.
2. Explain to students they will hear a series of fun shark facts and will be working together as a group to decide what is true or false.
3. Instruct students to drop their Popsicle stick into the cup colored blue if the statement they are hearing is true or into the red cup if they think it is false.
4. As you ask each question, pause to take a tally of how many students thought the question was true or false before you provide the answer.
5. Depending upon the attention span of your class, you may choose not to use all of the questions on the list, or select as needed for your level. Also you can have everyone do this individually if they are not able to use teamwork to cooperate on answers.

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



## SHARK TRIVIA! DON'T BE AFRAID OF SHARKS

Questions for Students	Answers for Teachers
Sharks are fish.	<i>TRUE, although they are different from most fish because their skeletons are made of cartilage instead of bone, sharks are still fish. Discuss what makes a fish, a fish and compare this to sharks.</i>
The largest fish in the ocean is a shark.	<i>TRUE, the largest fish in the ocean is the whale shark, which can reach lengths of up to 60ft/18 meters long. The largest animal that ever lived on earth is the blue whale, a marine mammal, but the largest fish is a whale shark.</i>
Sharks are always really big.	<i>FALSE, one of the smallest sharks is the dwarf lantern shark that becomes an adult when it is about six inches long! Another shark called the cookie-cutter shark averages about twenty inches long. Most sharks are only a few feet long!</i>
All sharks have sharp, pointy teeth.	<i>FALSE, some sharks, like horn sharks, have teeth similar to your molars designed to crush shells and other animals. Other sharks, like whale sharks, basking sharks, and megamouth sharks, have tiny teeth they do not use for feeding. They use their specially designed mouths like giant nets to scoop microscopic plankton and other small animals from the water that are then caught in gill rakers in front of their gills. These filter feeding sharks' gill rakers are similar to the baleen in baleen whales.</i>
Some kinds of sharks are endangered, meaning if people don't stop fishing them, there may soon be none of that particular shark left on the planet.	<i>TRUE, according to the International Union for Conservation of Nature and Natural Resources, IUCN, many sharks are currently listed as endangered.</i>
Sharks are mean animals and eat absolutely anything and everything they come across.	<i>FALSE, sharks and other animals in nature do only what is necessary to protect their food, their home, or their young and do not understand what it is to be deliberately "mean." Sharks have a very specific diet that is unique to each species. Some sharks prefer squid, and others prefer shellfish. There is the odd report from time to time of a license plate or some other strange item being found inside of a shark, but that is more of a mistake than a "way of life" for a shark. Sharks never intentionally hurt a human being.</i>
You are more likely to be hurt, though it is unlikely, by lightning, a boat, a dog, a toaster, a chair, a hippopotamus or a tornado than you are a shark.	<i>TRUE, according to the International Shark Attack File, injury to a human is more likely to occur from many things, including ordinary household items, than it is from a shark. There is no such thing as a shark "attack." If a shark accidentally bites a person because they mistake it for food like seals or sea lions, they immediately let go because people are NOT shark food or bait.</i>
Sharks cannot swim backwards.	<i>TRUE, shark fins are not very flexible so sharks are not capable of making the movement necessary for backward motion or even to make quick stops. Instead, they sort of glide to a stop.</i>
Sharks have smooth, silky skin.	<i>FALSE, instead of smooth scales to cover the body like most fish have, sharks are covered with skin made of tooth-like bumps rough to the touch called denticles.</i>
Sharks were swimming in the ocean even before dinosaurs walked the earth.	<i>TRUE, the oldest shark fossils go back about 420 million years while the oldest dinosaur fossils only date back about 240 million years!</i>
Sharks were swimming in the ocean even before dinosaurs walked the earth.	<i>TRUE, the oldest shark fossils go back about 420 million years while the oldest dinosaur fossils only date back about 240 million years!</i>
Ocean Annie's Super Scuba Challenge!	
What part of the sharks' bodies do we find as fossils?	<i>TEETH! Sharks bodies usually do not fossilize because they are made of cartilage. Have students look at a skeleton of a human body and skull. You never see a person's nose or ears because these are made of cartilage. Teeth are the only part of a shark that easily fossilize.</i>

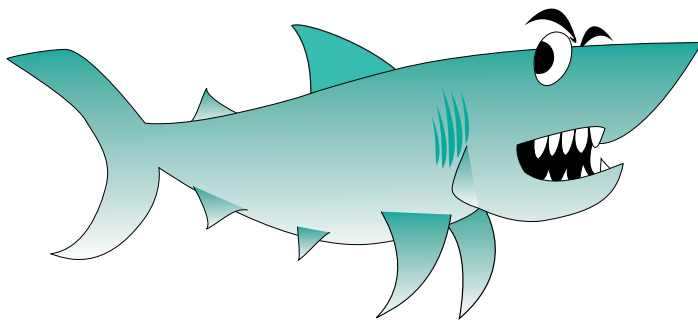
## CLASSROOM ACTIVITY STATION F5 (Continued)

# SHARK TRIVIA!

### Extension Ideas

- » Challenge students to find out additional shark facts on their own and share them with the class.
- » Ask students to quiz their family and friends about their shark knowledge. Have students share with their family many sharks are endangered and need protection.
- » Reinforce the fact all sharks need to be protected because they have been overfished and many are endangered.
- » Photocopy the shark templates and denticle template for students. Have students add denticles 10 at a time to their sharks until they reach 100. How many other ways can they count to 100?

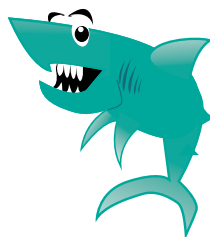
### Notes



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



## CLASSROOM ACTIVITY STATION F6 BOOK STALL



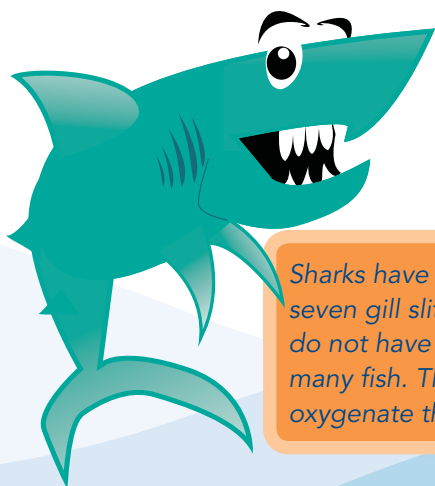
### Overview

Providing a reading and or computer area where students can look through books about the subject being discussed will help to build early literacy. Even if the children are not reading yet, looking at pictures and building dialogue around the pictures is helpful to developing *vocabulary and language skills*.

**Materials:** The book *“The Shark Who Learned a Lesson”* by Gill McBarnet

### Lesson Procedure: Character Education COURAGE

1. As a class, read the book *“The Shark Who Learned a Lesson”* by Gill McBarnet. Discuss how the fish on the reef demonstrated courage by standing up to a bullying shark. Ask students to remember their first day of school and how it required COURAGE.
2. Ask students to share memories about stories of COURAGE from their own lives. Can they think of any other stories of COURAGE? What does it mean to be courageous? How do they use COURAGE?
3. Define COURAGE. Have students create a personal mantra, *“I am courageous!”* Have them say it to themselves and together as a class.



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

### Character Education: COURAGE

*“Face your fears with knowledge and live with love and understanding.”*

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

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

*Cowrie shell on soft coral, Papua New Guinea*



### Book Suggestions

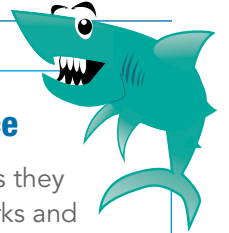
- » Clarke, Catriona. *Sharks*. Illus. Adam Relf. Saffron Hill, London: Usborne, 2007. Ages 4-8
- » Coldiron, Deborah. *Sharks: Underwater World Series*. Pinehurst North Carolina: Buddy Books, 2008. Ages 9-12
- » McBarnet, Gill. *The Shark Who Learned a Lesson*. Puunene, Hawaii: Ruwanga Trading, 1990. Grades K-2.
- » Rustad, Martha E.H. *Rays Ocean Life*. Mankato, Minnesota: Capstone Press, 2006. Ages 4-8
- » Simon, Seymour. *Sharks*. New York: Collins, 2006. Grades 2-3.
- » Wilson, Lynne. *Sharks!* Illus. Courtney. New York, New York: Grosset and Dunlap, 1992. Ages 4-8.
- » Zoehfeld, Kathleen Weidner. *Great White Shark*. Soundprints Corp Audio; Paperback book and Cassette tape edition, 2005. Ages 4-8

### Closure and Follow Up

- ❖ Once students experienced have had a chance to experience the learning stations, gather them back together and ask students what new facts they learned from participating in the activities, and reflect with the class on how much knowledge has been gathered about sharks. Take time to review and correct any incorrect statements from earlier in the lesson.
- ❖ Share and discuss how sharks are endangered. There are places in the ocean experiencing habitat destruction which affects sharks and other animals. Also, fishermen are catching too many sharks and sharks are starting to disappear from certain parts of the ocean. Fishermen catch sharks for people to eat. Ask students what they think can be done to change the behavior of people emphasizing the need to protect sharks.
- ❖ To reinforce learning, review facts from the "Shark Trivia" game, or the treasure chest of words.
- ❖ Discuss with students character education pertaining to COURAGE. How have students used courage today, this week or how will they use it in the future. Just having a student raise their hand and share takes COURAGE for some students!

### Plan for Independent Practice

- » Ask students to choose three facts they found most interesting about sharks and illustrate them into a cartoon comic strip or storybook.
- » Challenge the children during playtime to see if they can "move like a shark" based on what they saw in the video.
- » Students can each paint their favorite kind of shark and create a class wall mural of sharks.
- » Select stories from the suggested reading list to read as a class or for self-study.
- » Only a couple of states have banned the importation of shark products and fins. As a class write letters to local restaurants, your mayor, senators and representatives asking them to ban all shark trade in your state. Kid's letters and pictures make a difference and their campaigns can change corporate and political policy.
- » Review the word COURAGE with students and discuss how it relates to their character and their lives. Encourage them to use their imagination and think of all the ways they are courageous. Ask students about their fears and help them think of themselves full of COURAGE and able to face their fears with knowledge! Have them journal their thoughts or illustrate them in pictures.



## DVD TRANSCRIPT

**Don't Be Afraid Of Sharks**

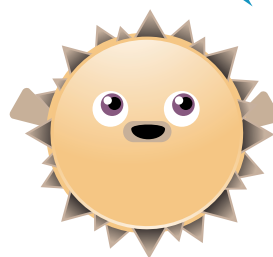
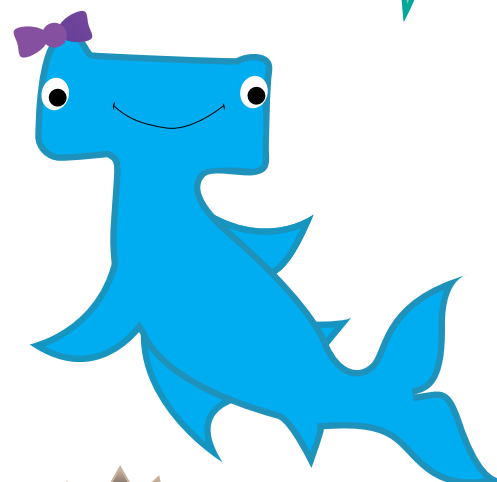
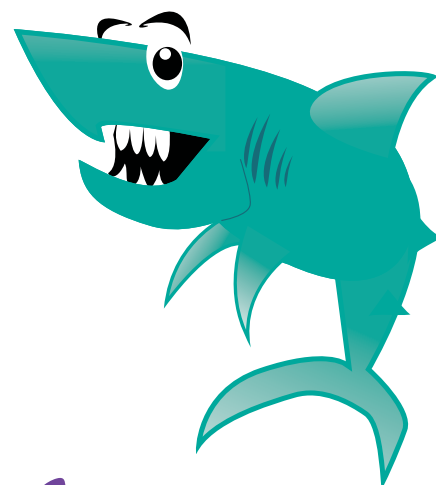
Do you know what makes a shark, a shark? Sharks have been swimming in our oceans since before Dinosaurs walked on earth.

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

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

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

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

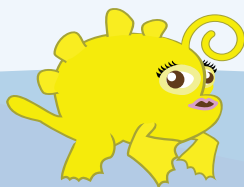
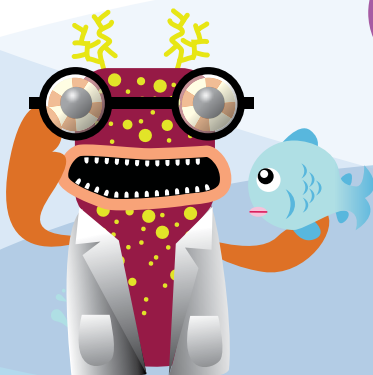
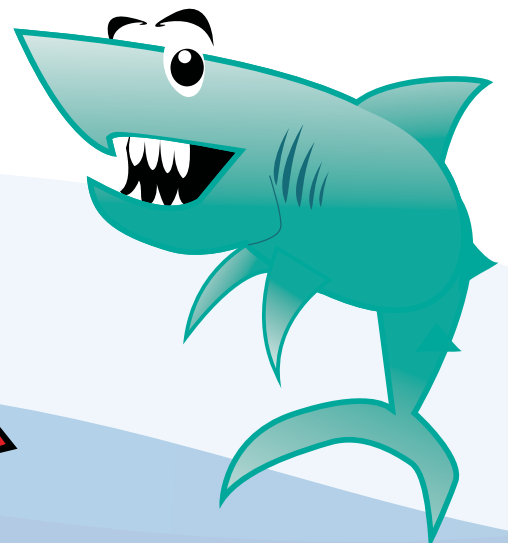
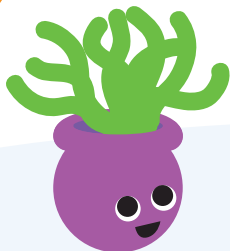
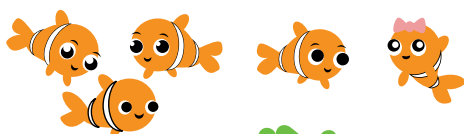
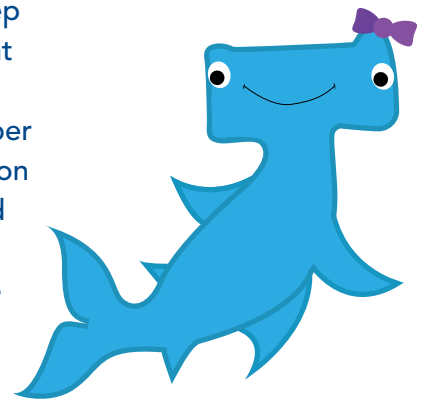


## Go Blue! Ocean Annie's Tips to Help Our Environment

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

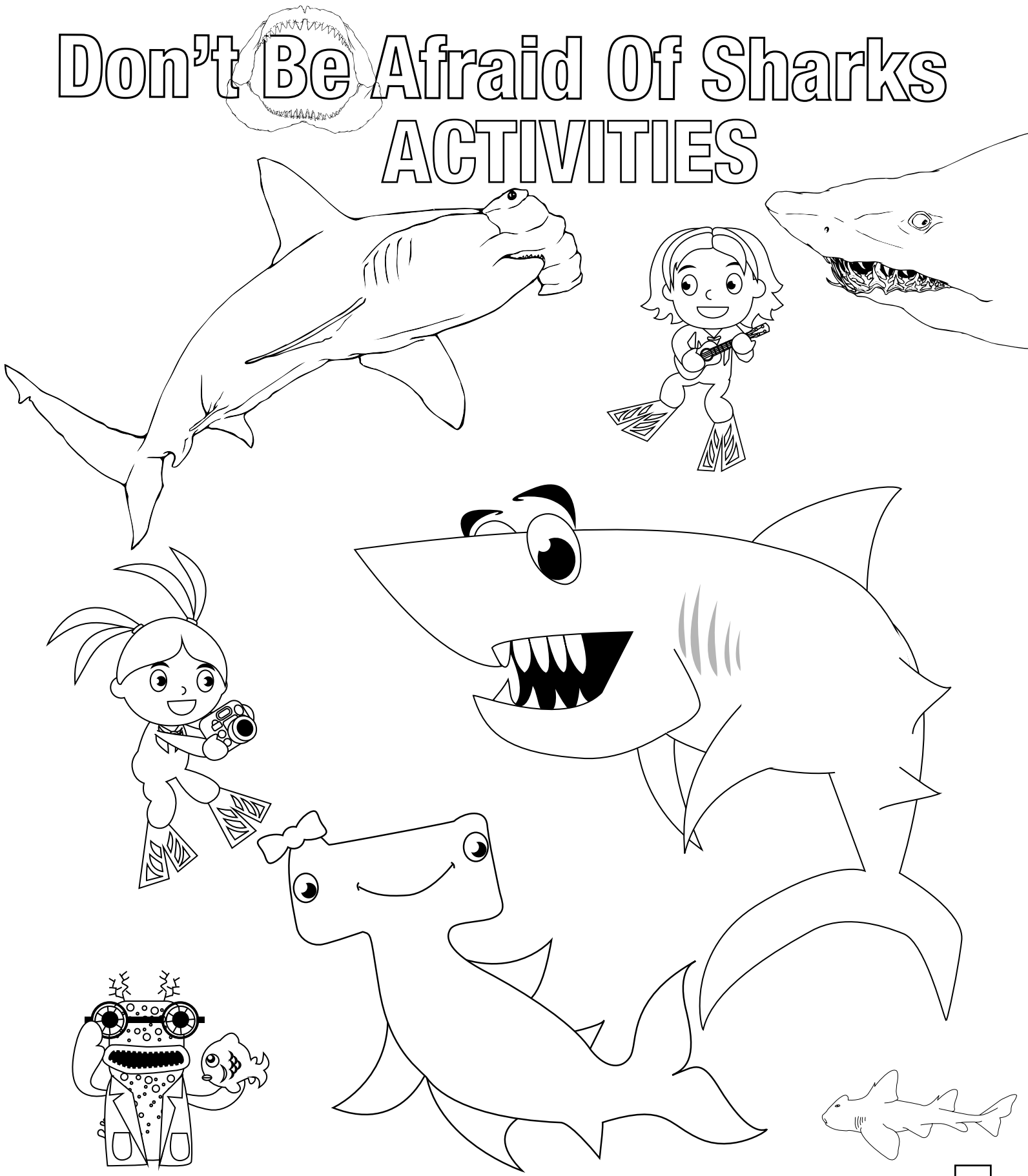
All voices big and small count! Knowing what is on your plate is an important step toward conservation. There are many organizations that provide wallet cards that help consumers choose what seafood is considered sustainable. In order to be sustainable, a population must be harvested in a way that ensures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

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



# Don't Be Afraid Of Sharks

## ACTIVITIES



Name \_\_\_\_\_ Date \_\_\_\_\_





**Chest**

**Treasure**

**of Words**

**cartilage**

**courage**

**denticle**

**gills**

**plankton**

**elasmobranch**

**elasmobranchologist**

**population**

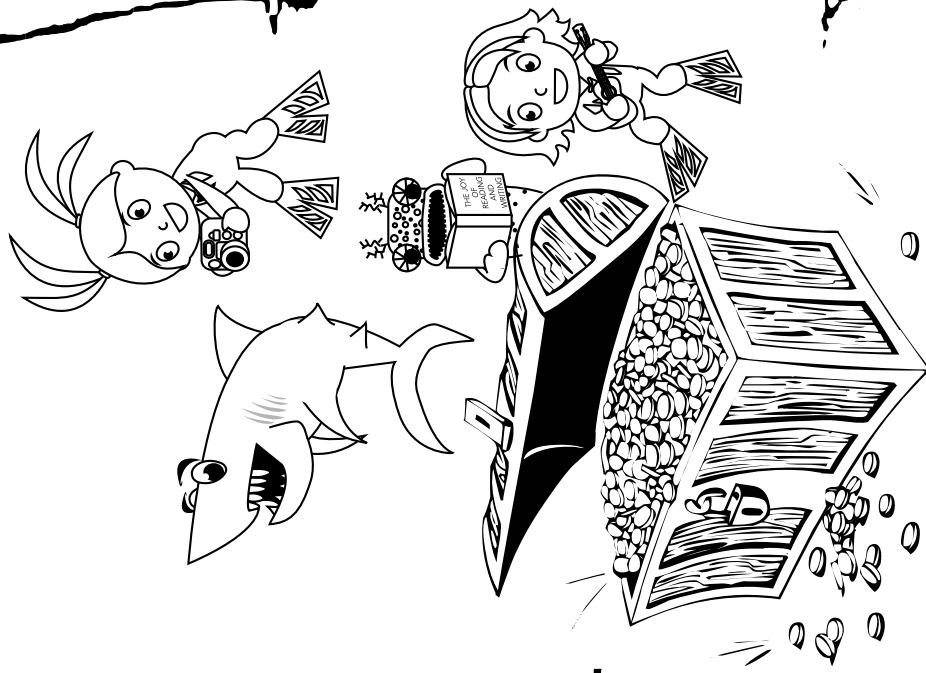
**scales**

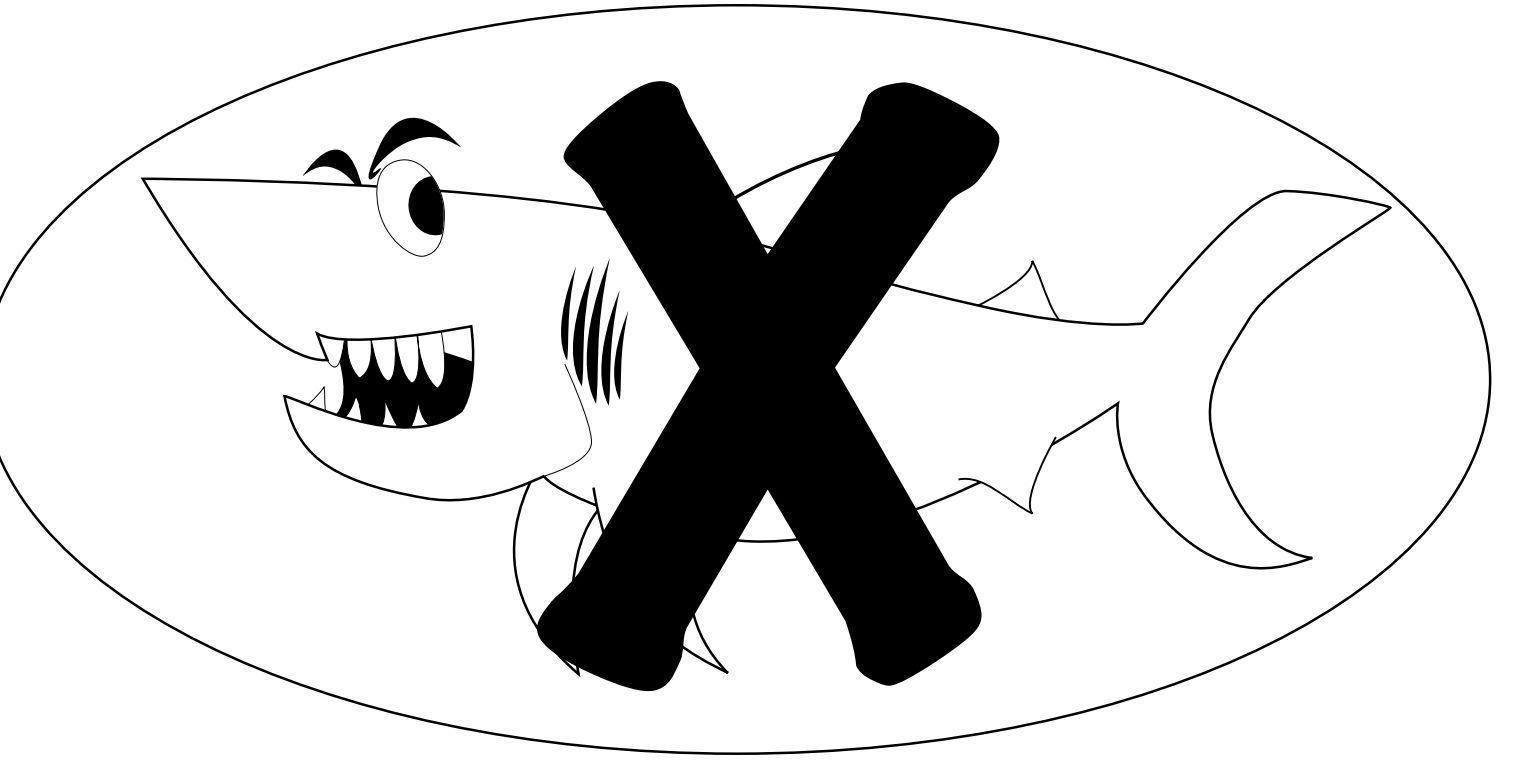
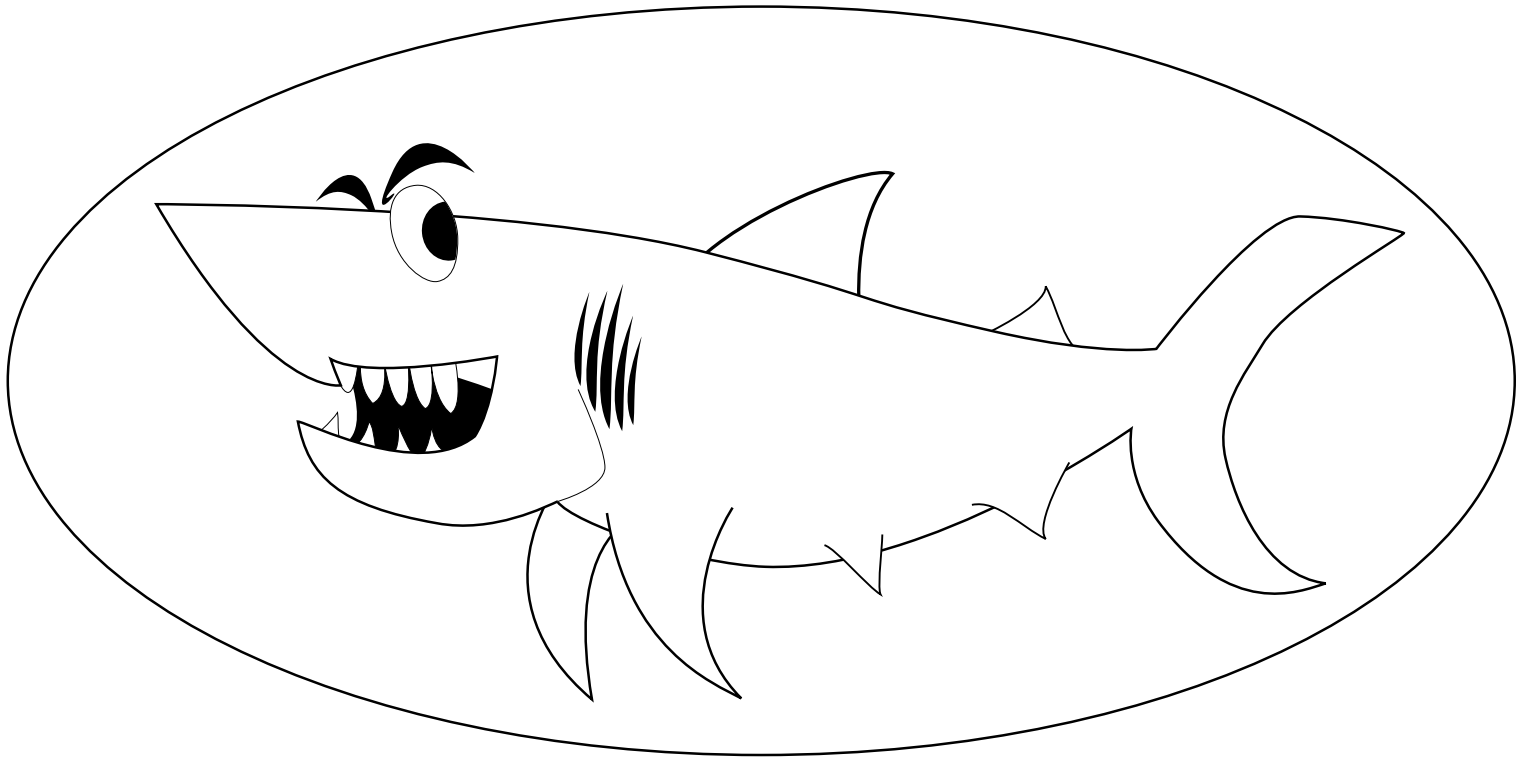
**scientist**

**species**

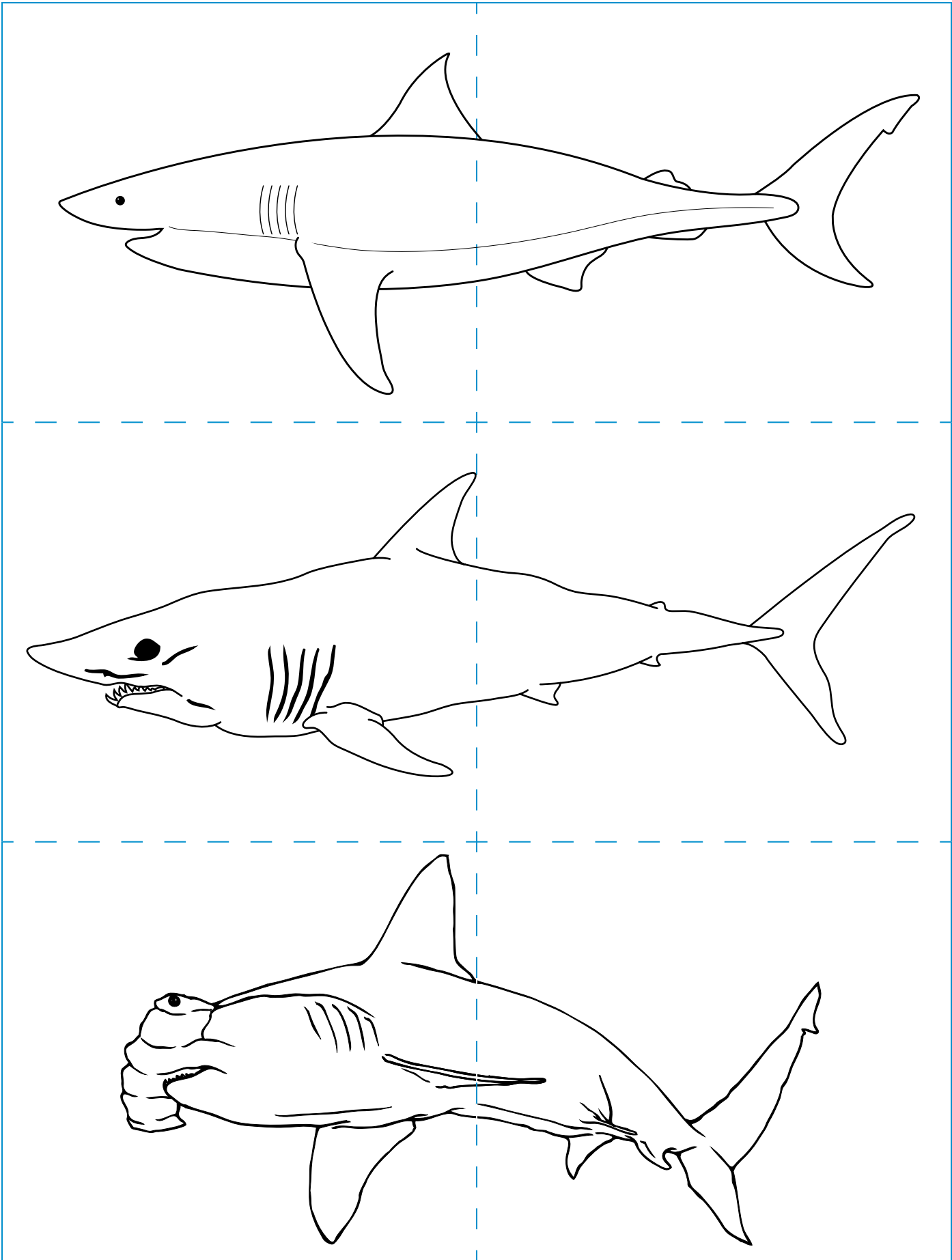
**sustainable**

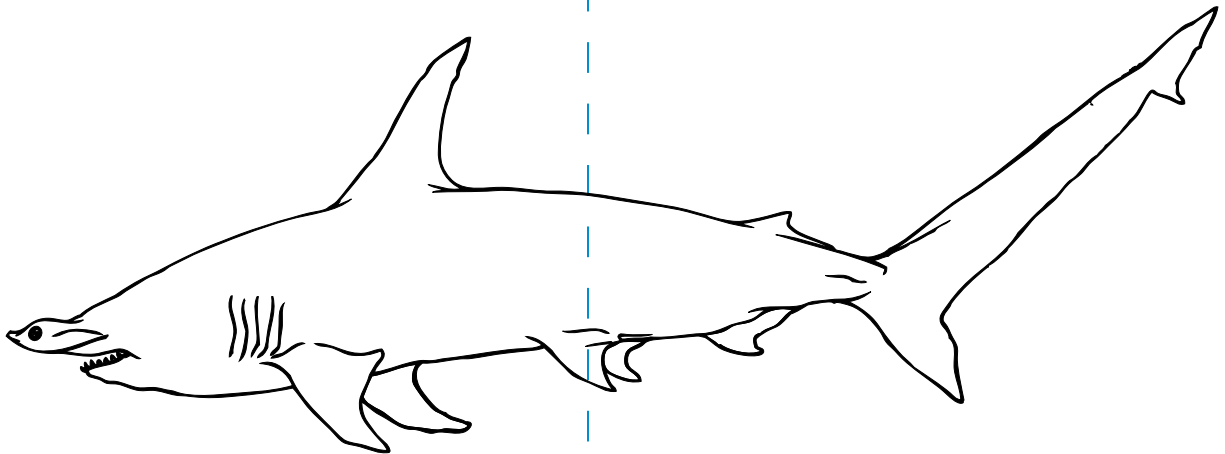
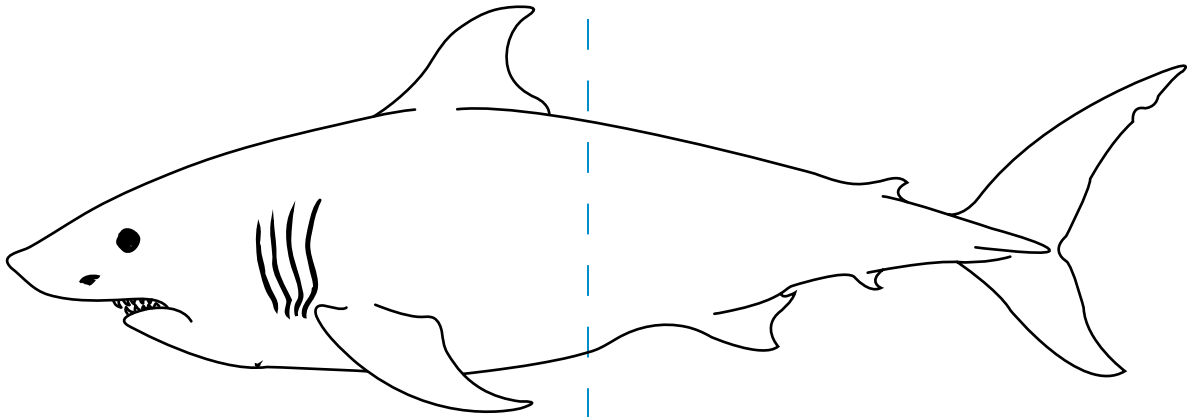
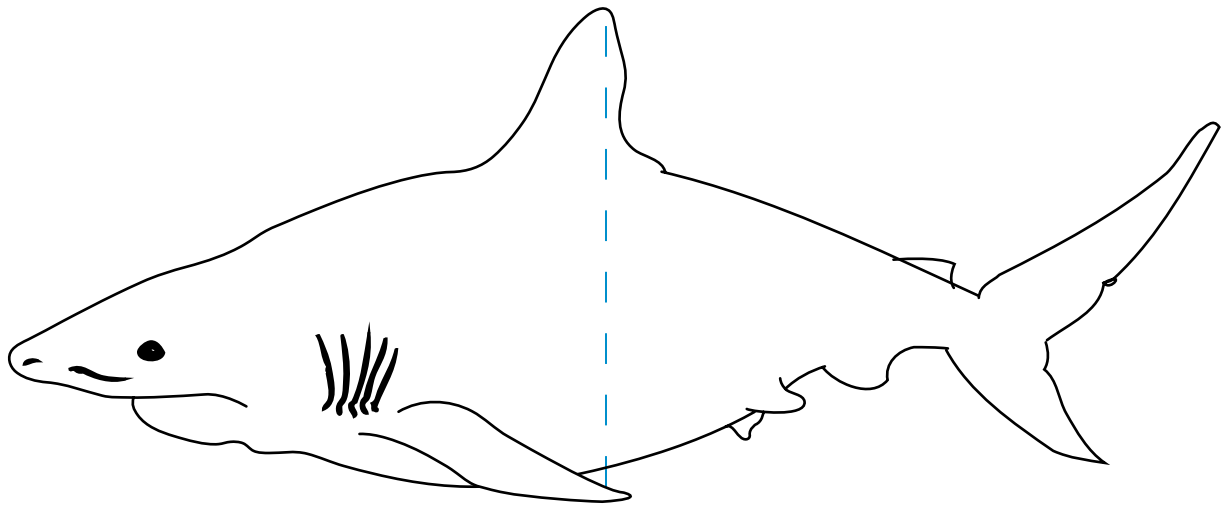
**swim bladder**

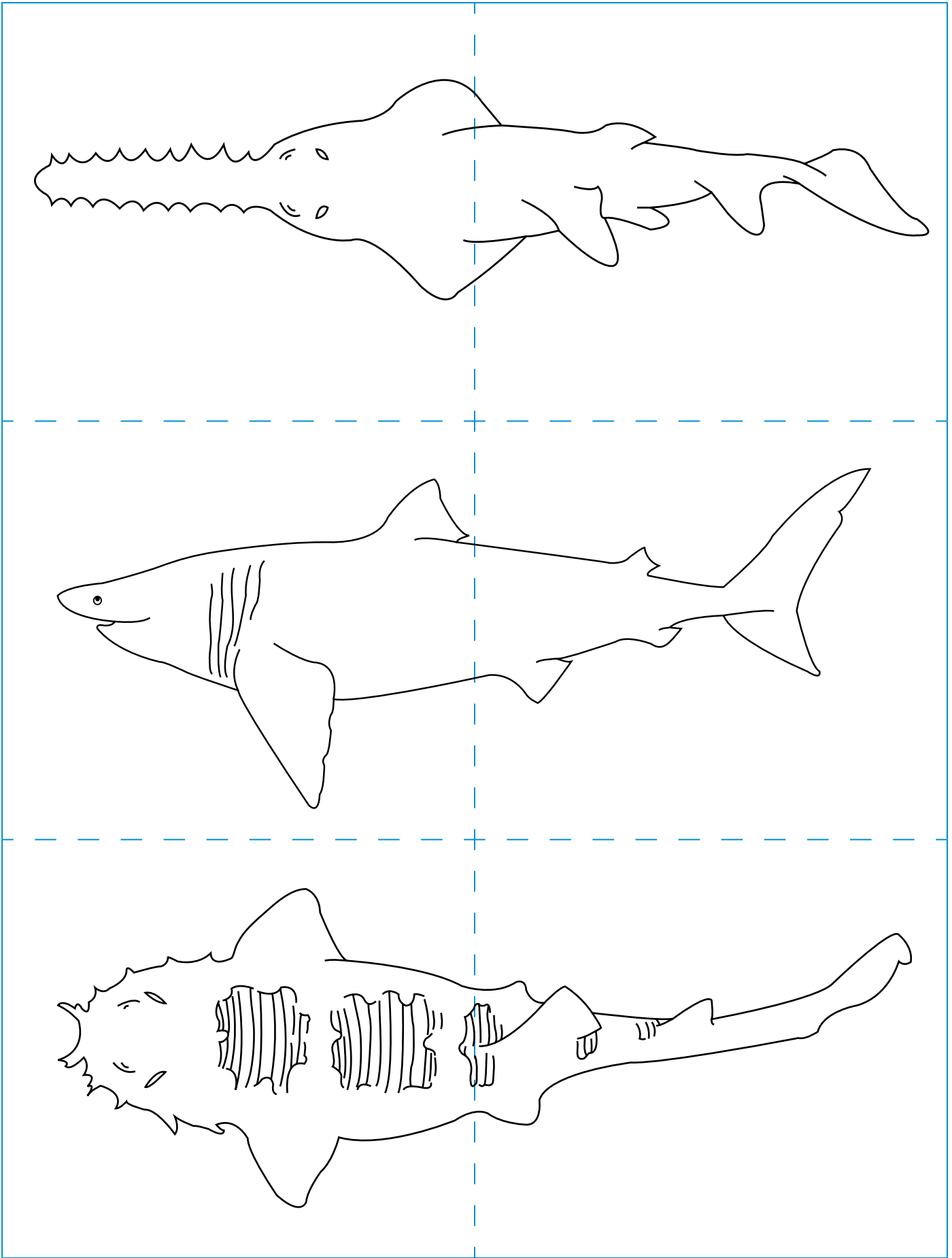


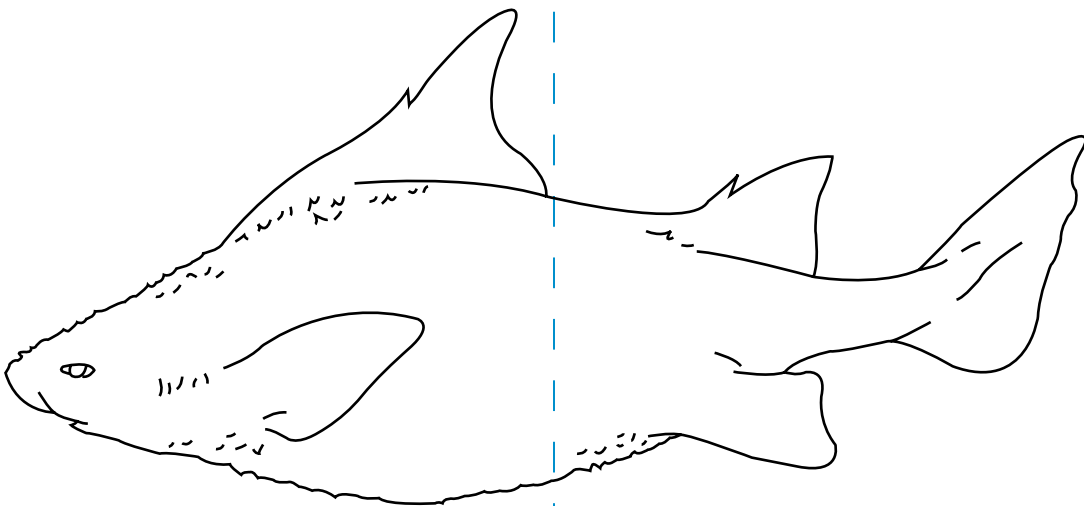
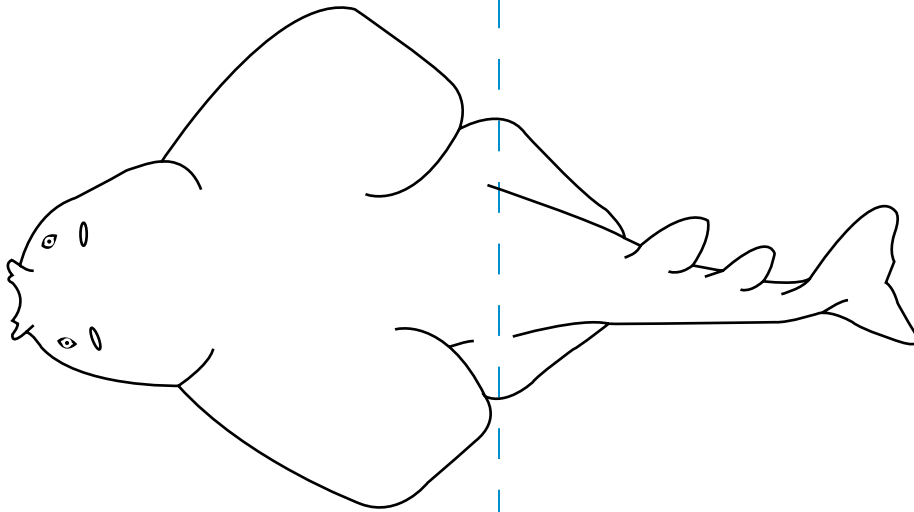
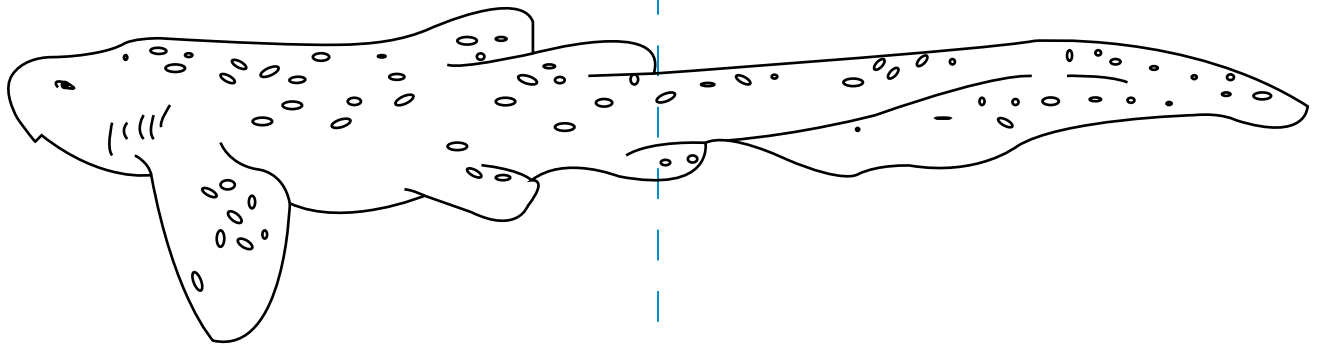


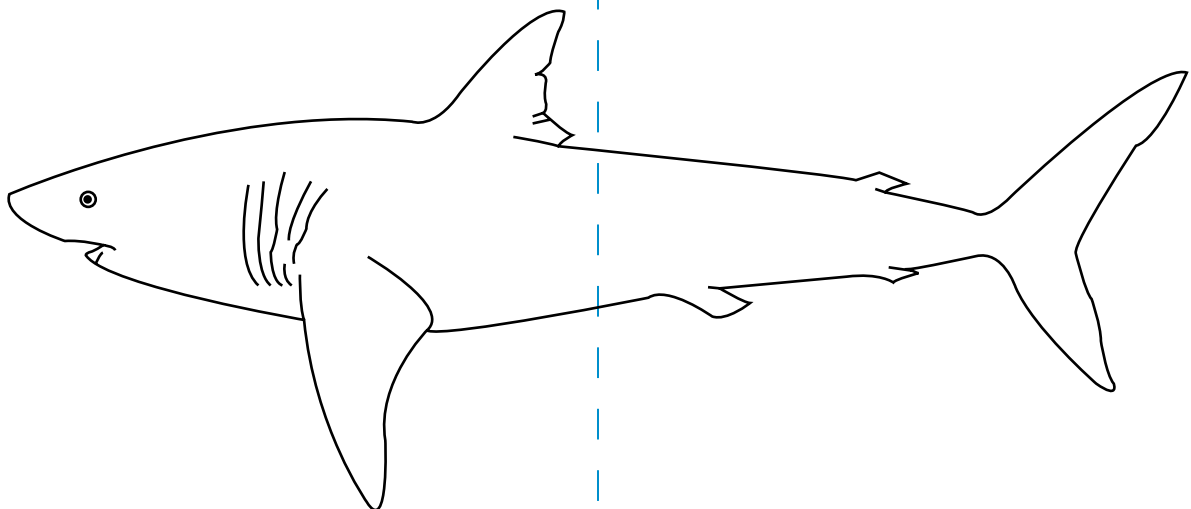
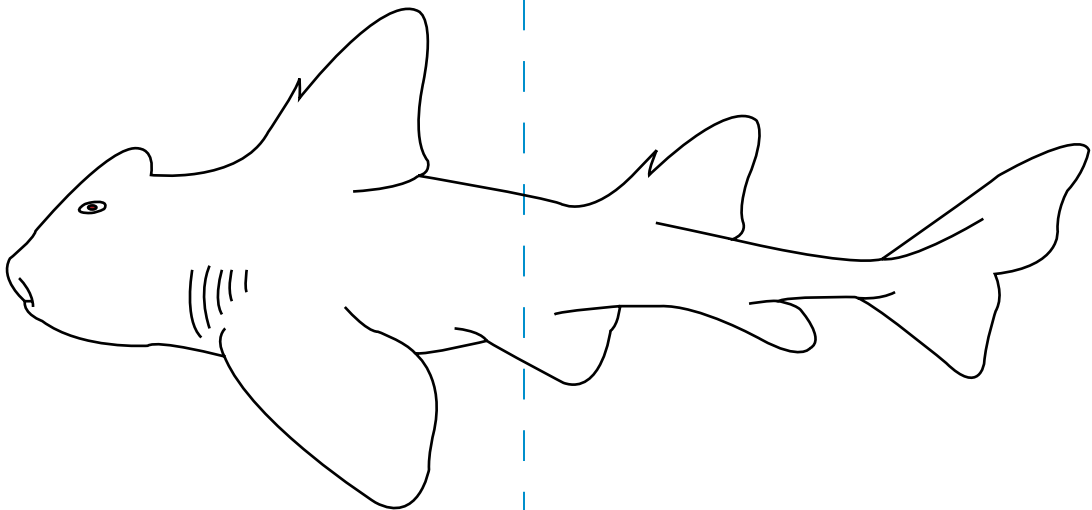
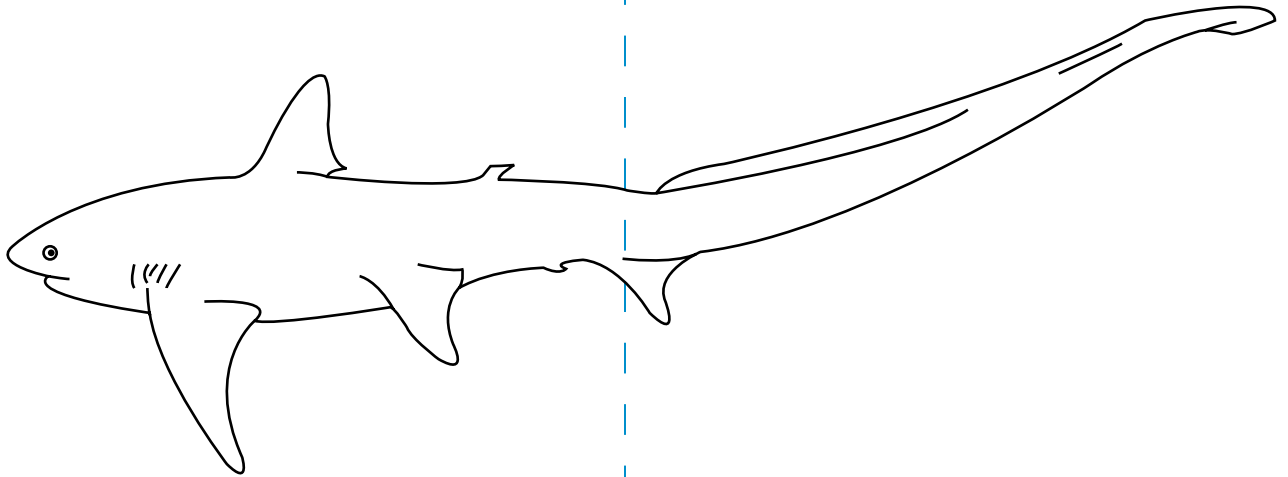




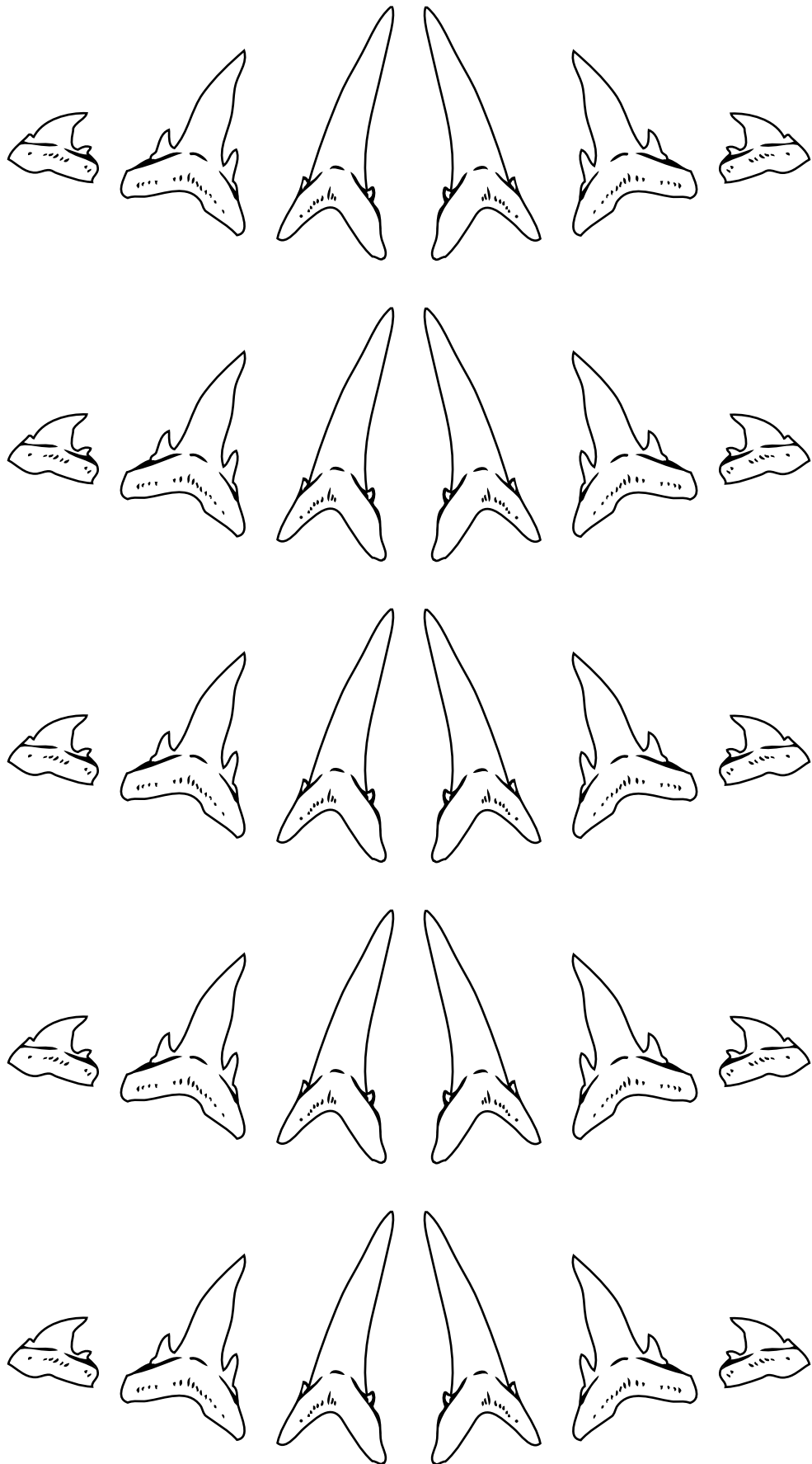


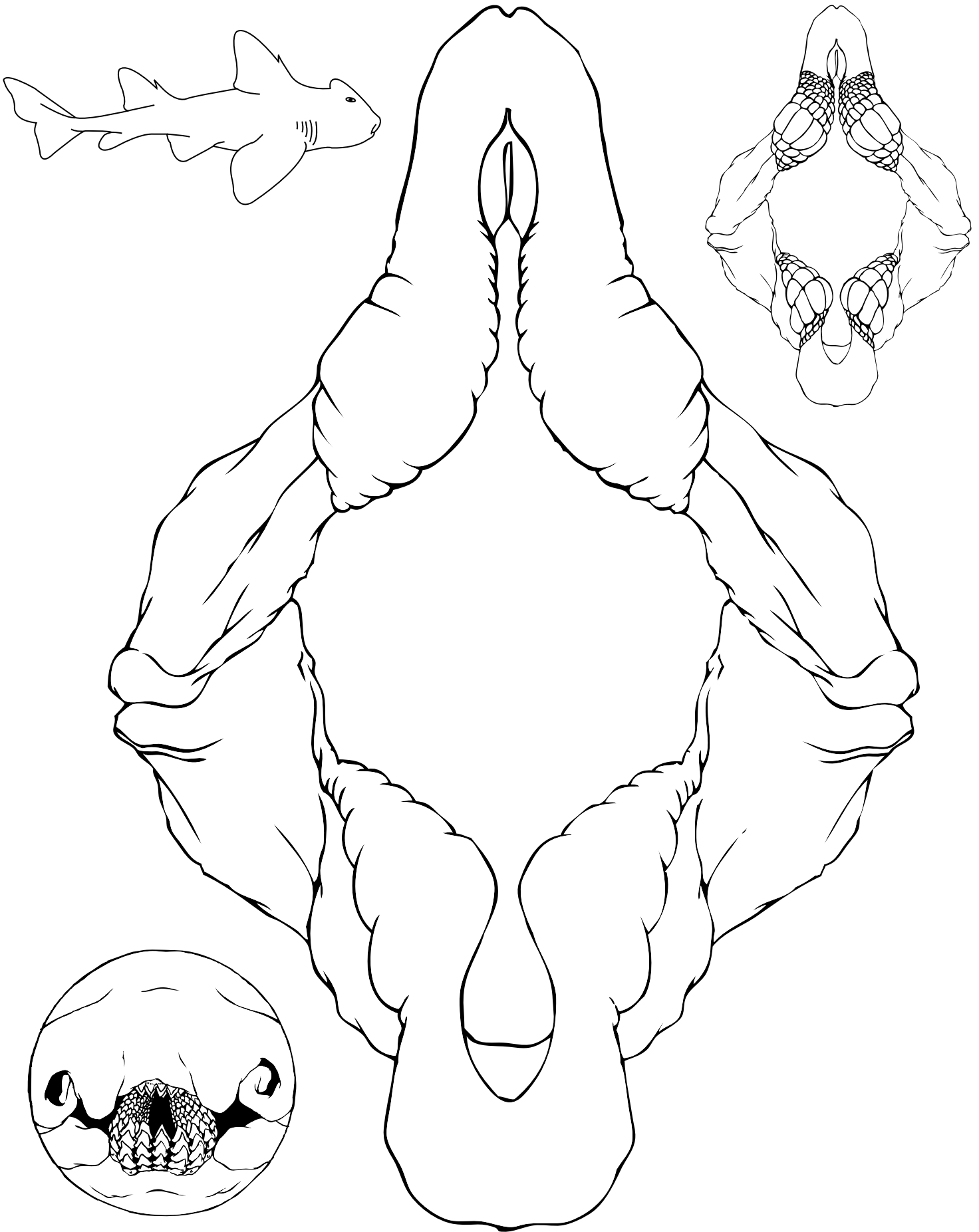




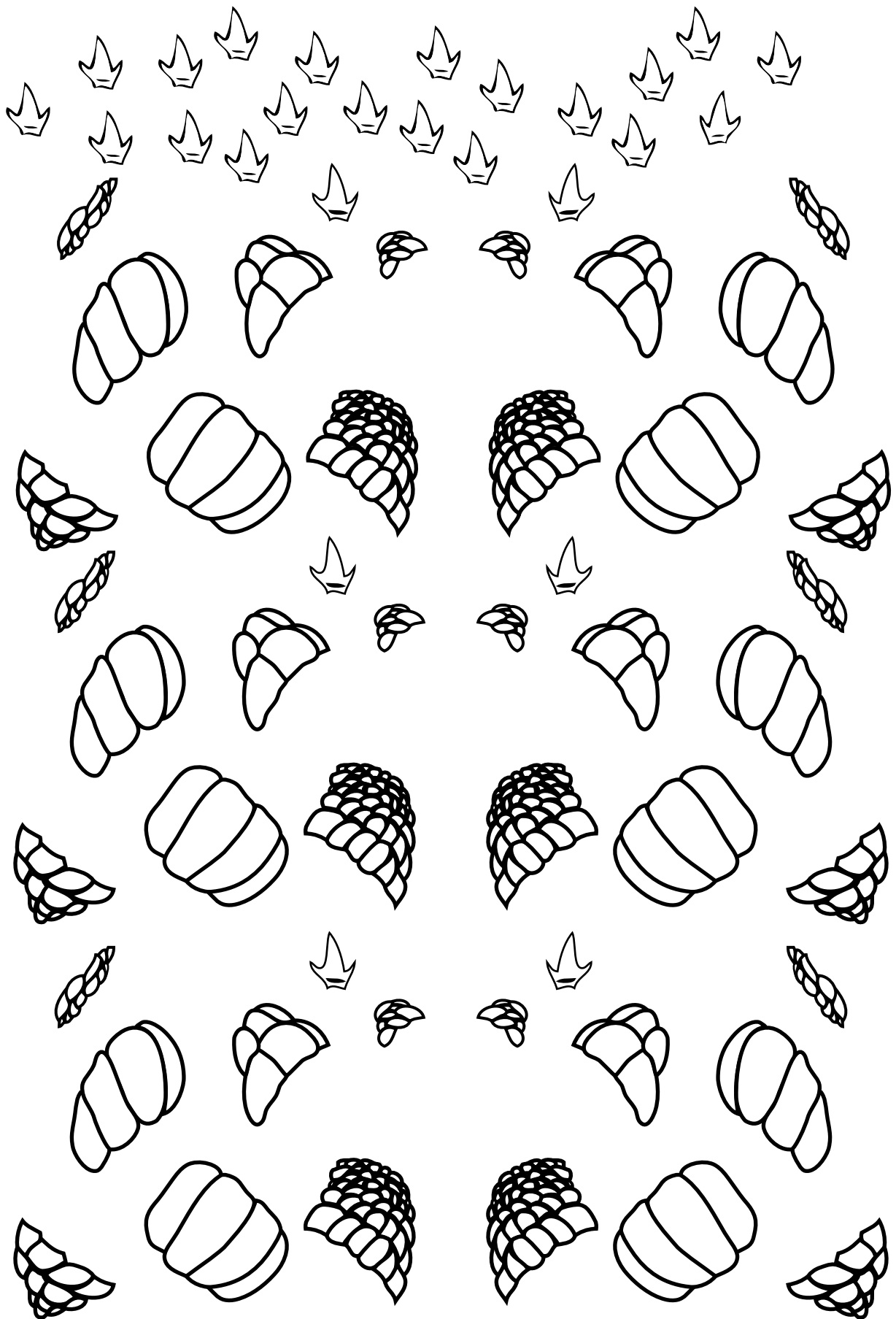


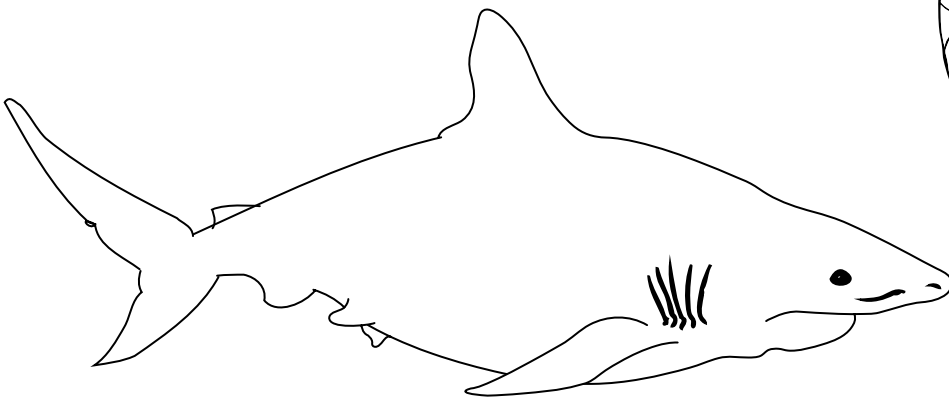
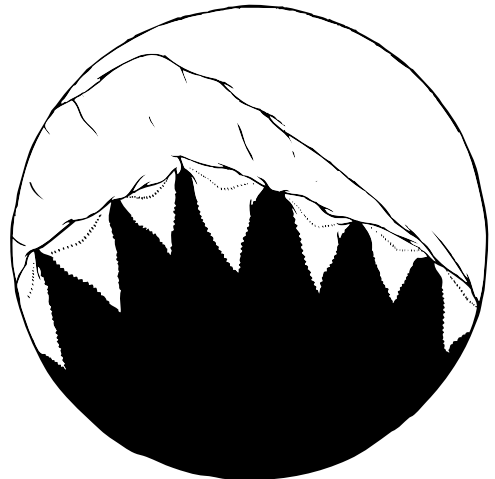
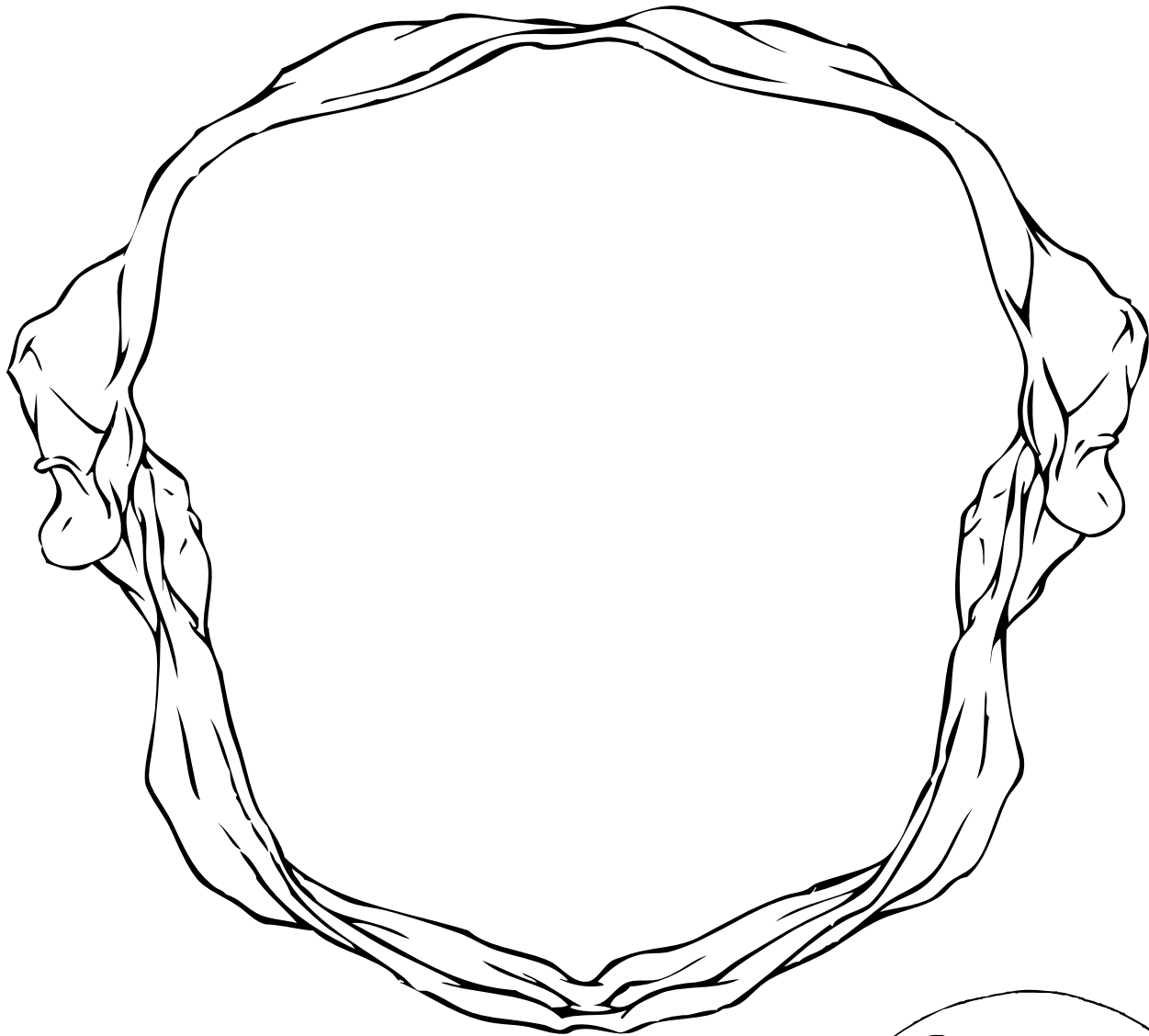


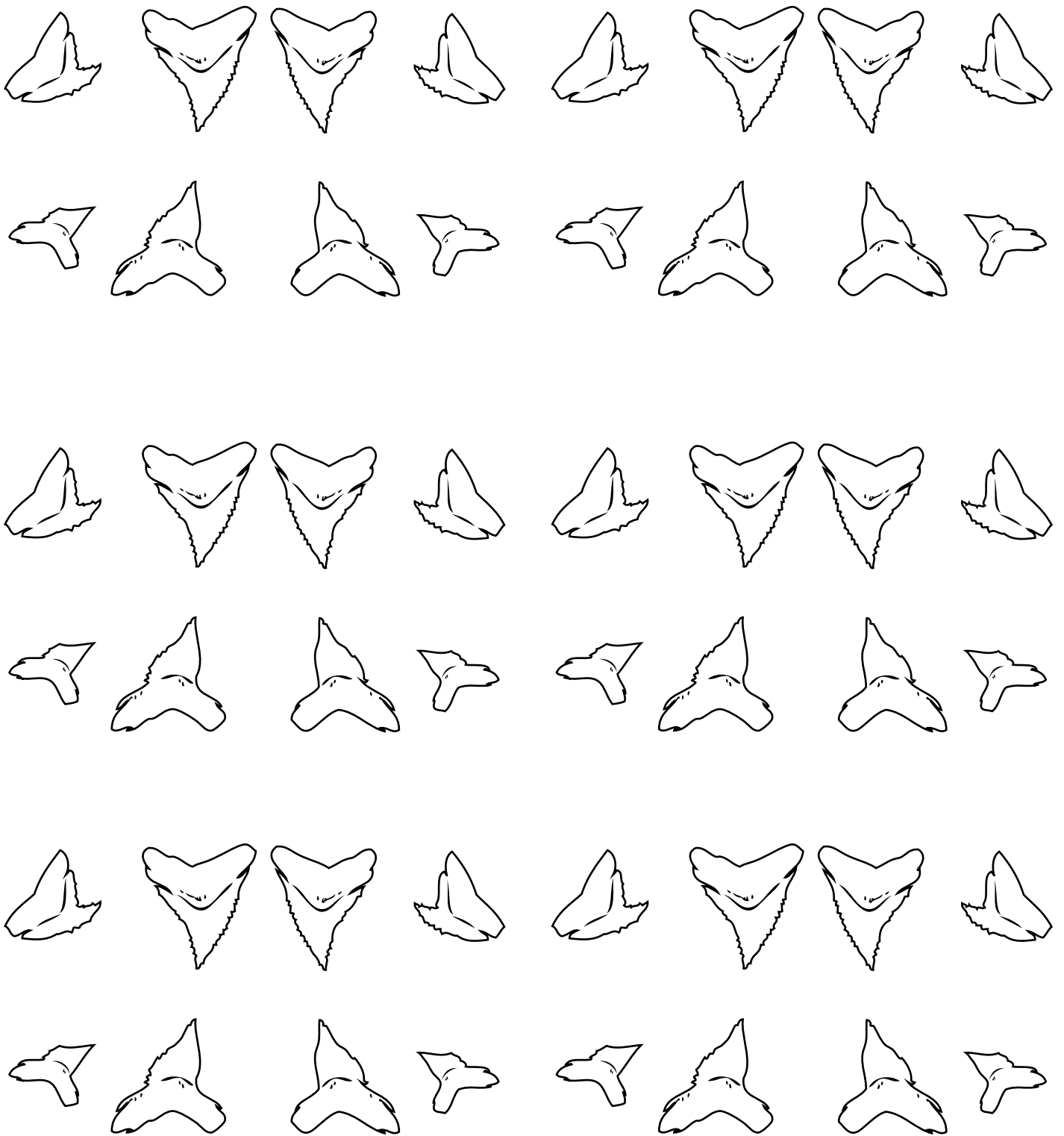


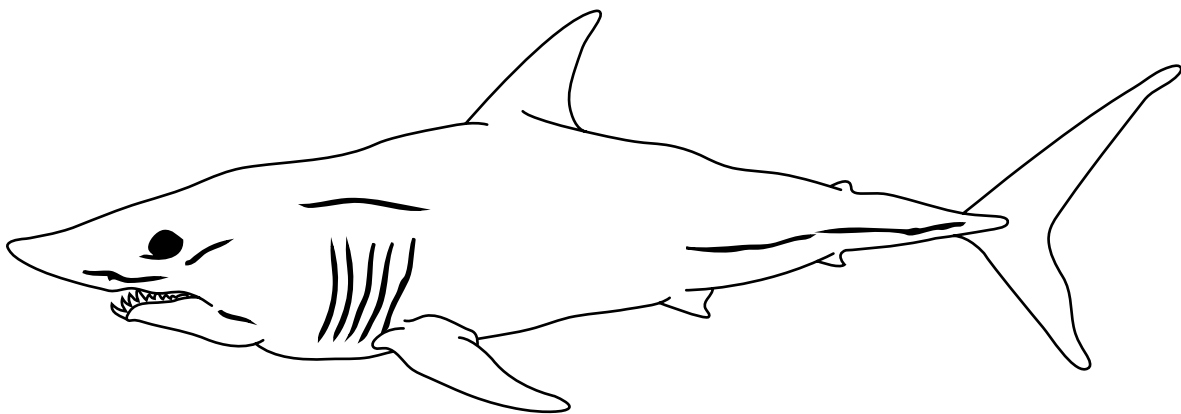
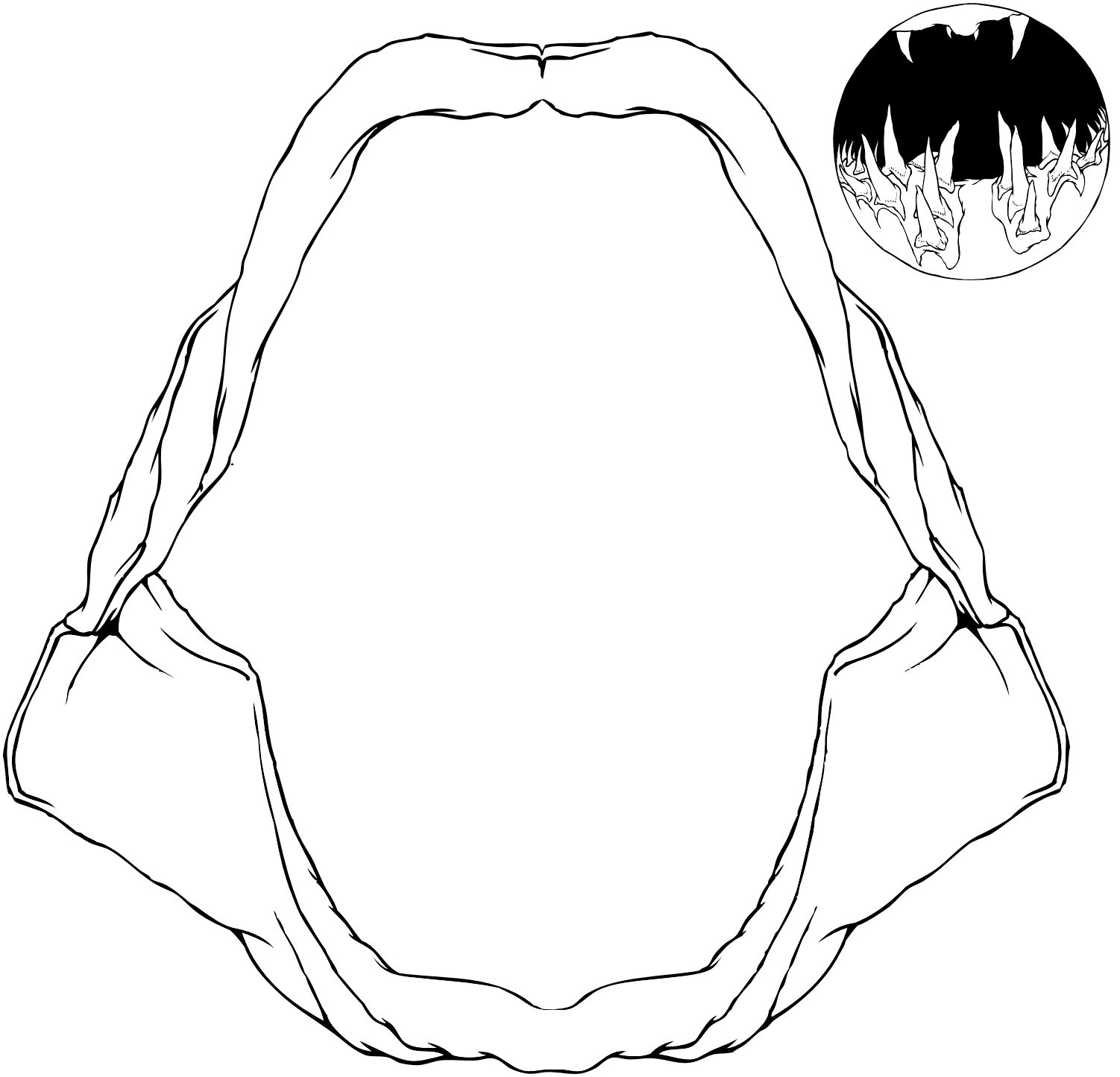


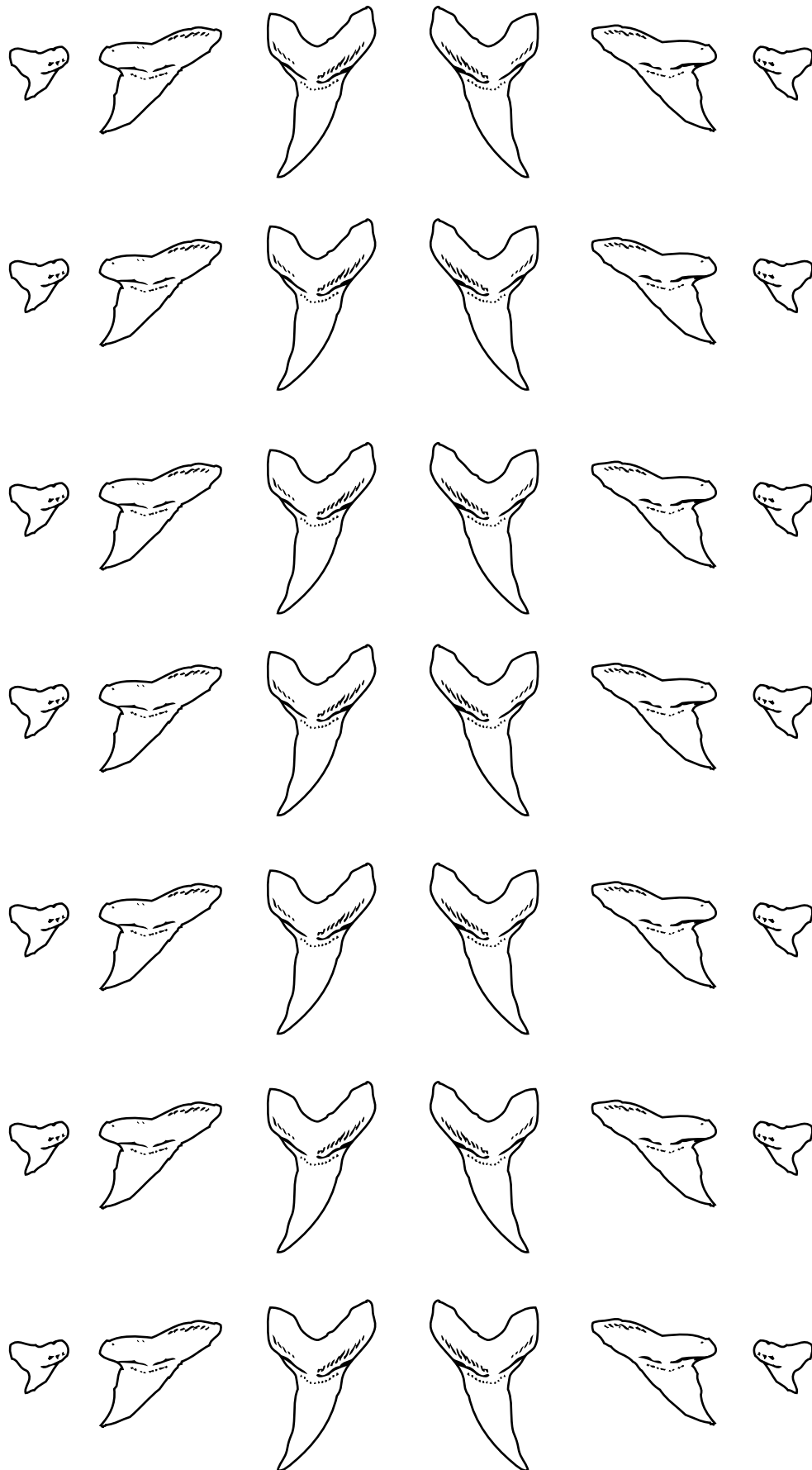


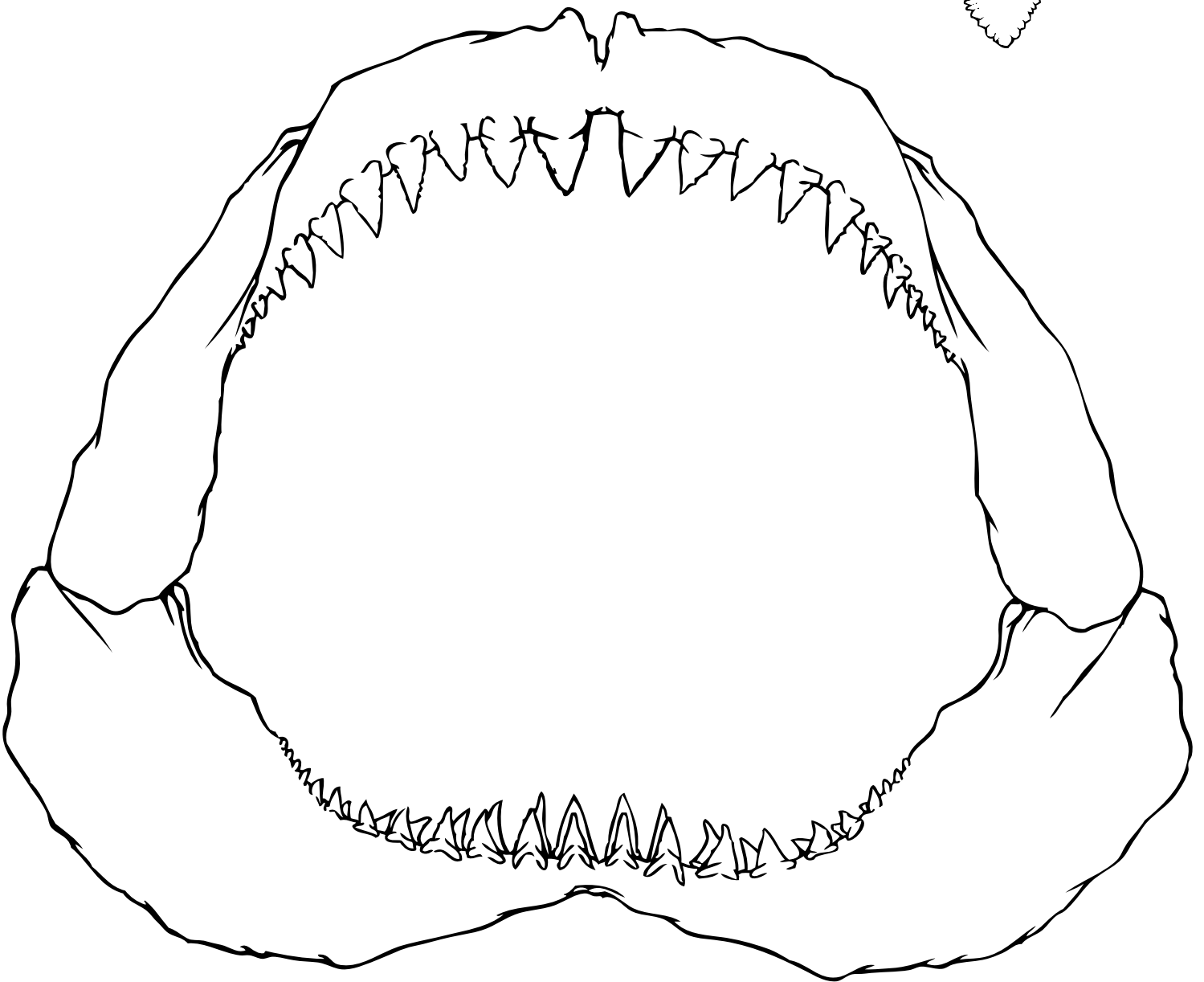
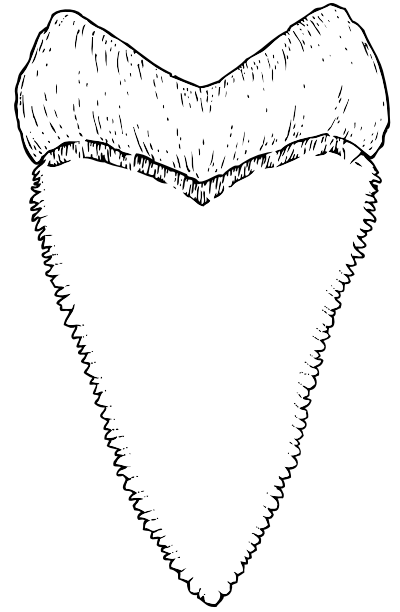
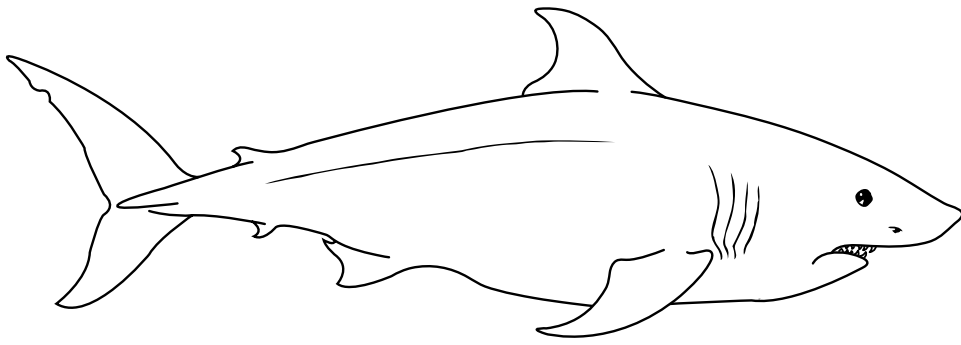


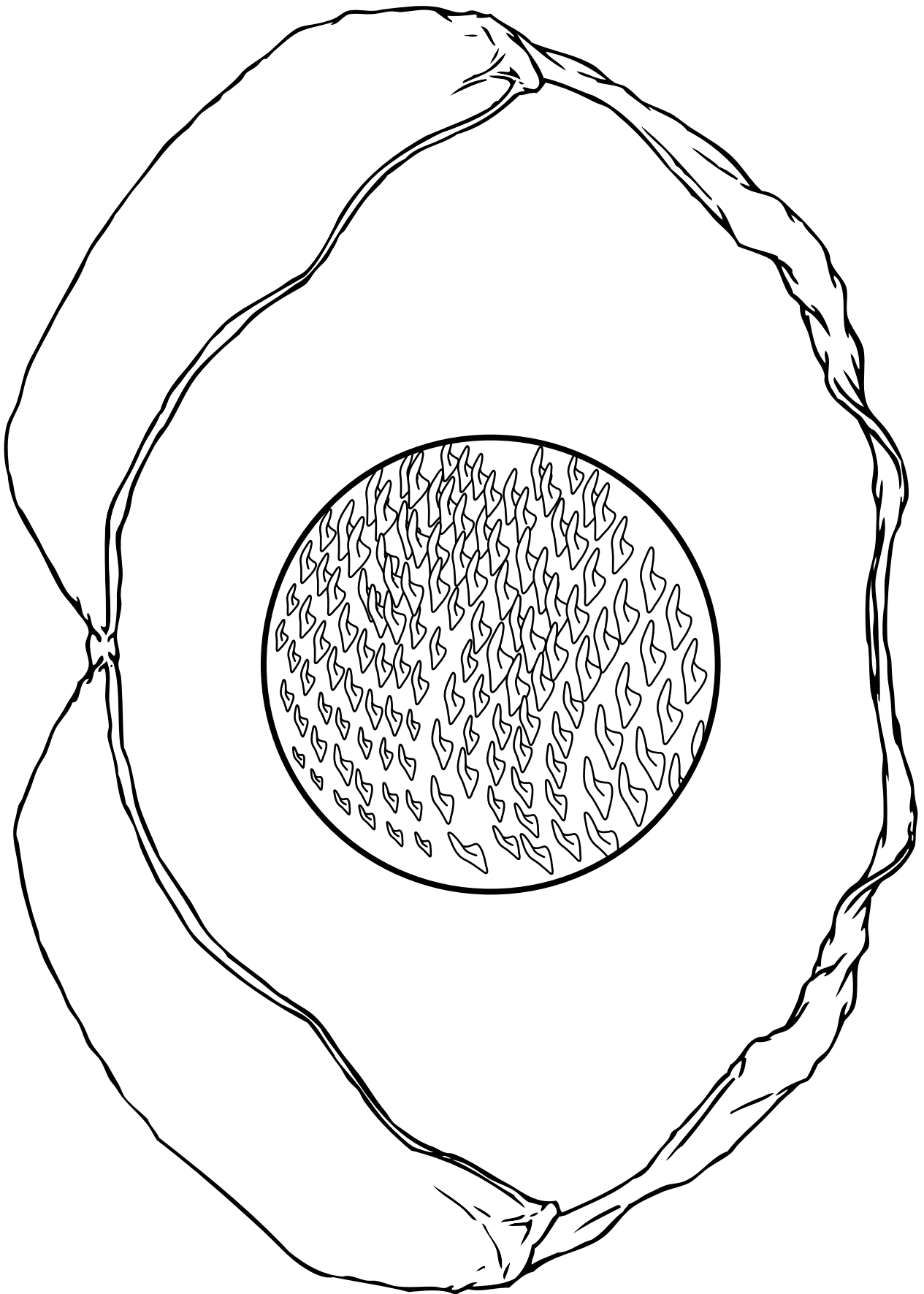


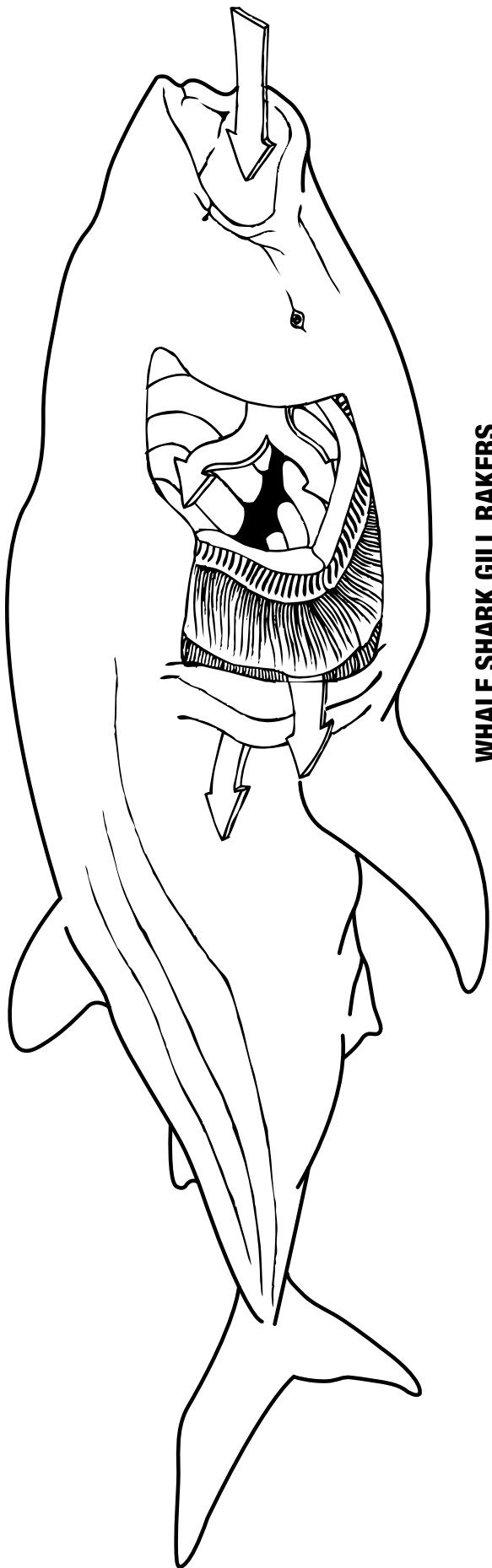




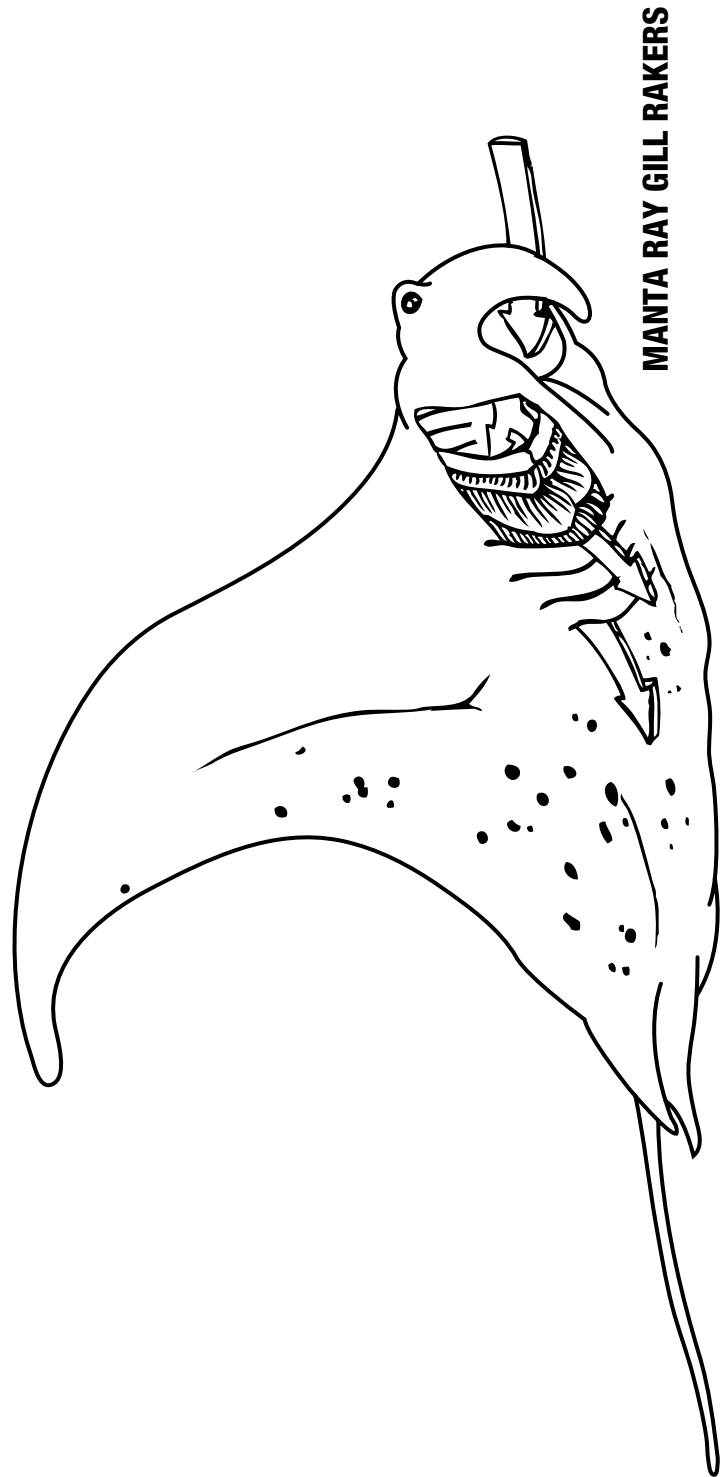






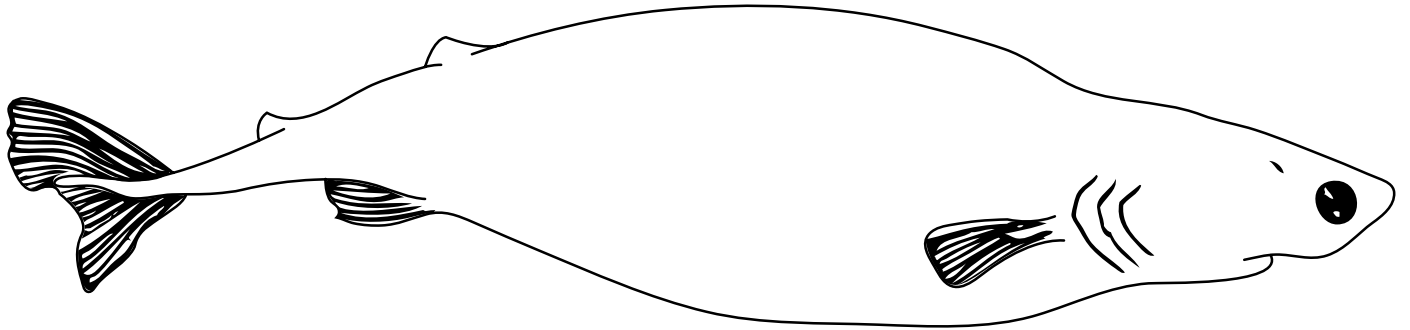


**WHALE SHARK GILL RAKERS**

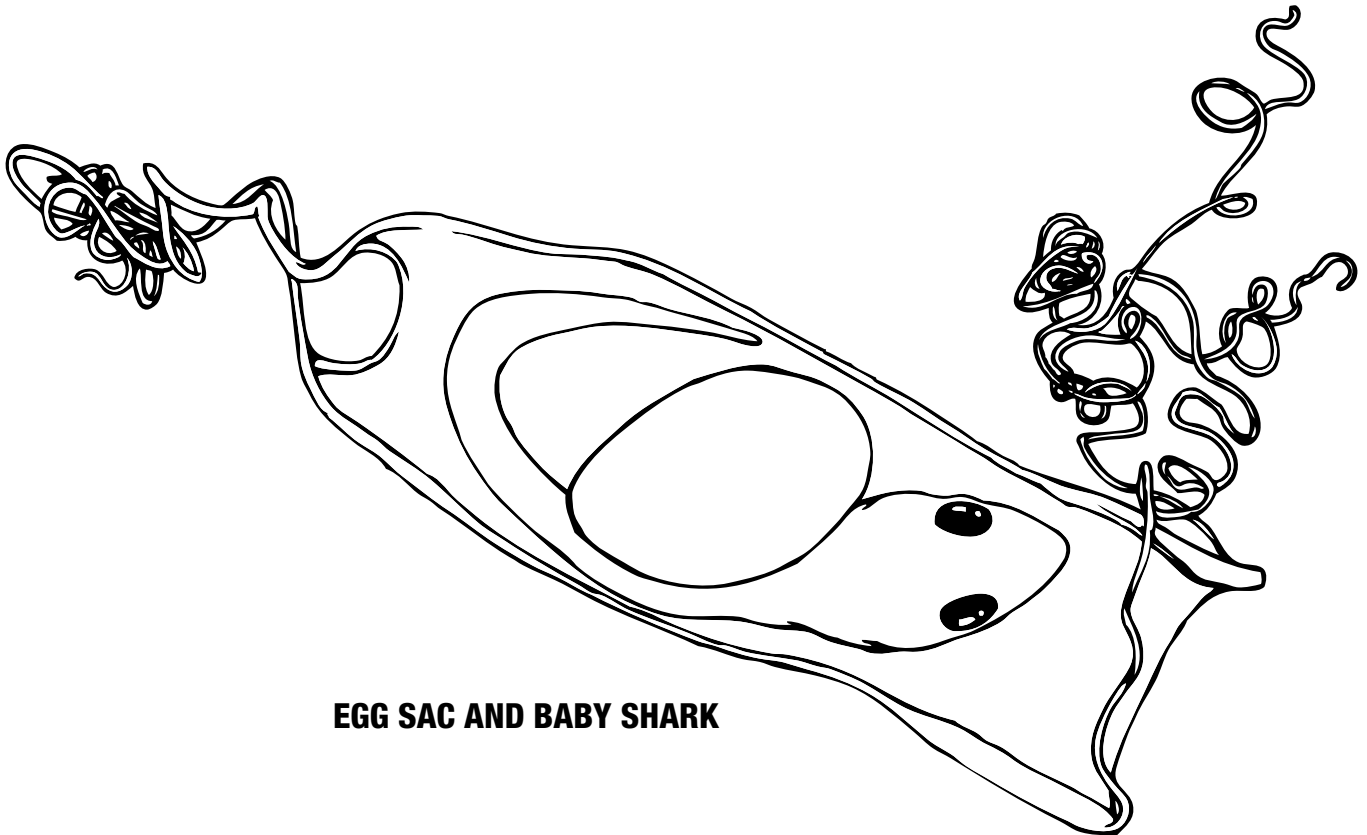


**MANTA RAY GILL RAKERS**

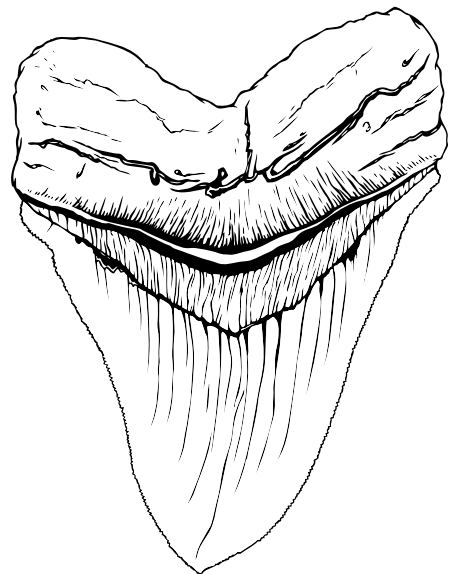
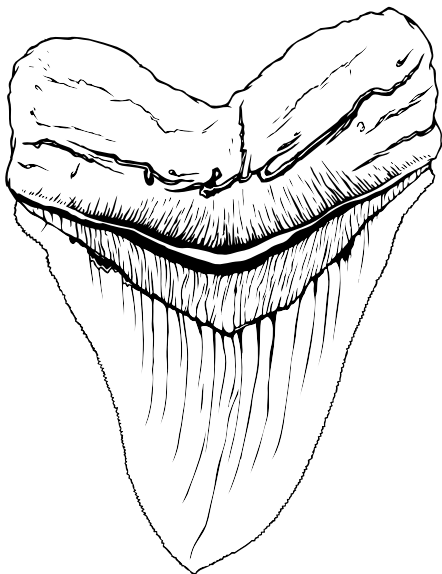
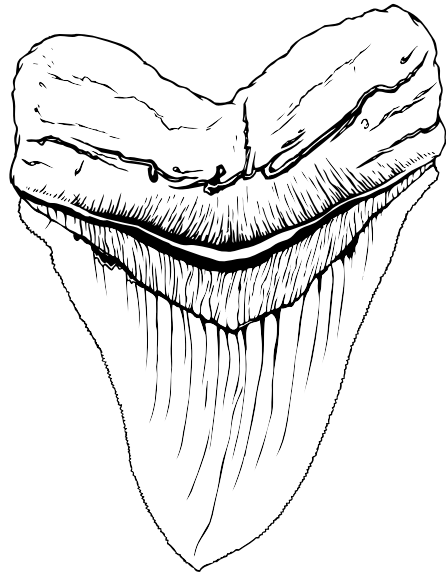
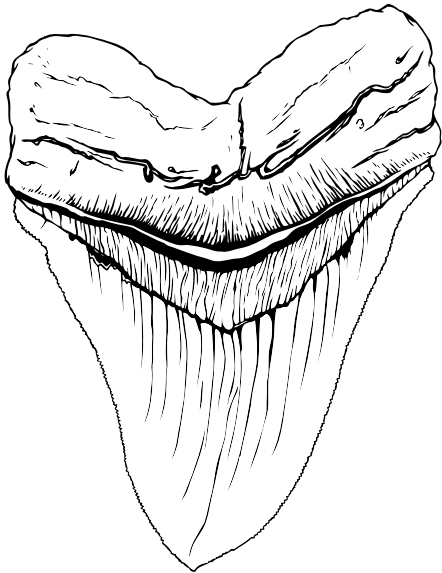
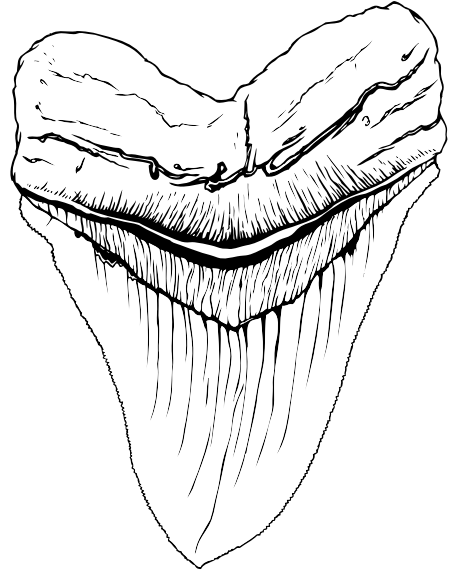
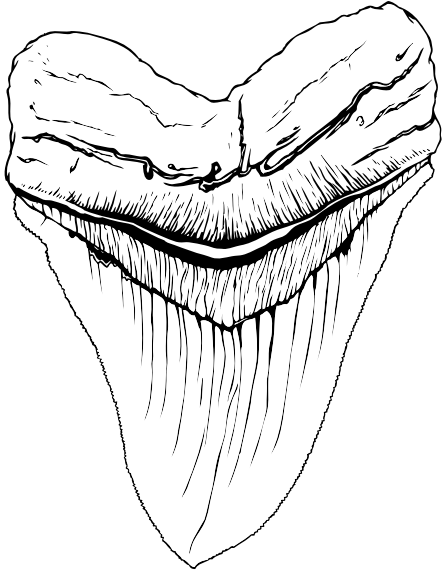




**COOKIE CUTTER SHARK**



**EGG SAC AND BABY SHARK**

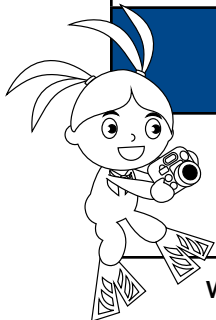


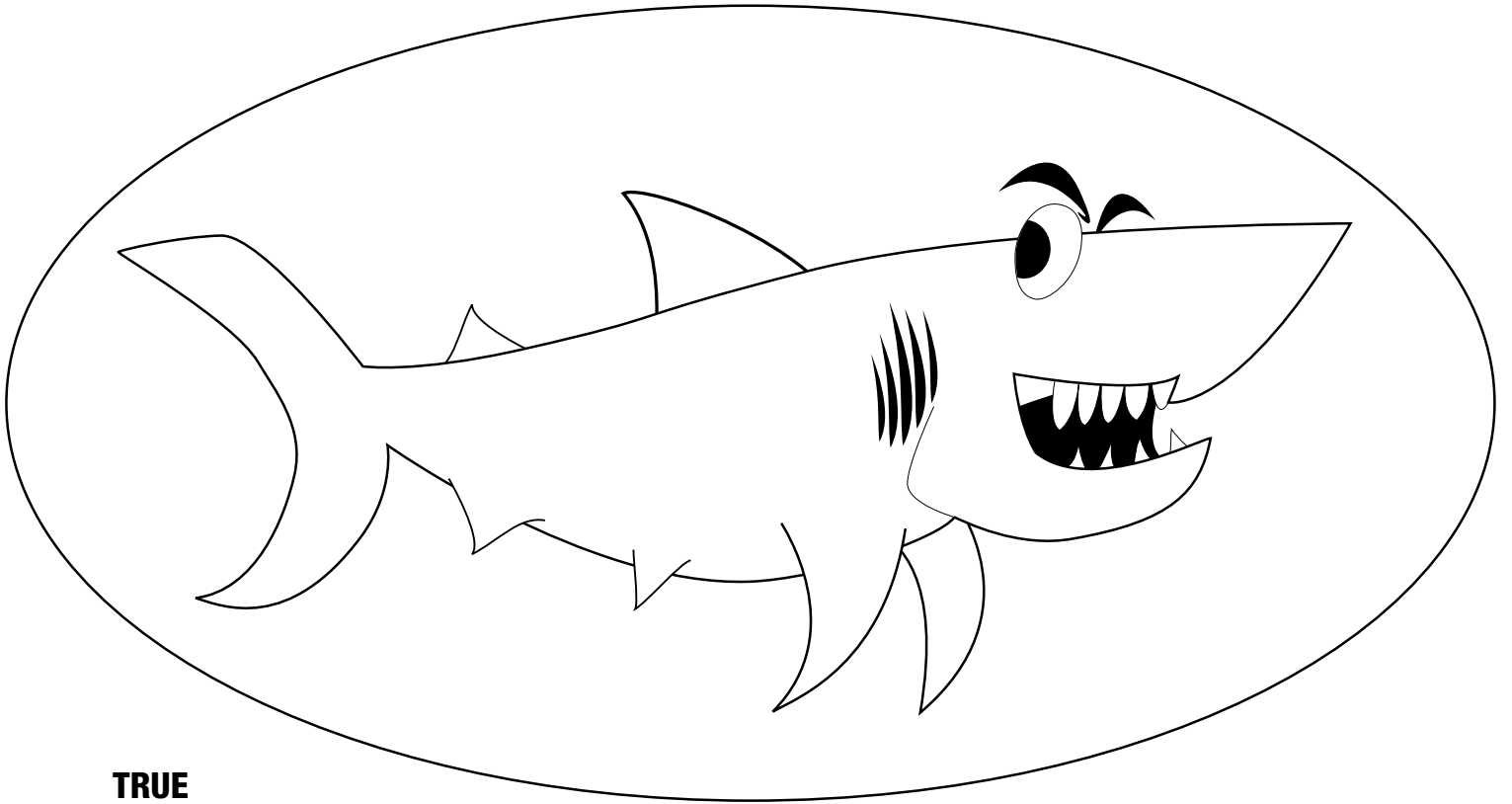
# Shark Trivia!

Name \_\_\_\_\_ Date \_\_\_\_\_

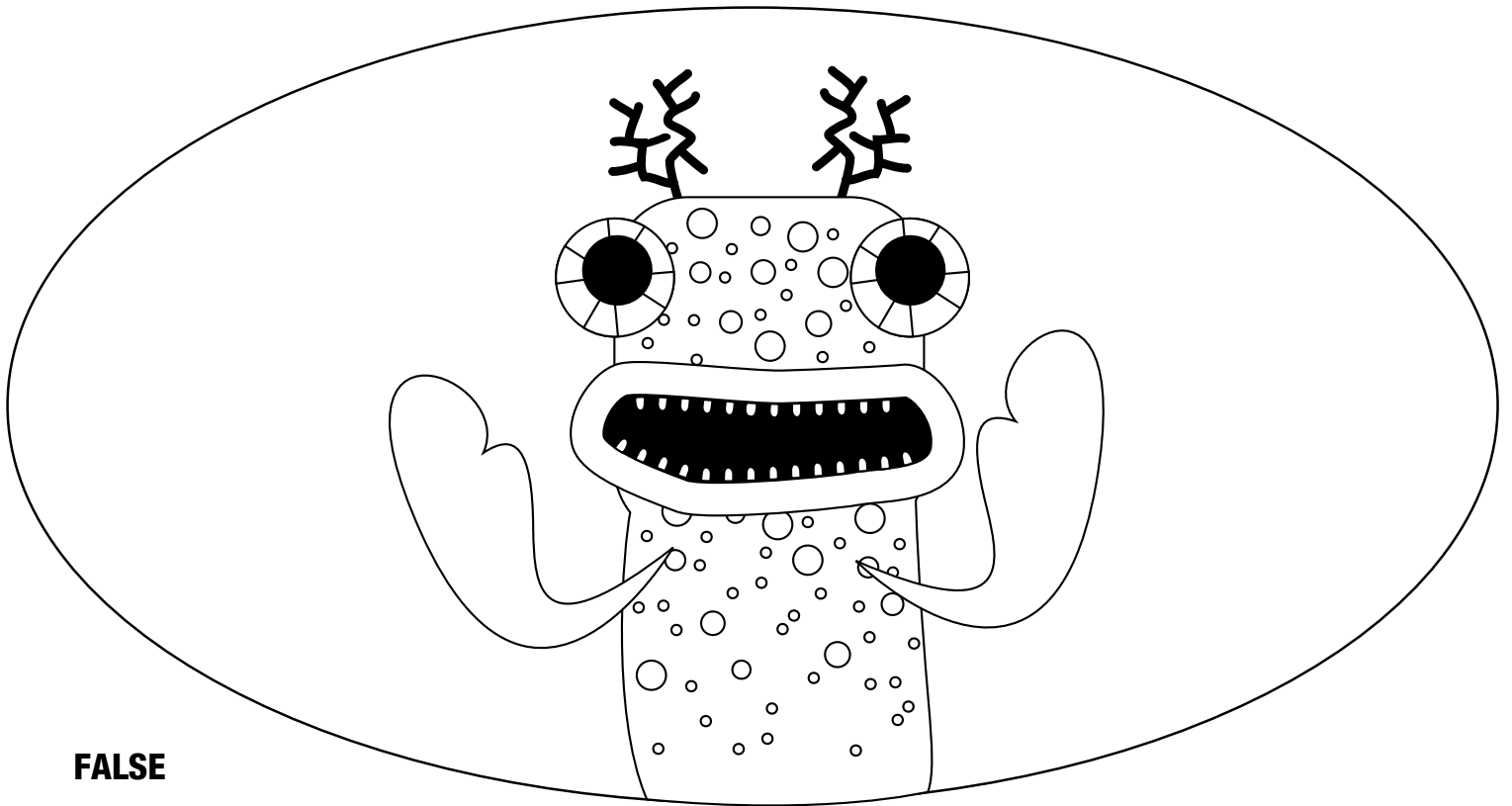
**Directions:** Answer each question TRUE or FALSE. Answers will be revealed during the lesson.

Questions for Students	Circle One: TRUE or FALSE
Sharks are fish.	<b>TRUE or FALSE</b>
The largest fish in the ocean is a shark.	<b>TRUE or FALSE</b>
Sharks are always really big.	<b>TRUE or FALSE</b>
All sharks have sharp, pointy teeth.	<b>TRUE or FALSE</b>
Some kinds of sharks are endangered, meaning if people don't stop fishing them, there may soon be none of that particular shark left on the planet.	<b>TRUE or FALSE</b>
Sharks are mean animals and eat absolutely anything and everything they come across.	<b>TRUE or FALSE</b>
You are more likely to be hurt, though it is unlikely, by lightning, a boat, a dog, a toaster, a chair, a hippopotamus or a tornado than you are a shark.	<b>TRUE or FALSE</b>
Sharks cannot swim backwards.	<b>TRUE or FALSE</b>
Sharks have smooth, silky skin.	<b>TRUE or FALSE</b>
Sharks were swimming in the ocean even before dinosaurs walked the earth.	<b>TRUE or FALSE</b>
Sharks were swimming in the ocean even before dinosaurs walked the earth.	<b>TRUE or FALSE</b>
<b>Ocean Annie's Super Scuba Challenge!</b>	
What part of the sharks' bodies do we find as fossils?	<b>TEETH</b>



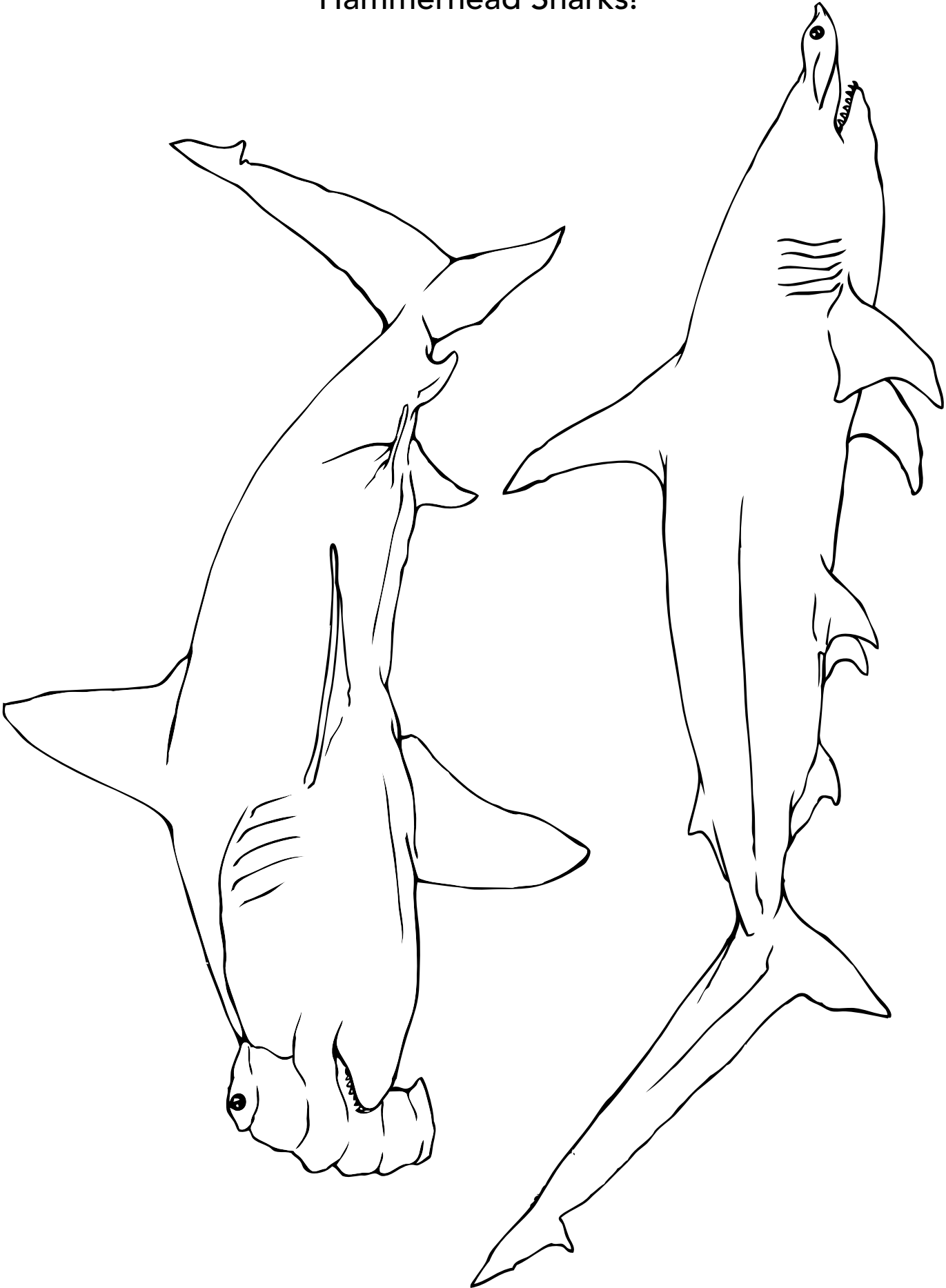


**TRUE**



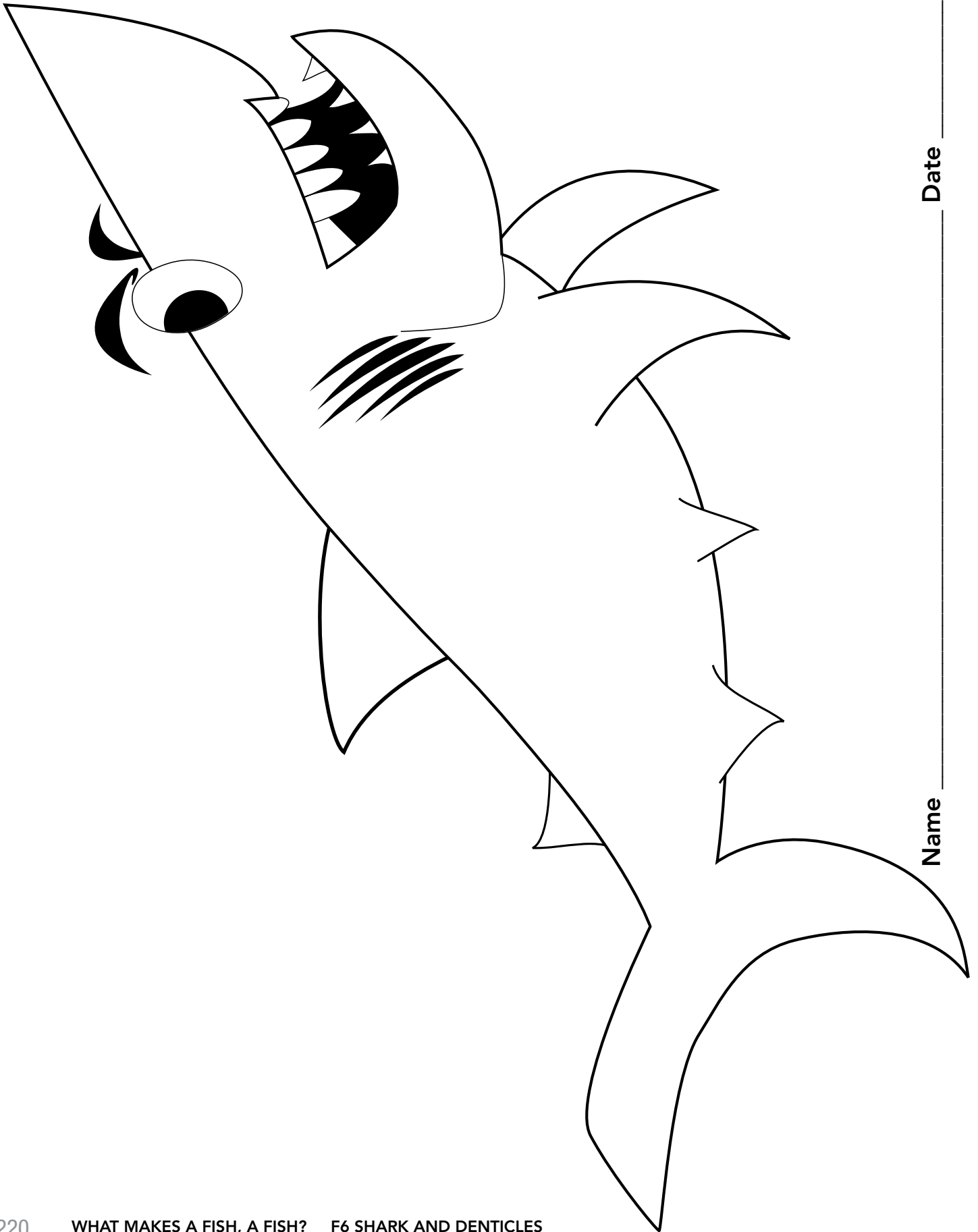
**FALSE**

# Hammerhead Sharks!



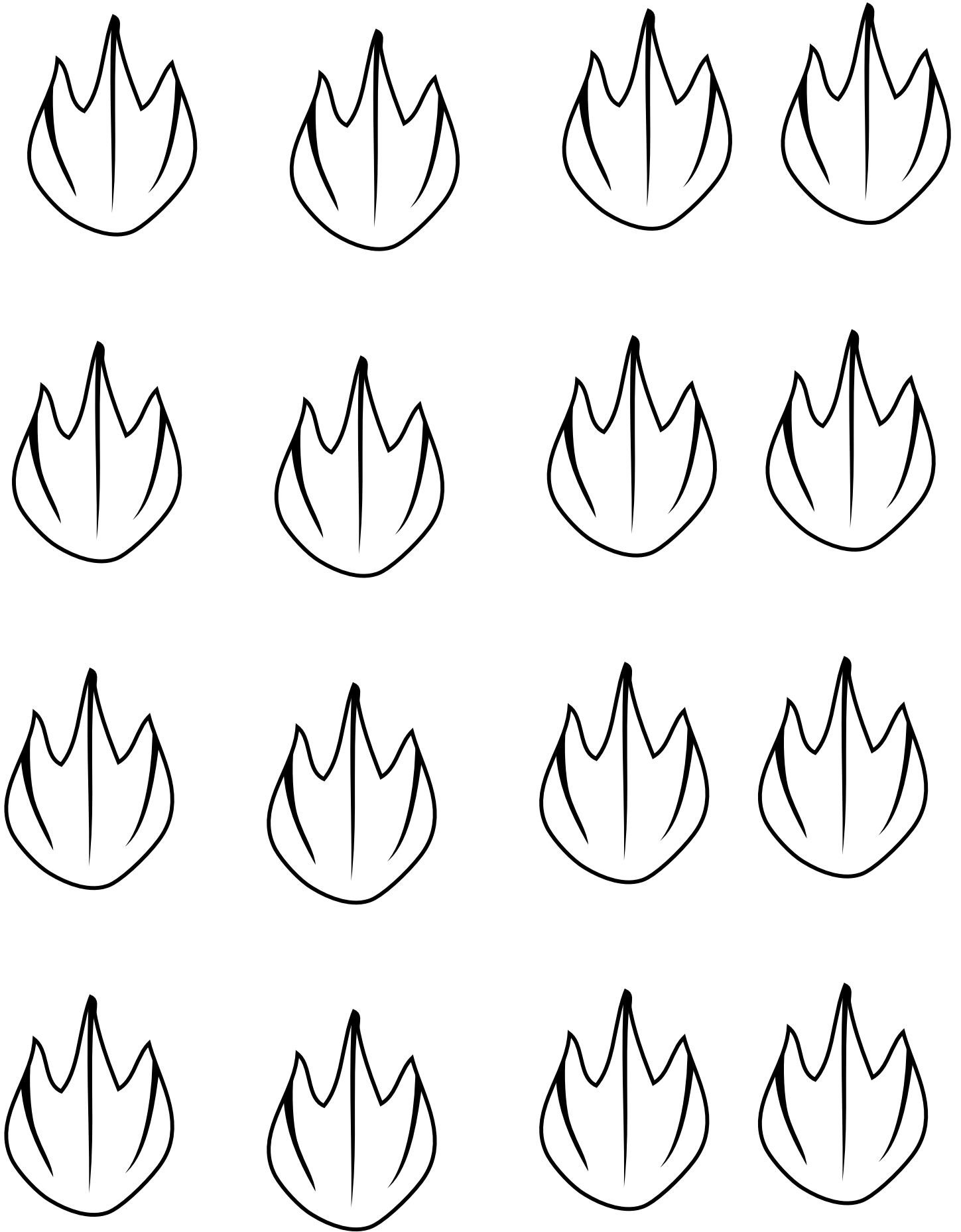
Name \_\_\_\_\_ Date \_\_\_\_\_

# Finnagain!



Date \_\_\_\_\_

Name \_\_\_\_\_





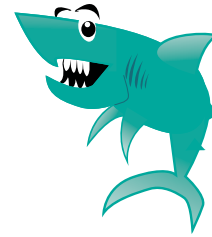


# Don't Be Afraid of Sharks



**F**

# Don't Be Afraid Of Sharks



## CONCEPT / TOPICS TO TEACH

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

### Objectives:

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

## Character Education: COURAGE

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

### Ocean Annie and Scuba Divers face fear with COURAGE!

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

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

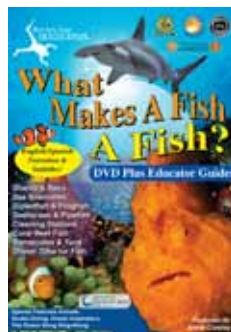
are COURAGEOUS in the classroom and bring COURAGE into their lives on a daily basis.

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

## Getting Started

### Required Materials

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



### TREASURE CHEST

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

### Anticipatory Set Lead-In

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

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

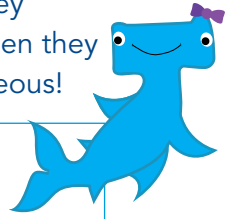


Questions for Students	Answers for Educators
Are sharks fish?	Yes. Like all fish sharks have gills, fins and live in water. Sharks and rays are special because their skeleton is made of cartilage. Most fish have bone skeletons.
Do sharks have rough or smooth skin?	Sharks have skin that is rough like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

## Video Review

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

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



## Imagination Values

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

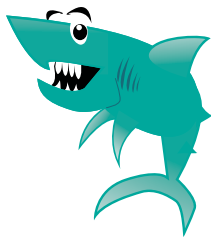
*“On the count of three let’s say the magic word! 1, 2, 3...IMAGINATION! Now imagine you are a shark. What kind of shark would you be? Touch your nose and ears, this is what a shark’s skeleton is made of, cartilage. Sharks and rays are elasmobranchs. Can you say that word? As a shark, your skin would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

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

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

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

## CLASSROOM ACTIVITY STATION F1 SHARK MATCH!



### Overview

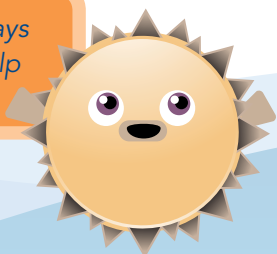
Students will use their knowledge of basic shark biology and shapes to find matching pairs for the front and back half of several kinds of sharks. Students will then choose their favorite front and back end from the set and draw their own version of it, perhaps creating a fictitious shark. Students will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

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

### Talking Points

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

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



### Lesson Procedure

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

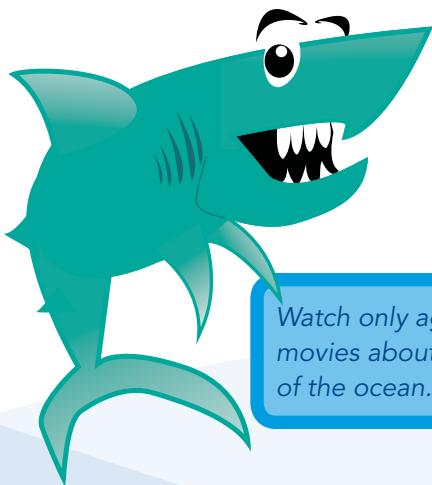
## CLASSROOM ACTIVITY STATION F1 (Continued)

# SHARK MATCH!

### Extension Ideas

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

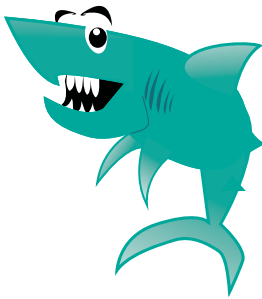
### Notes



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

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





## CLASSROOM ACTIVITY STATION F2 SHARK JAWS

### Overview

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

**Materials:** Jaw Charts, Sharks Teeth, Mirror

### Talking Points

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

### Lesson Procedure

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

## CLASSROOM ACTIVITY STATION F2 (Continued)

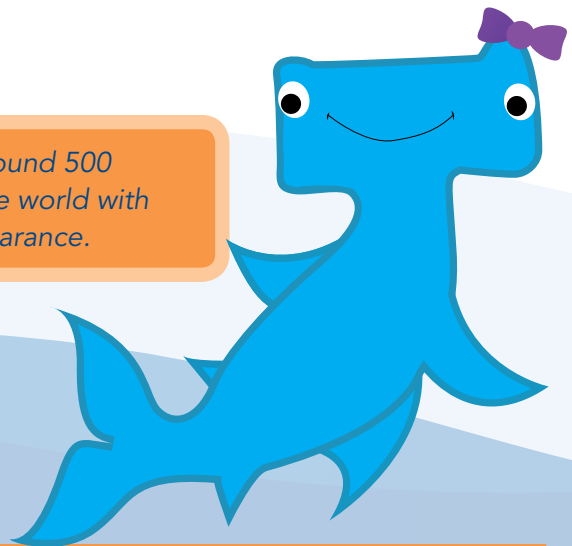
# SWIMMING IN SEQUENCE

### Extension Ideas

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

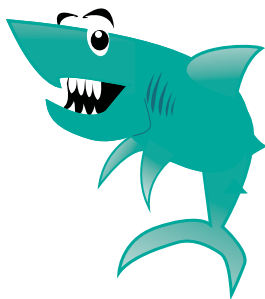
### Notes

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





## CLASSROOM ACTIVITY STATION F3 SHARK TRIVIA!



### Overview

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

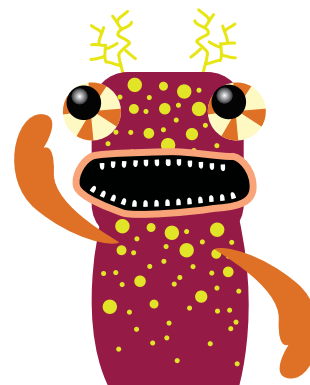
**Materials:** Trivia Questions, Popsicle sticks, Red and Blue Cups

### Talking Points

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

### Lesson Procedure

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



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

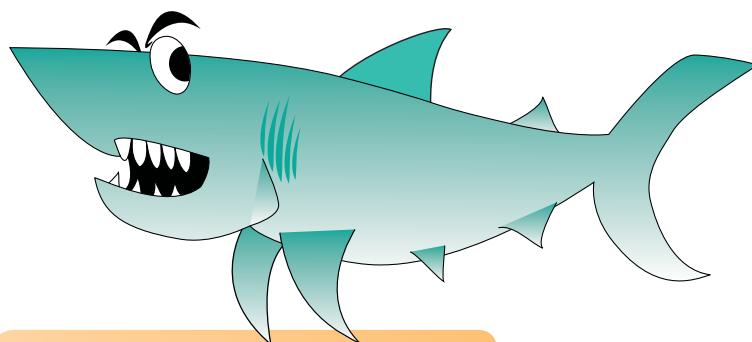
## CLASSROOM ACTIVITY STATION F3 (Continued)

# SHARK TRIVIA!

### Extension Ideas

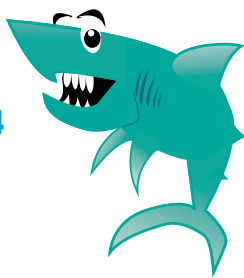
- » Challenge students to find out additional shark facts on their own and share them with the class.
- » Ask students to quiz their family and friends about their shark knowledge. Encourage students to share what they learned about sharks with others.
- » Have students create their own shark trivia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

### Notes



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

## CLASSROOM ACTIVITY STATION F4 SHARK TALES



### Overview

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

### Materials: "Shark Tales"

#### Talking Points

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

#### Lesson Procedure

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



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

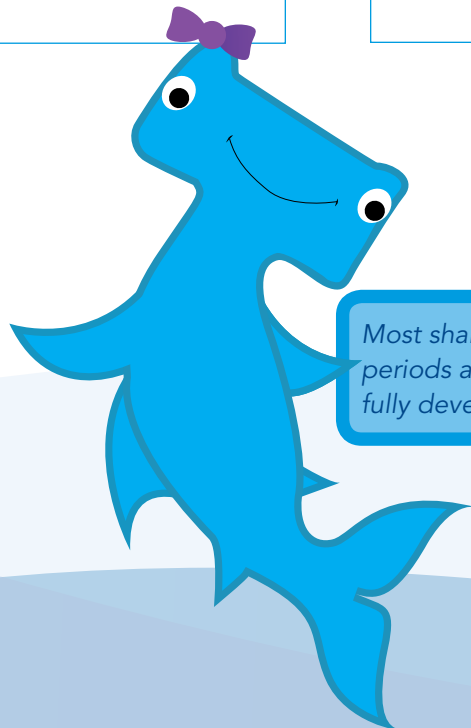
## CLASSROOM ACTIVITY STATION F4 (Continued)

# SHARK TALES

### Extension Ideas

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

### Notes



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

## CLASSROOM ACTIVITY STATION F5 SHARK MOUTH



### Overview

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

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

### Talking Points

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

### Lesson Procedure

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

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



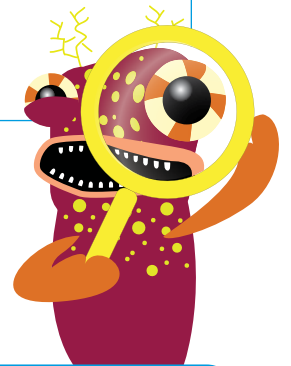
## CLASSROOM ACTIVITY STATION F5 (Continued)

# SHARK MOUTH

### Extension Ideas

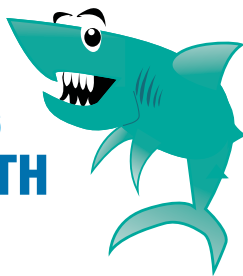
- » Ask students to imagine they are sharks. What would their mouths look like for the kind of food they would like to eat? Challenge students to make an illustration or write a description of what their ideal shark mouth would look like according to the food they eat.
- » Have students look at the teeth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

### Notes



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

## CLASSROOM ACTIVITY STATION F6 SHARK-A-MANIA MATH



### Overview

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

**Materials:** “Shark-a-Mania Math”

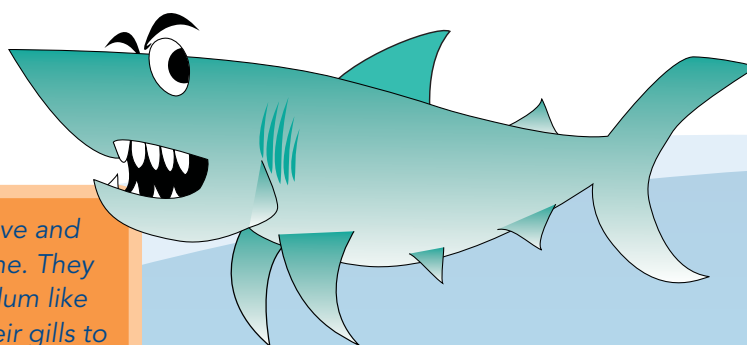
### Talking Points

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

### Lesson Procedure

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

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



**CLASSROOM ACTIVITY STATION F6 (Continued)**  
**SHARK-A-MANIA MATH**

**Extension Ideas**

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

**Notes**

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





## CLASSROOM ACTIVITY STATION F7 BOOK STALL



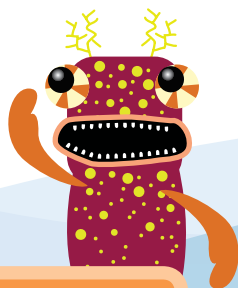
### Overview

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

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

### Lesson Procedure: Character Education, COURAGE

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



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

#### Poster: COURAGE

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

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

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

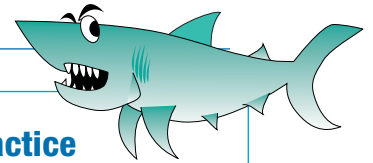
*Cowrie shell on soft coral, Papua New Guinea*



## What Makes A Fish, A Fish?

### Book Suggestions

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



### Closure and Follow Up

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

### Plan for Independent Practice

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

## DVD TRANSCRIPT

**Don't Be Afraid Of Sharks**

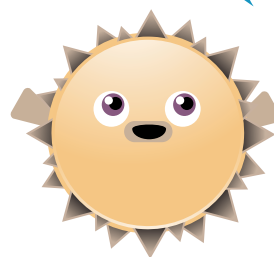
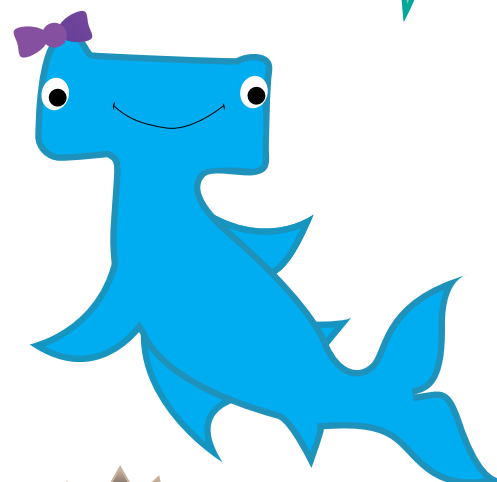
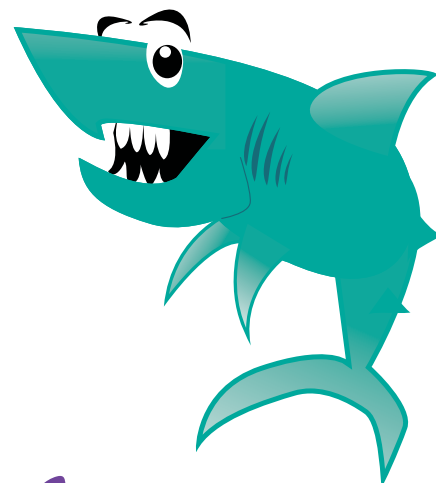
Do you know what makes a shark, a shark? Sharks have been swimming in our oceans since before Dinosaurs walked on earth.

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

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

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

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

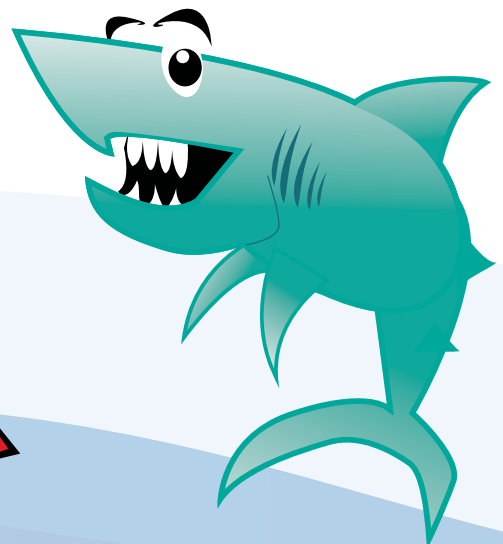
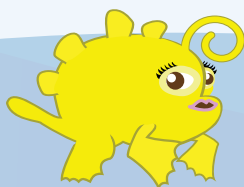
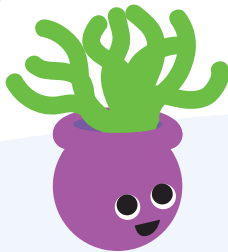
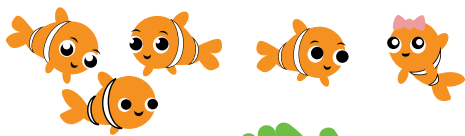
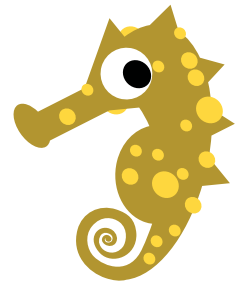
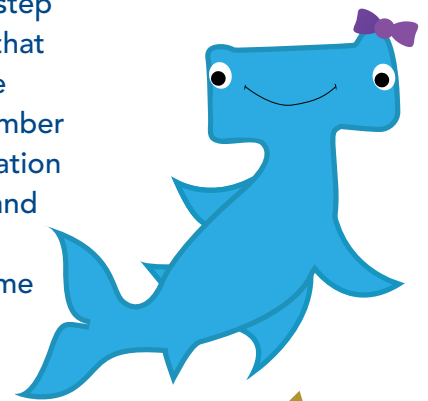


## Go Blue! Ocean Annie's Tips to Help Our Environment

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

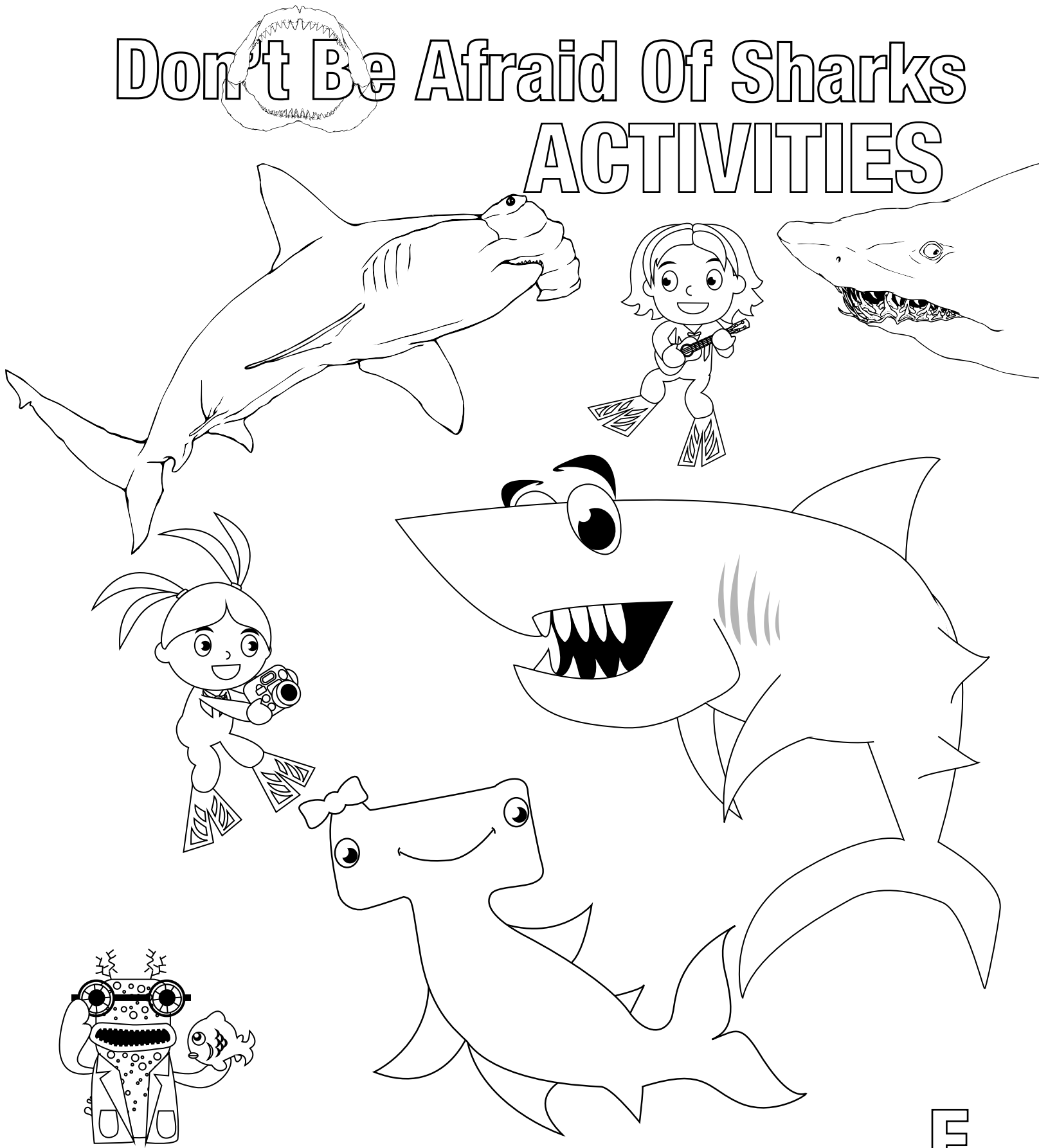
All voices big and small count! Knowing what is on your plate is an important step toward conservation. There are many organizations that provide wallet cards that help consumers choose what seafood is considered sustainable. In order to be sustainable, a population must be harvested in a way that ensures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

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



# Don't Be Afraid Of Sharks

## ACTIVITIES



Name \_\_\_\_\_ Date \_\_\_\_\_



**Chest**

**Treasure**

**of Words**

**cartilage**

**courage**

**denticle**

**gills**

**plankton**

**elasmobranch**

**elasmobranchologist**

**population**

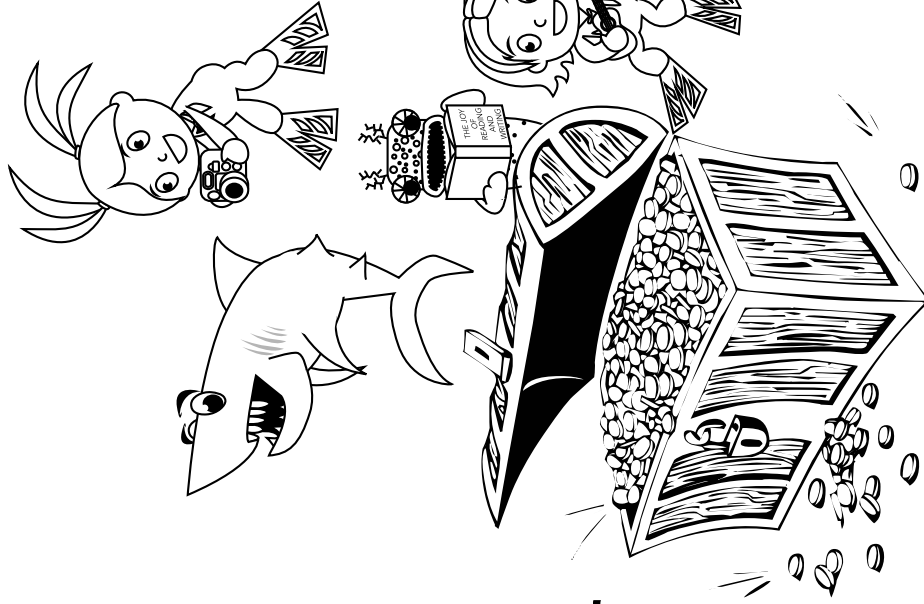
**scales**

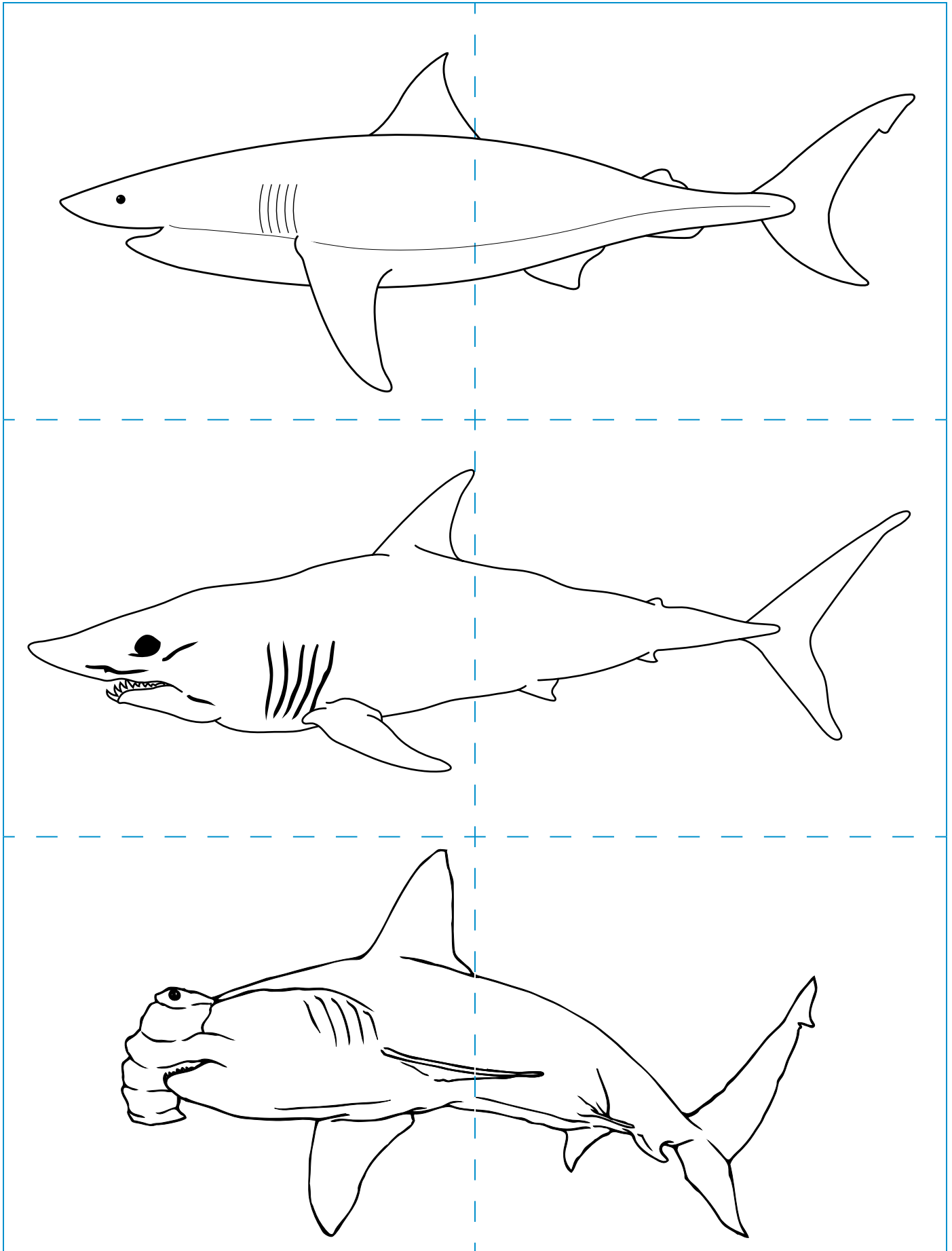
**scientist**

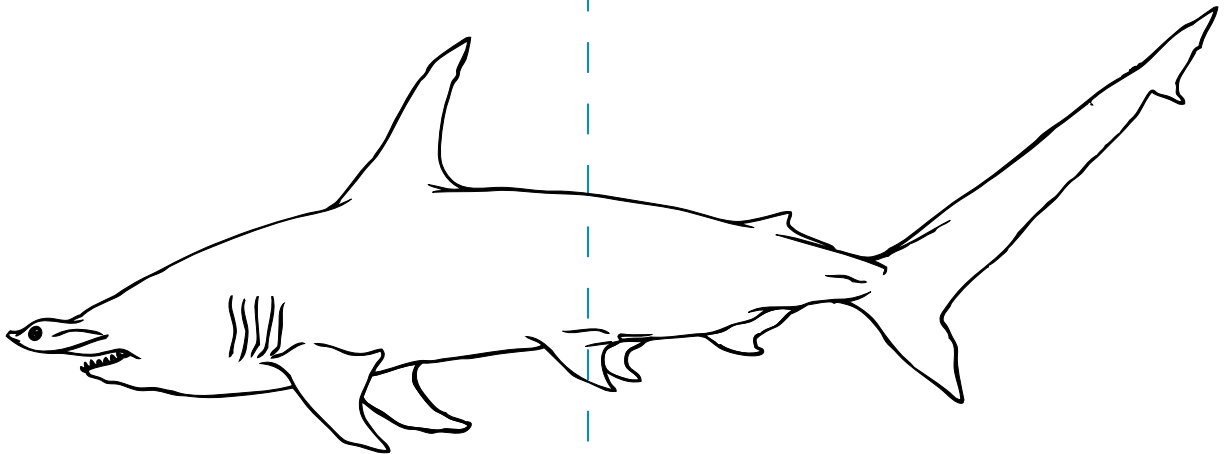
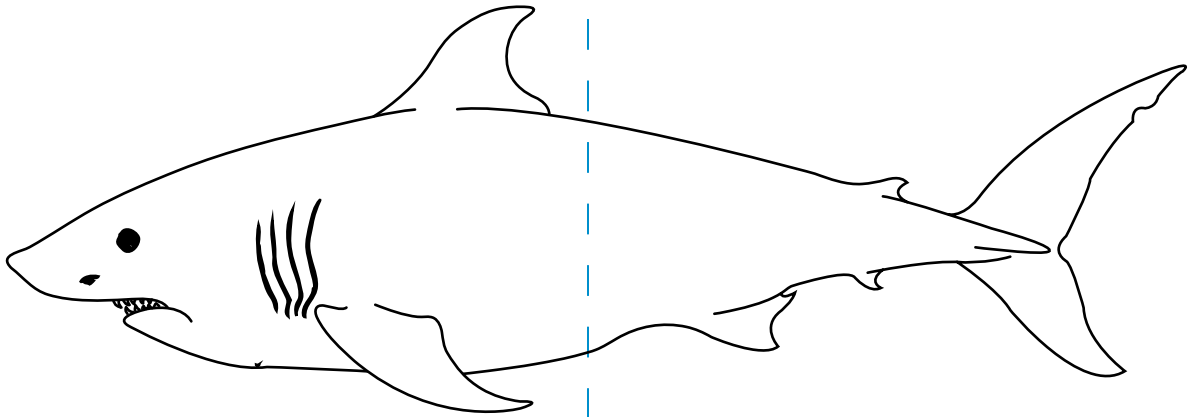
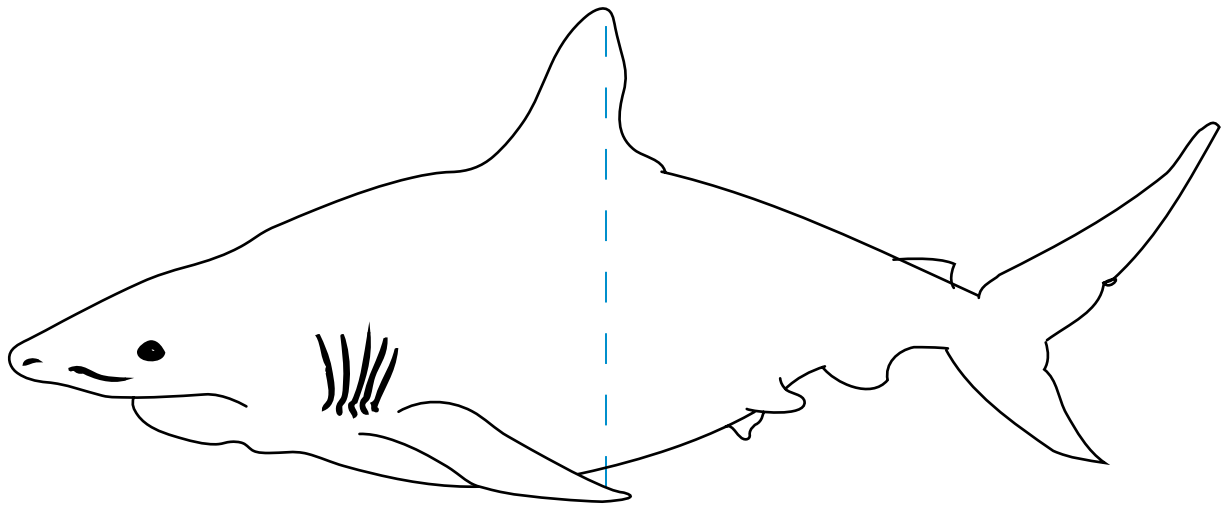
**species**

**sustainable**

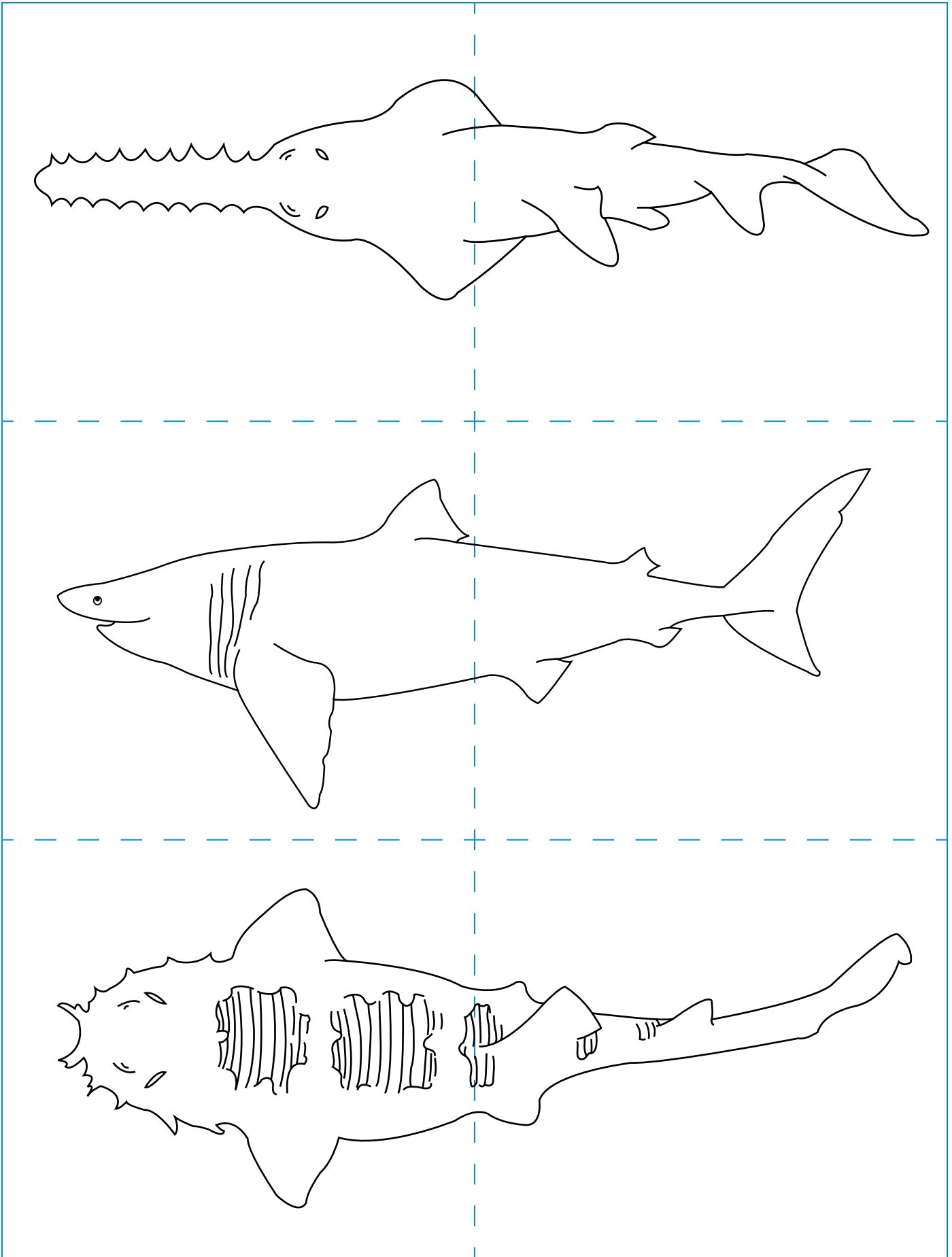
**swim bladder**

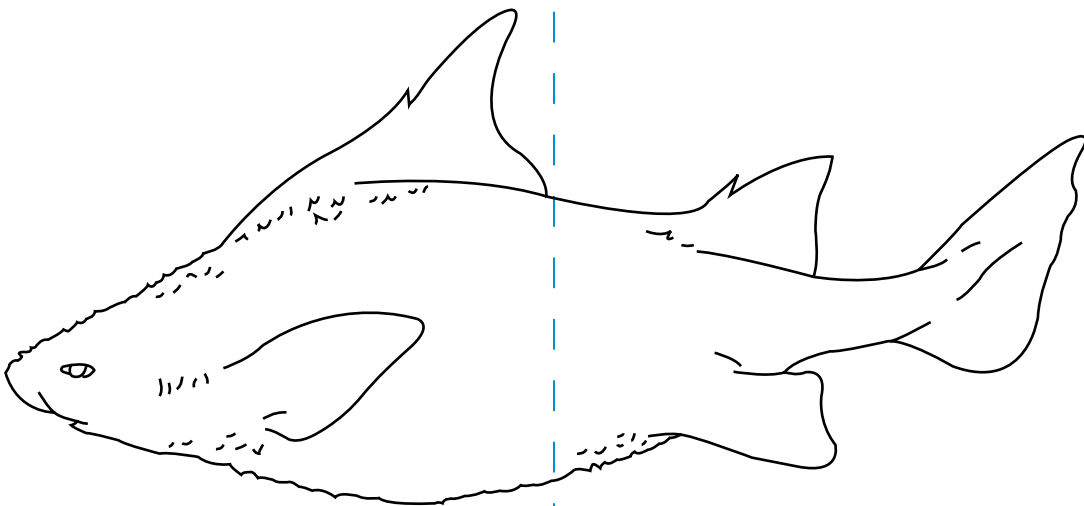
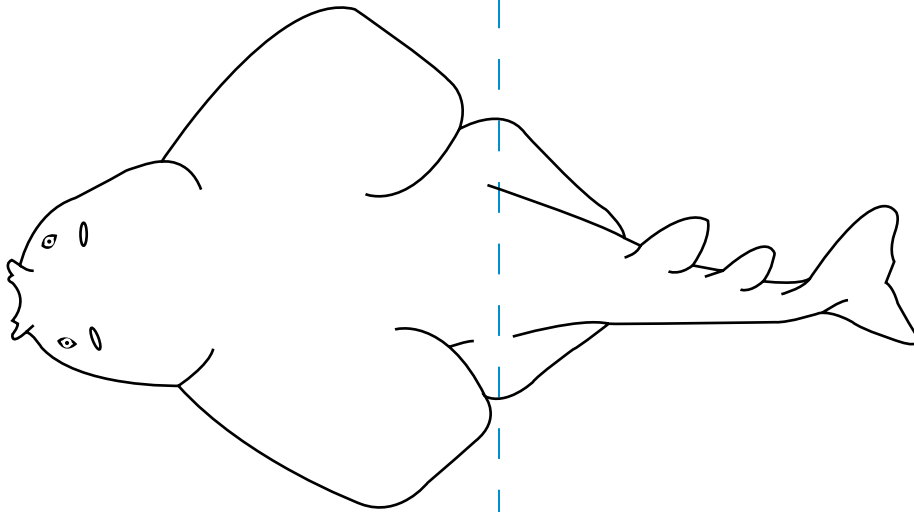
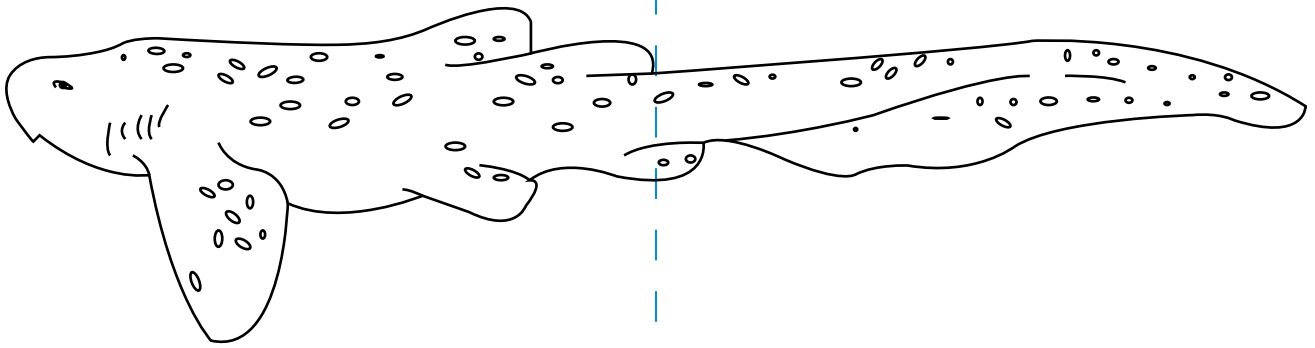


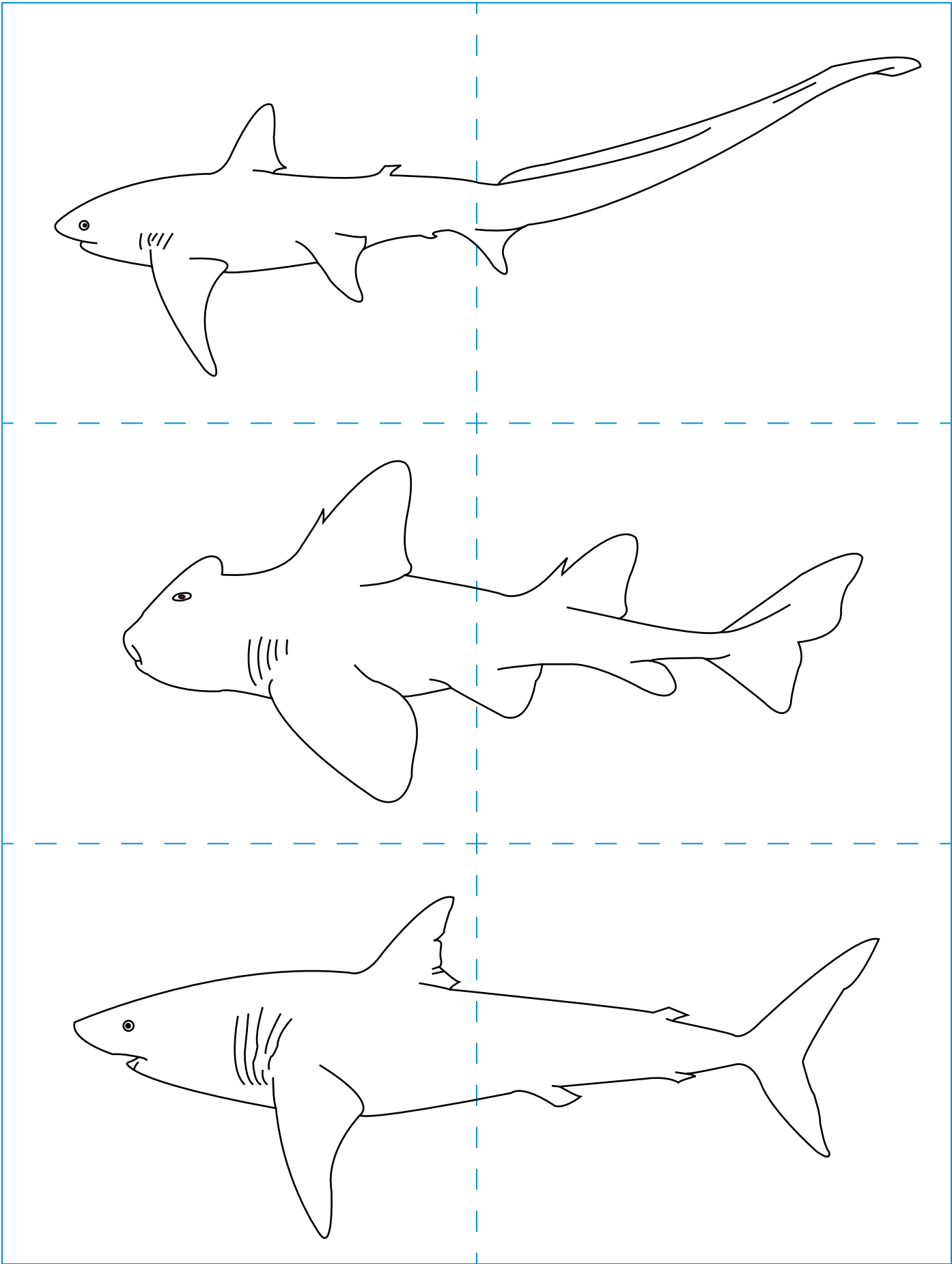




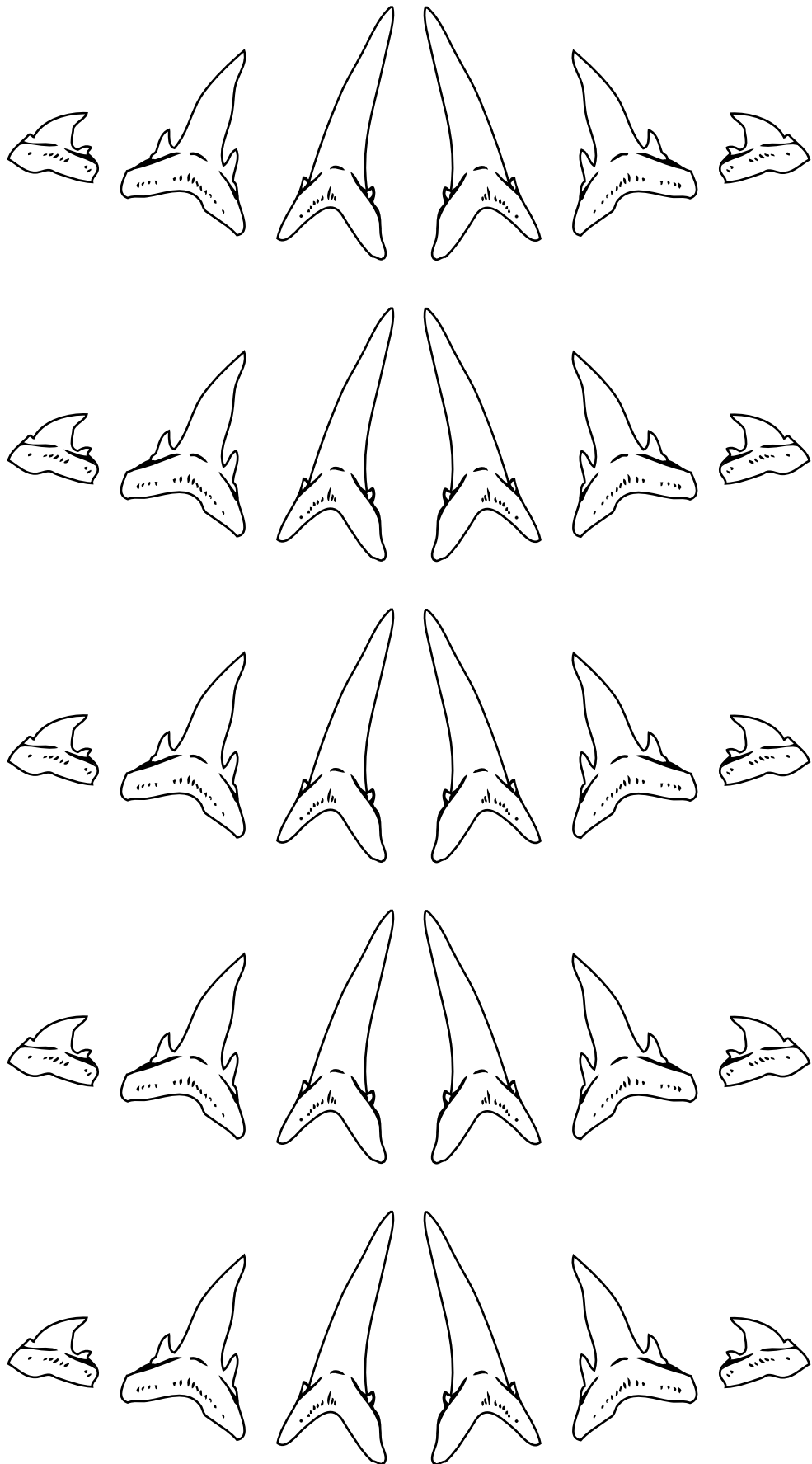


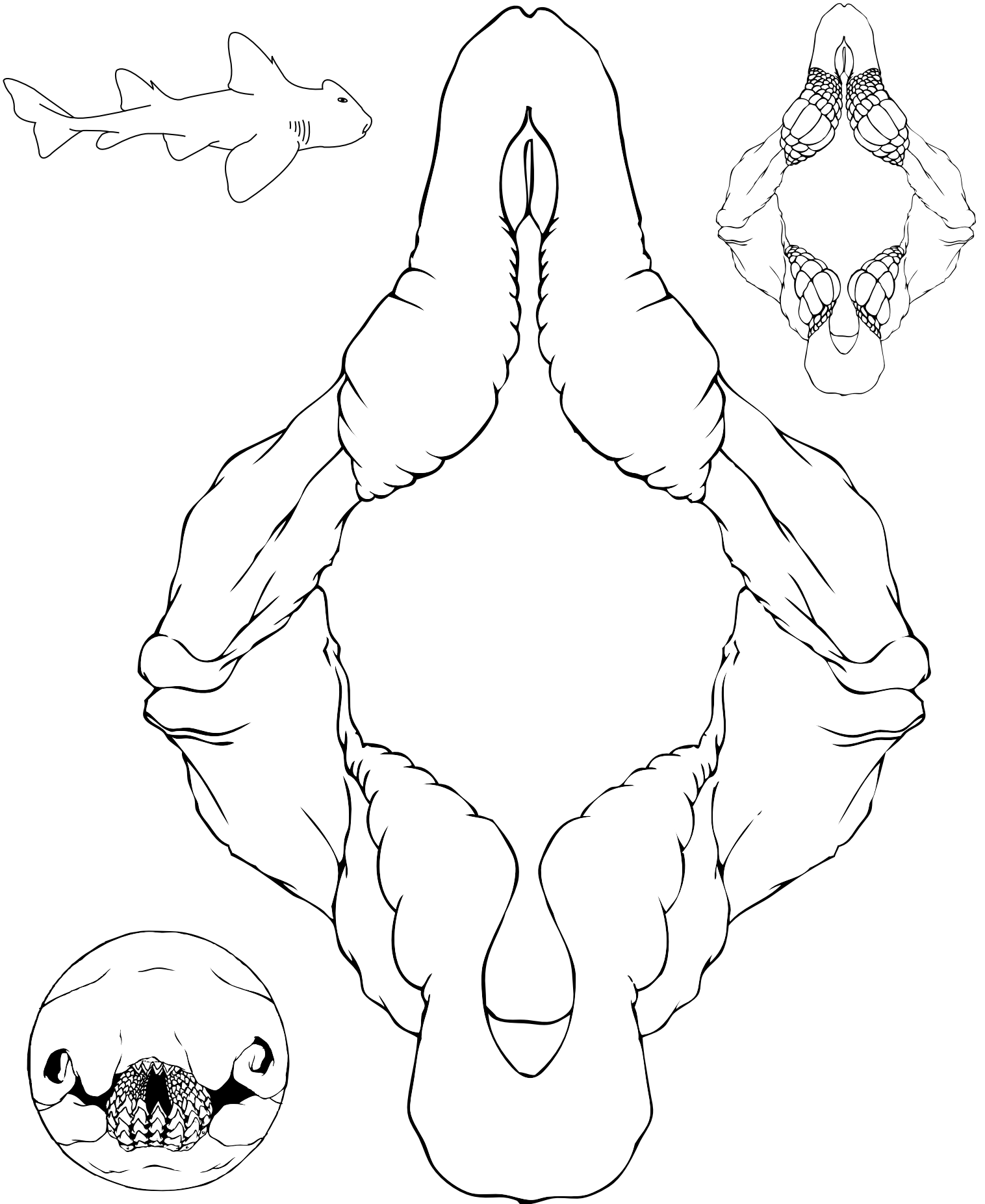


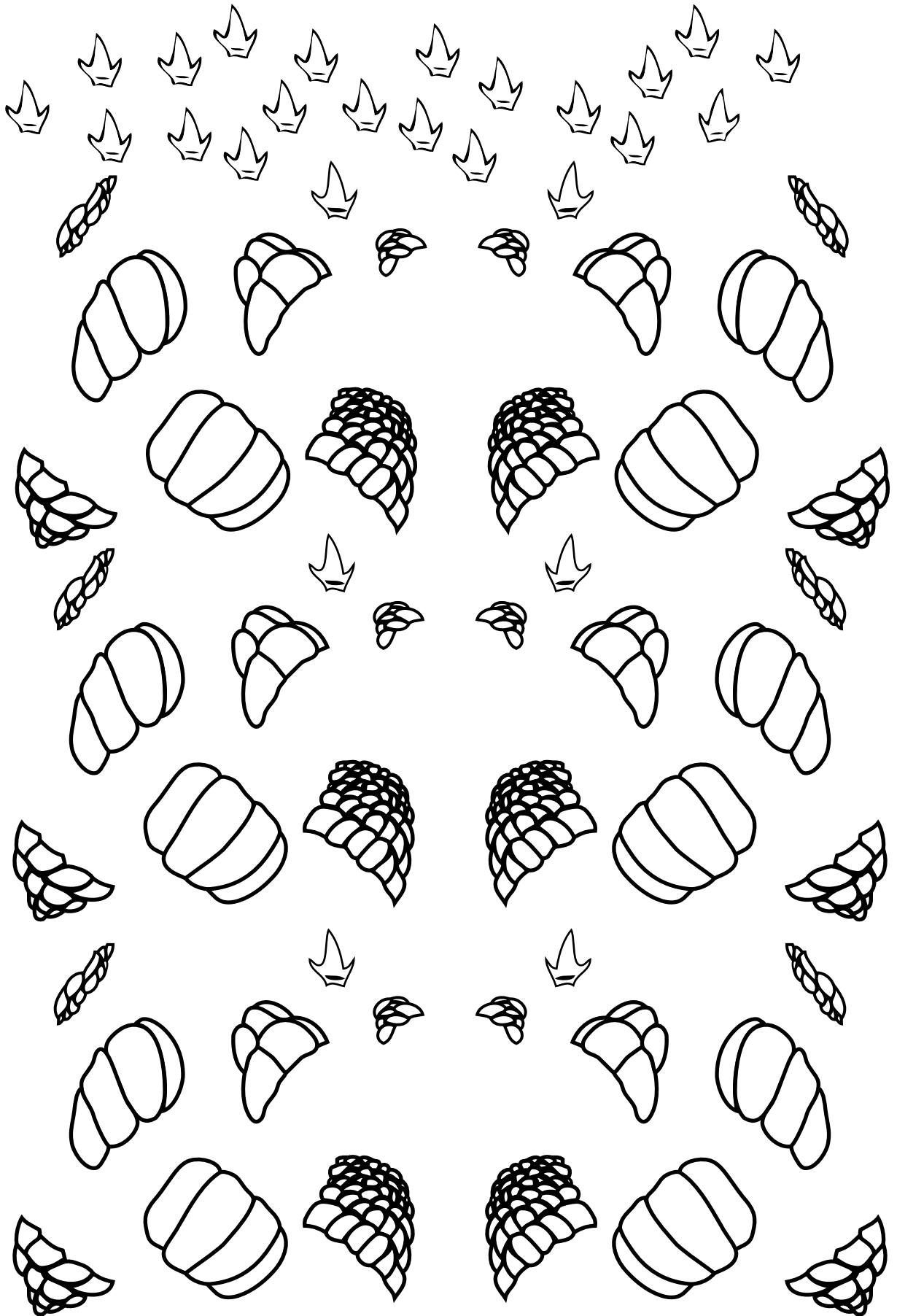


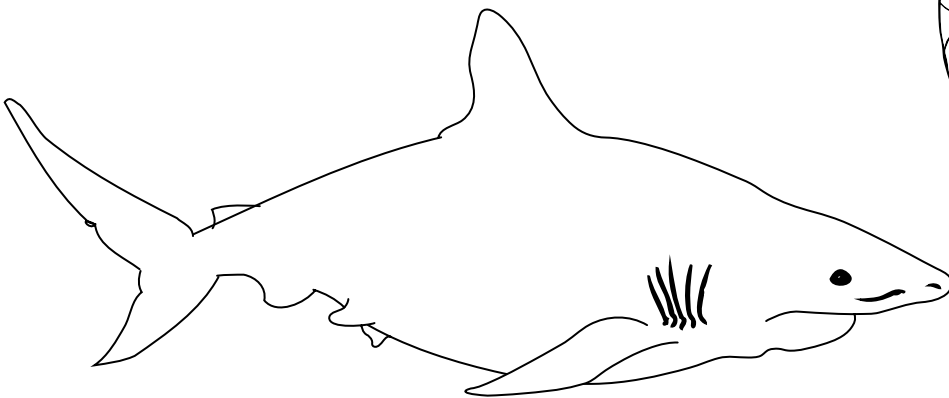
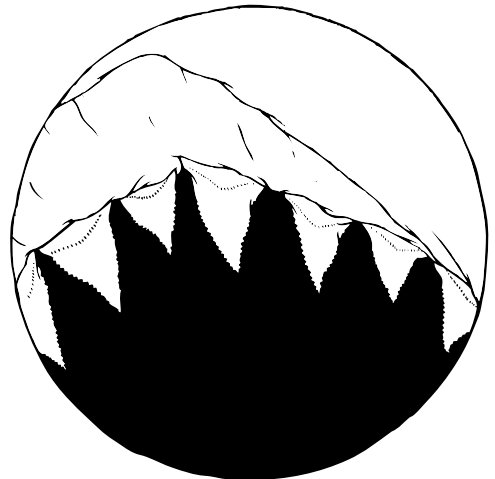
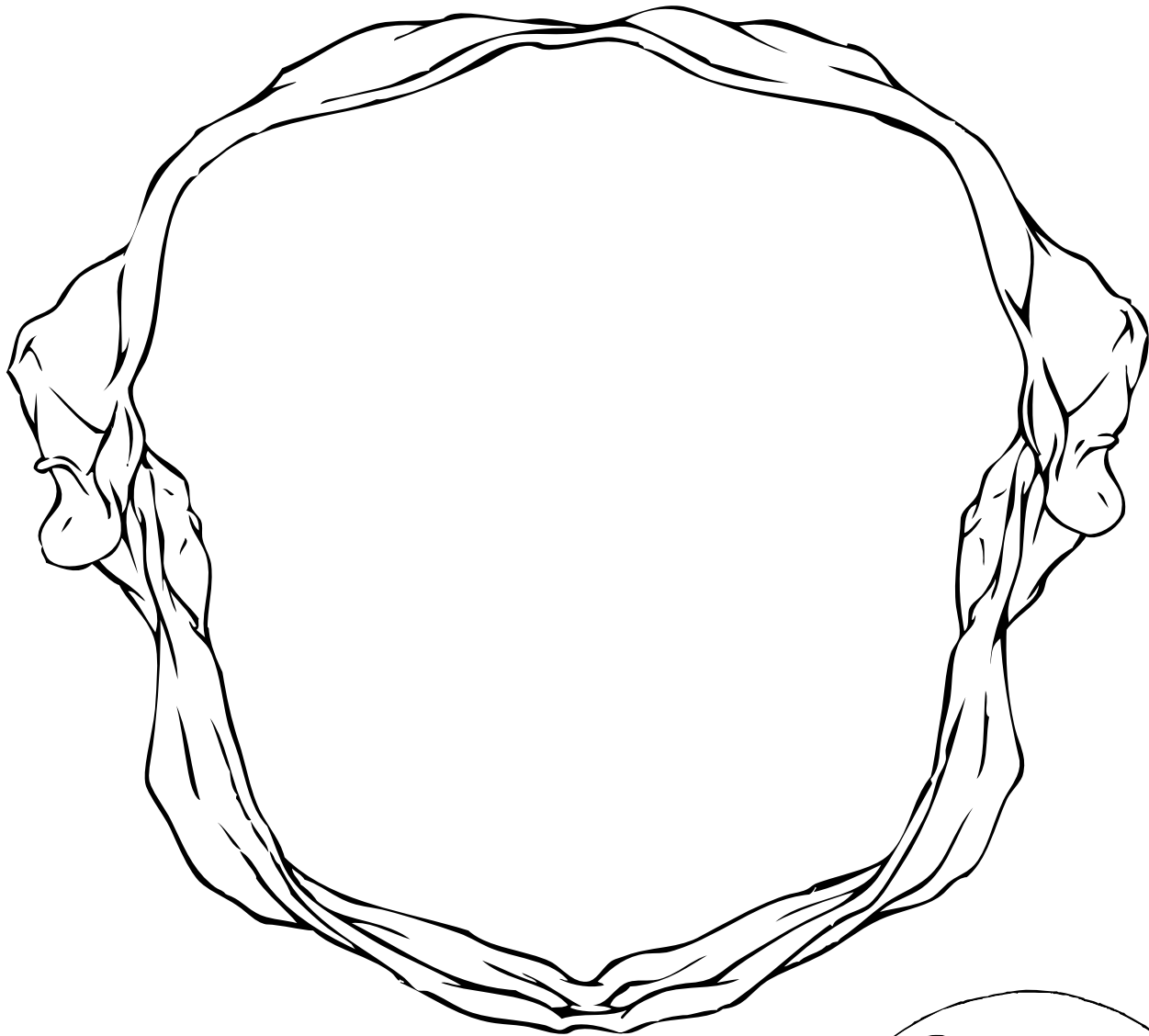




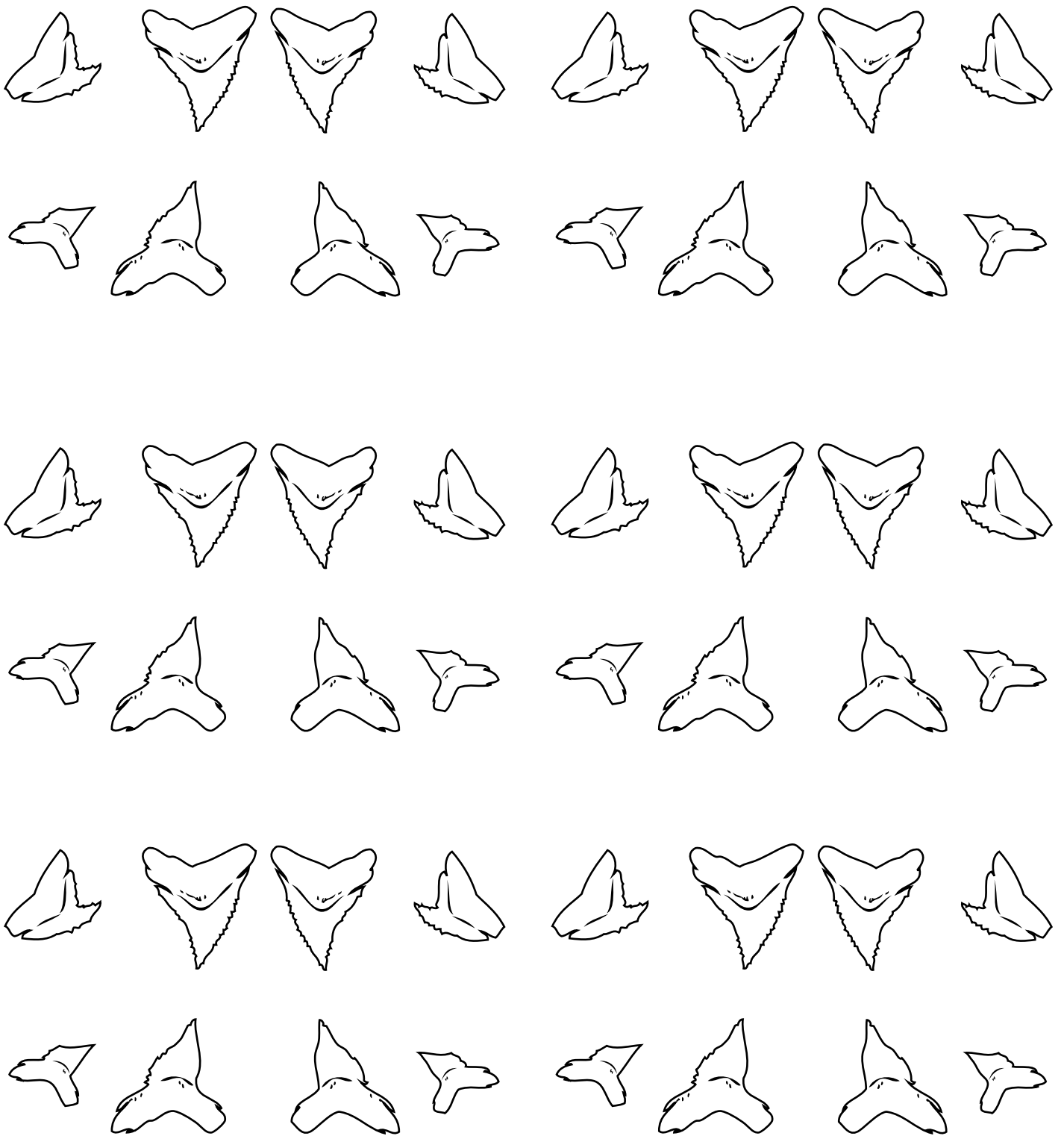


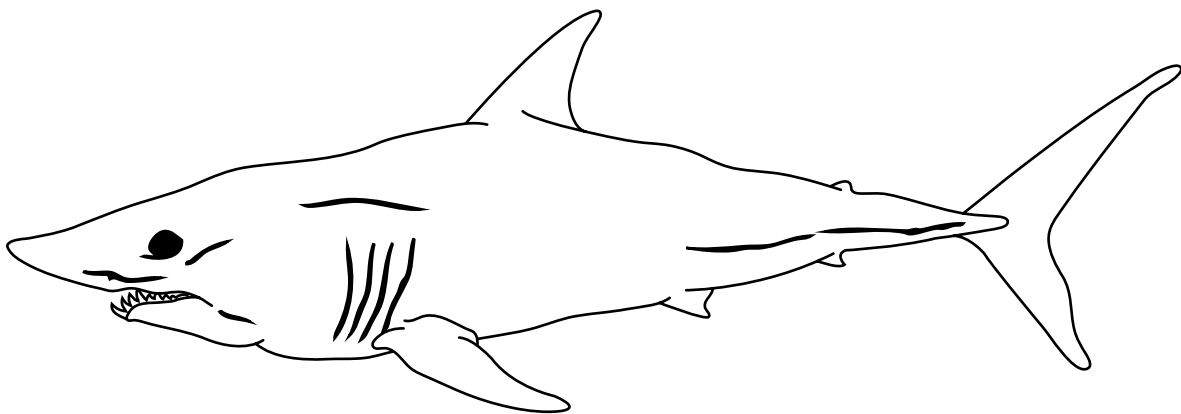
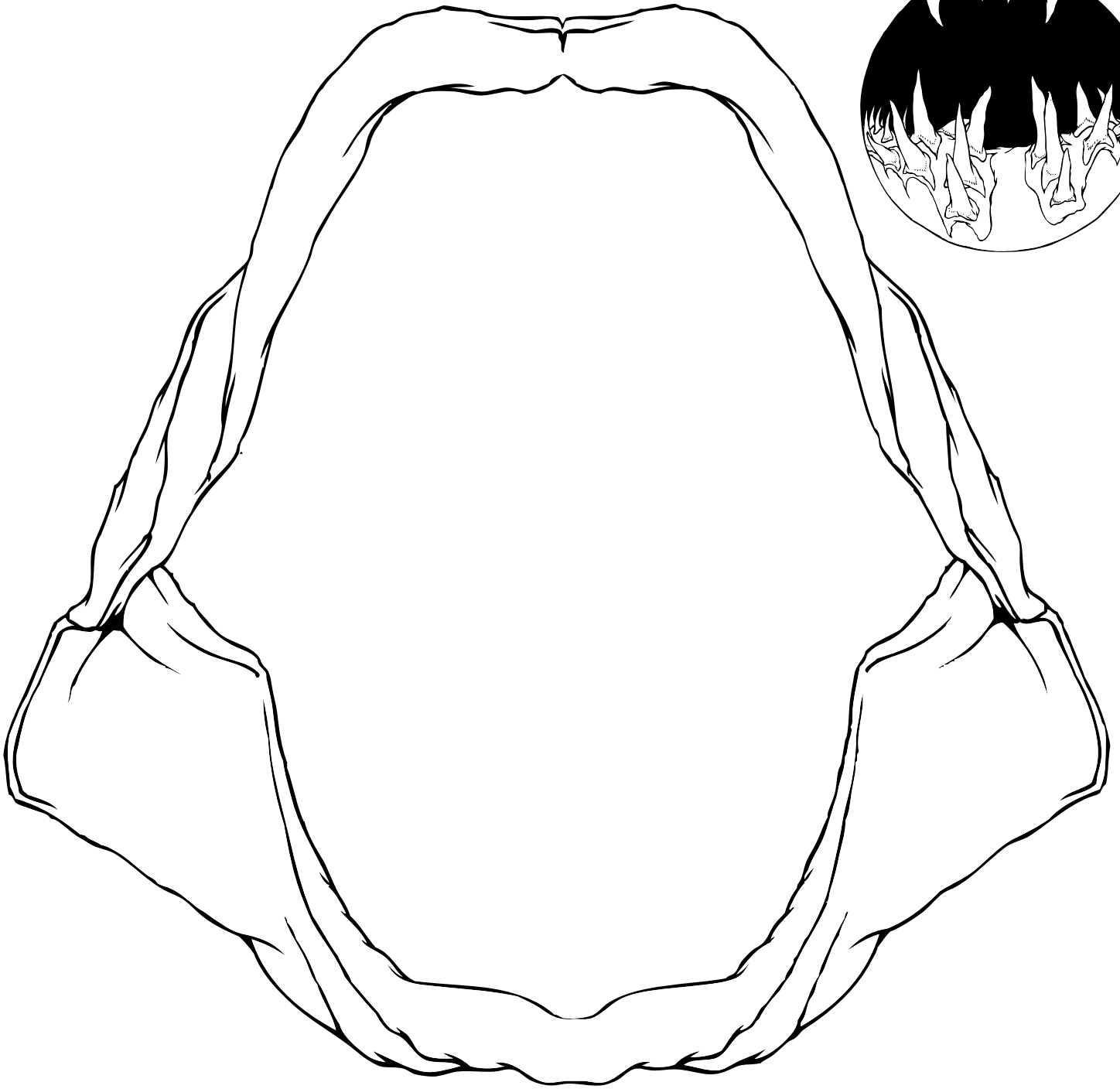


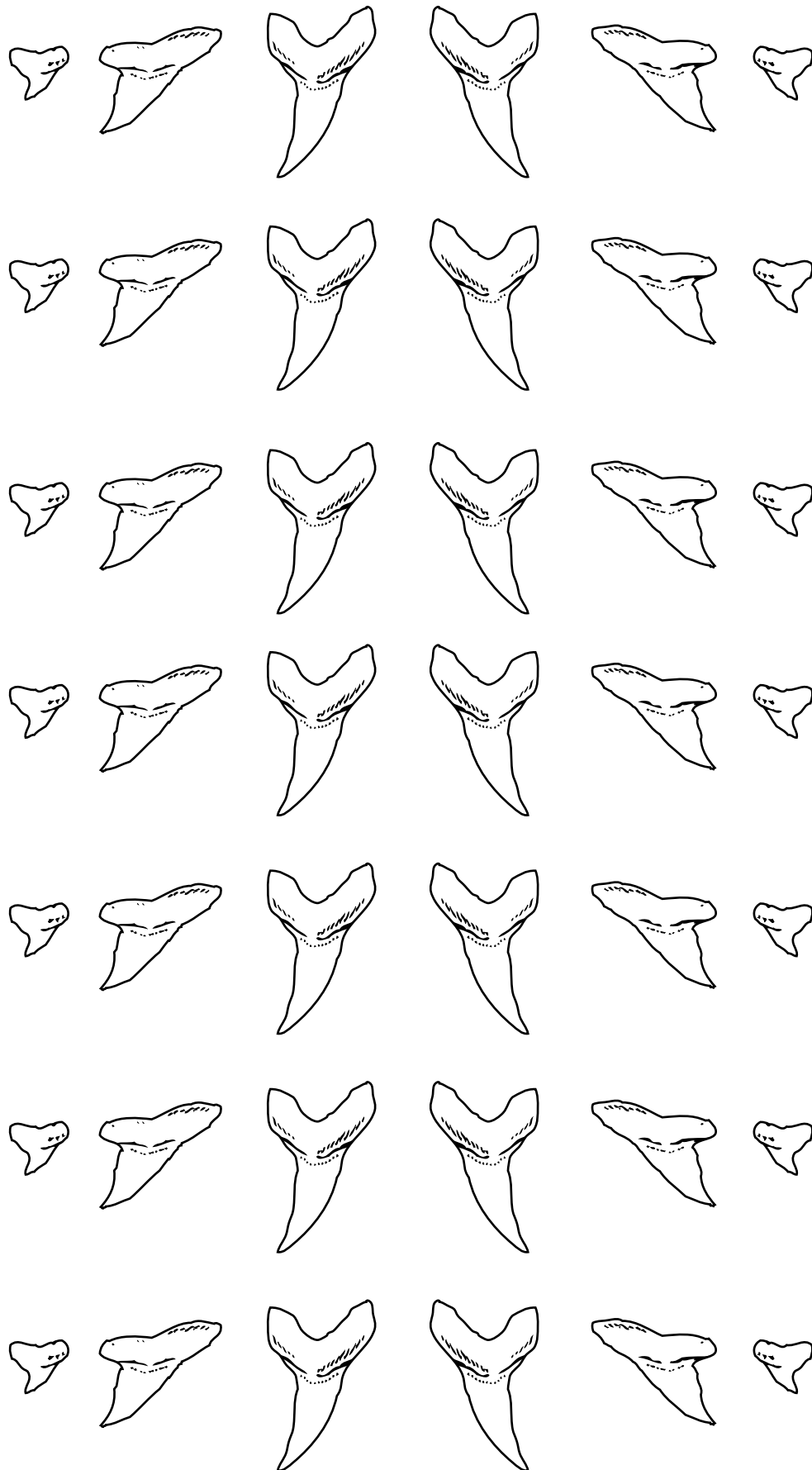


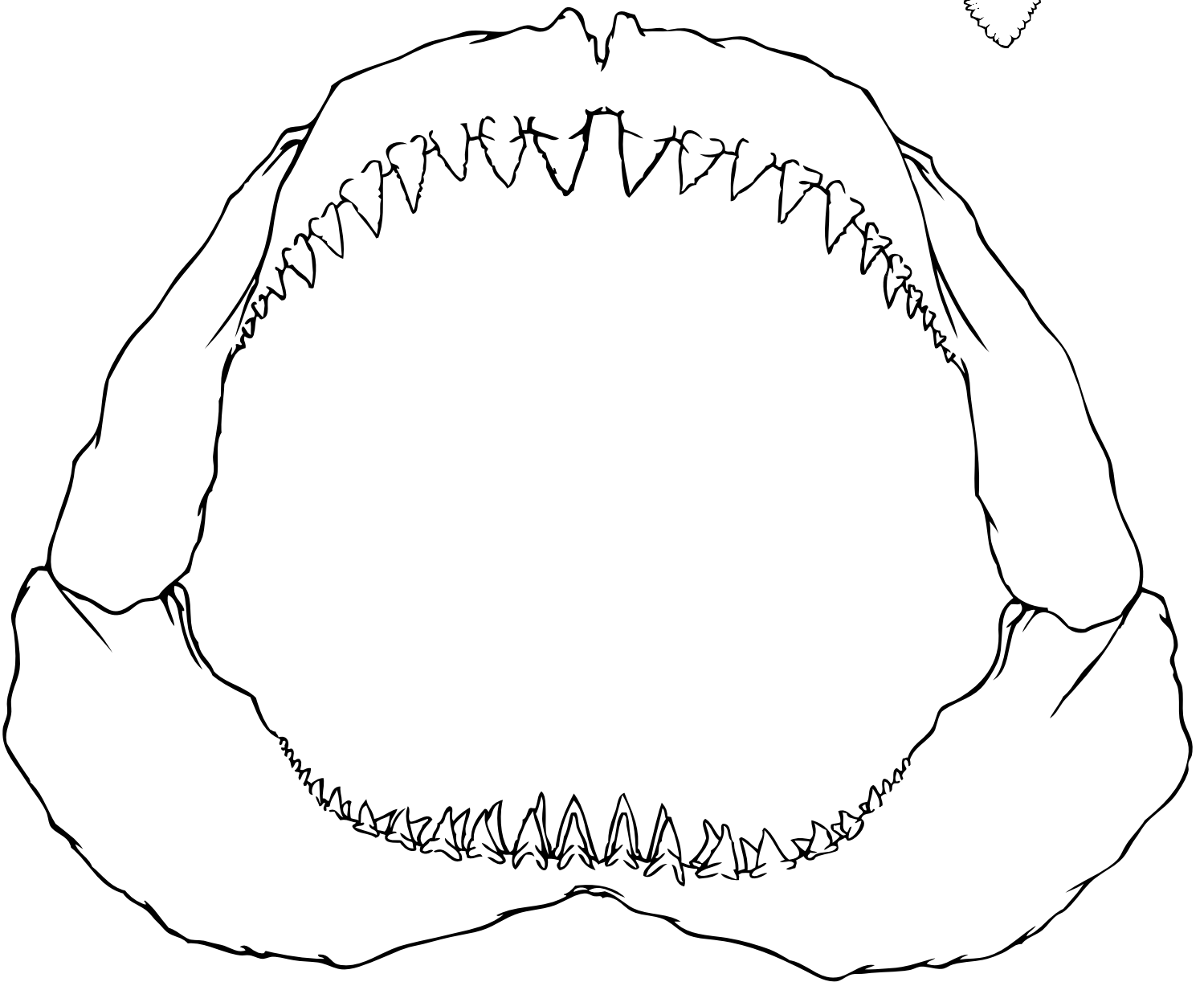
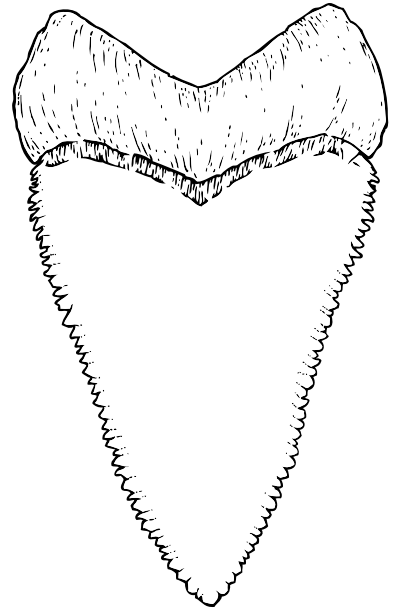
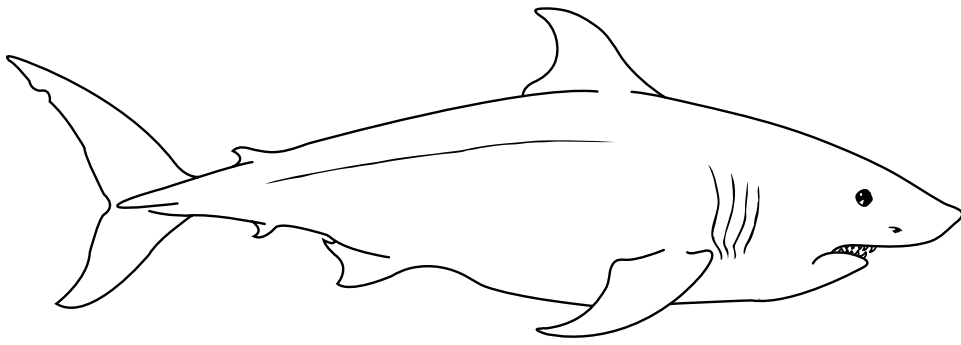


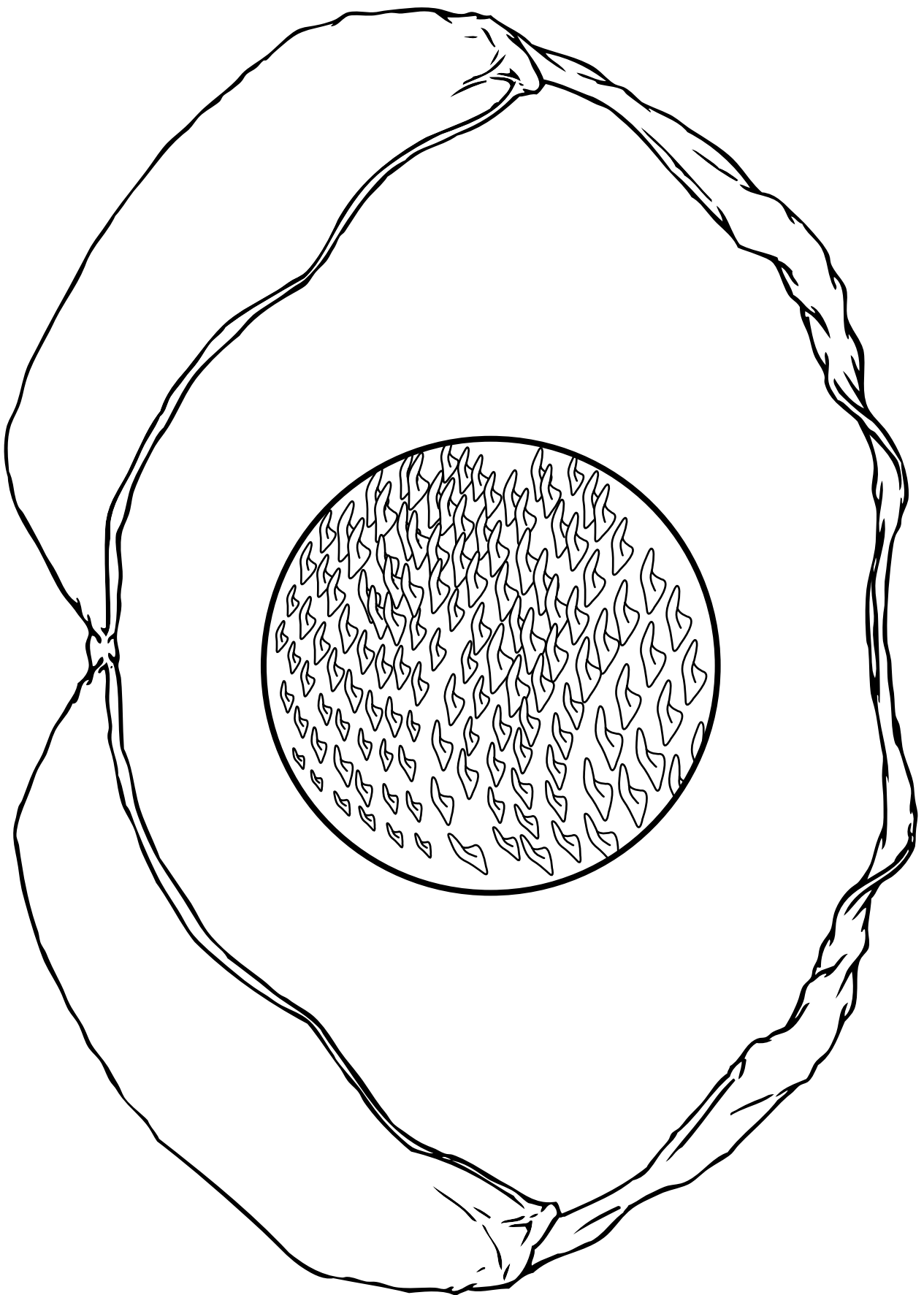


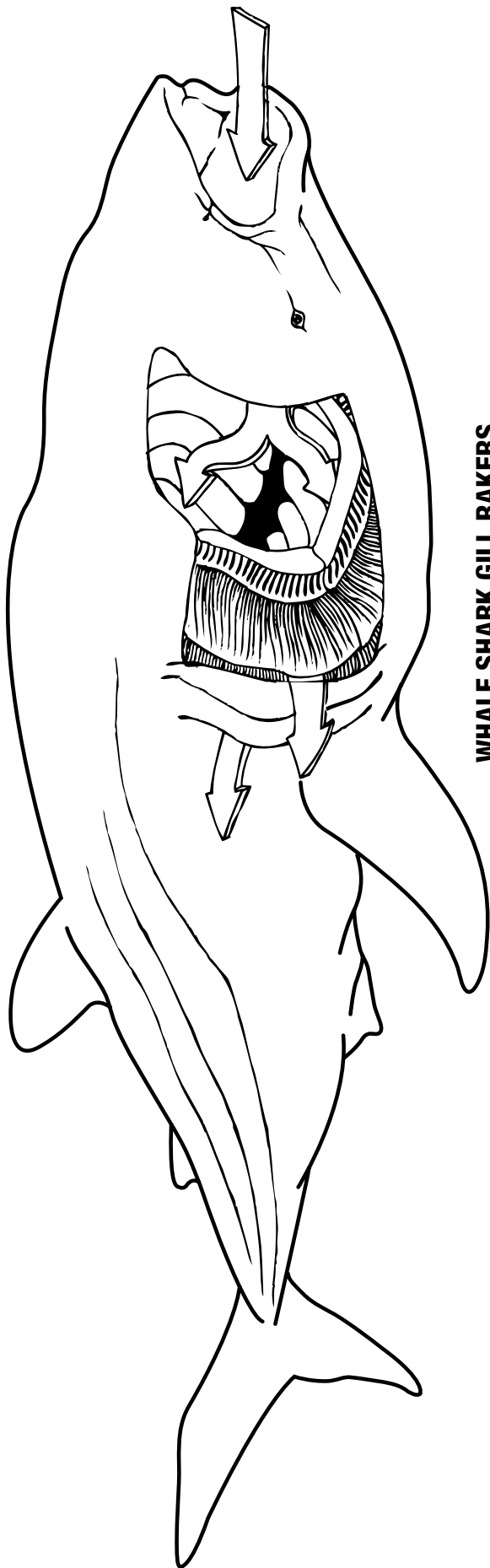




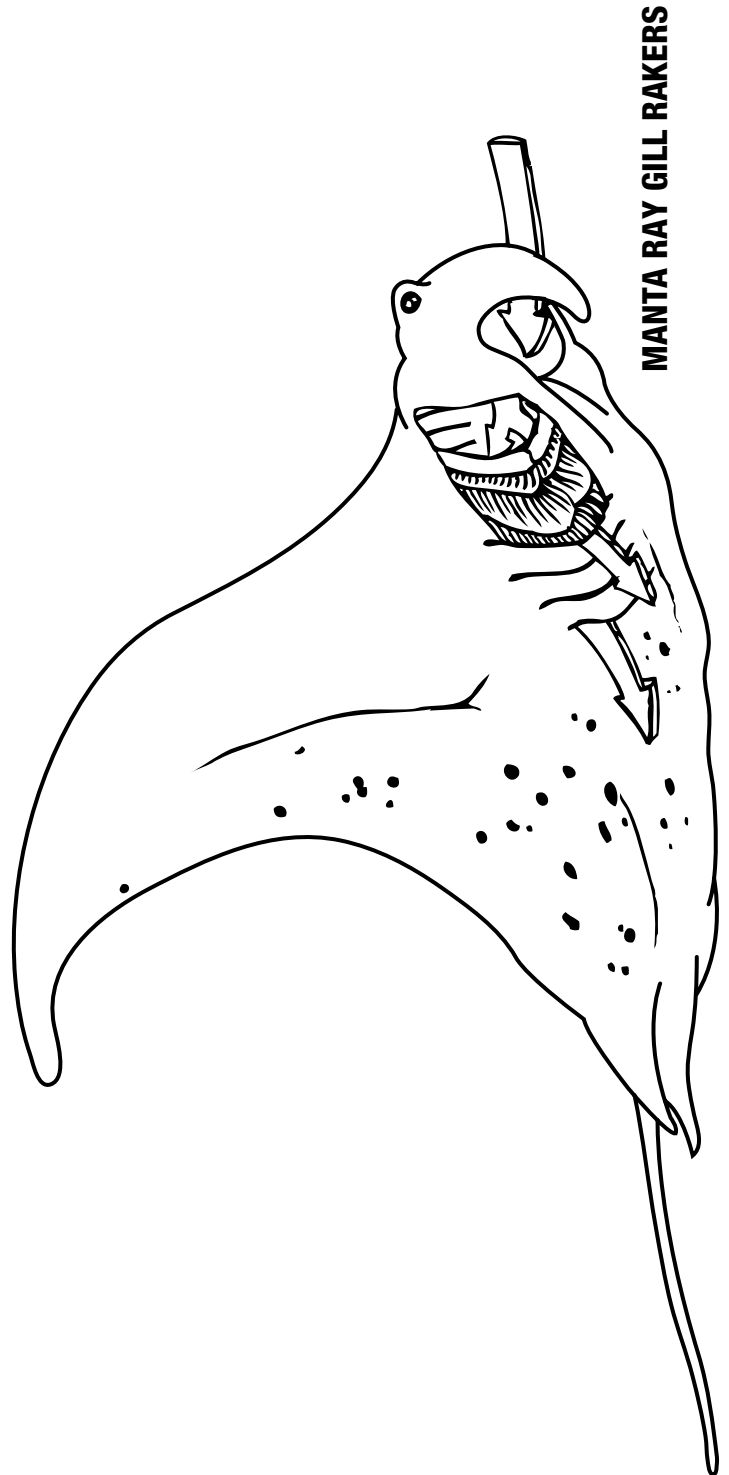




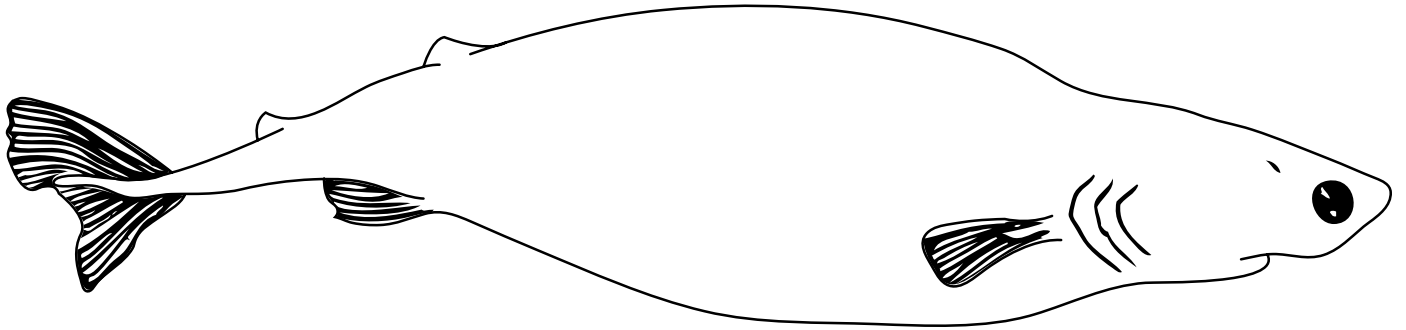




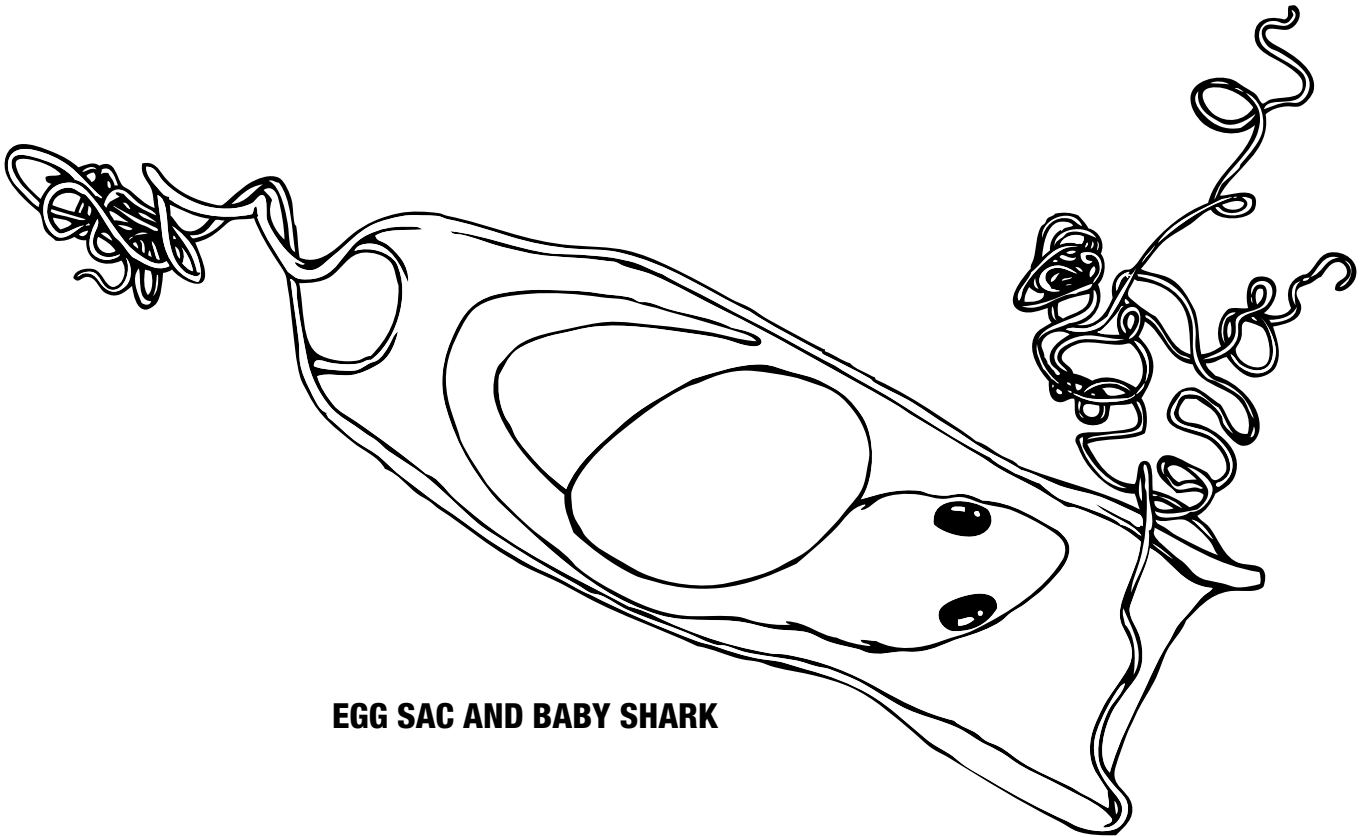
**WHALE SHARK GILL RAKERS**



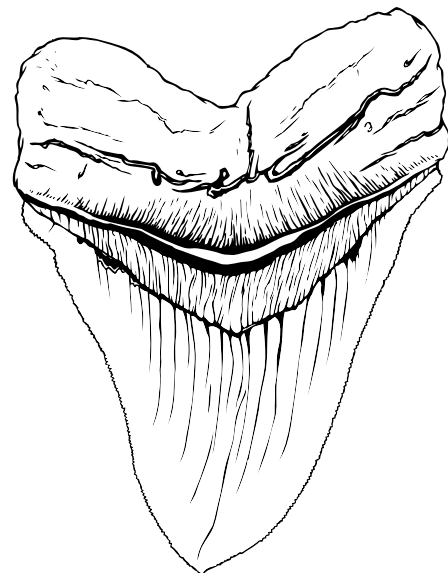
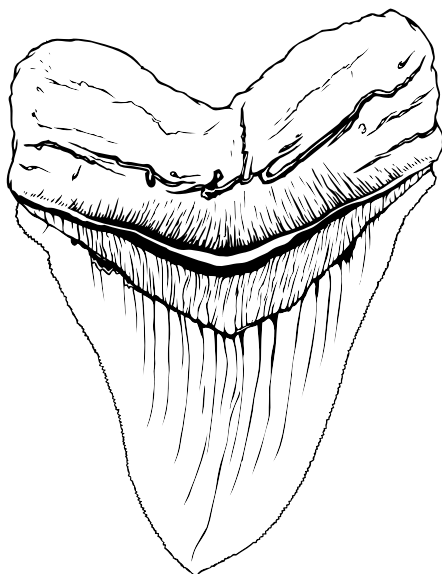
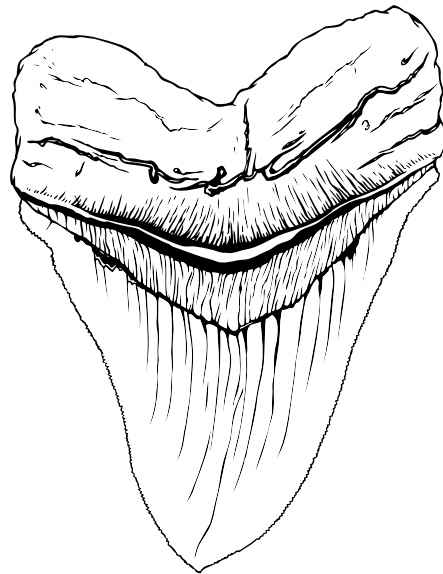
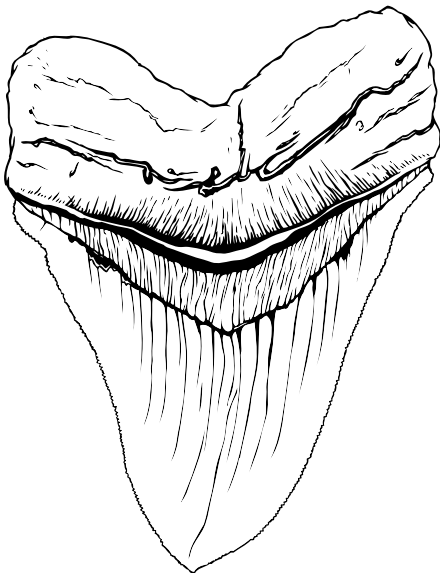
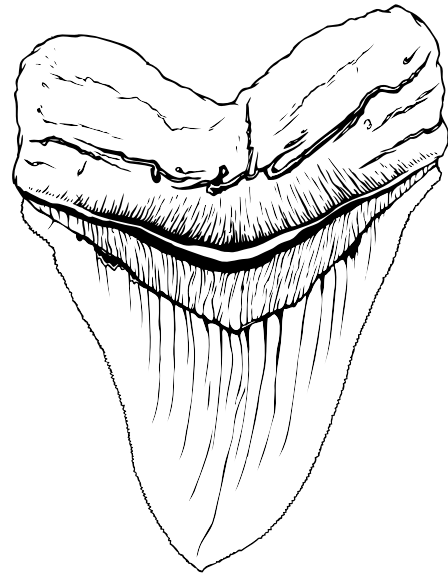
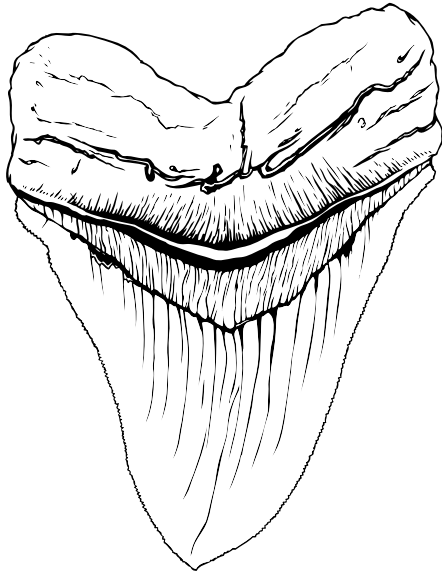
**MANTA RAY GILL RAKERS**



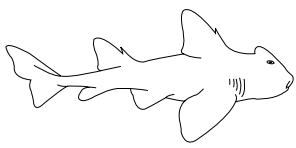
**COOKIE CUTTER SHARK**



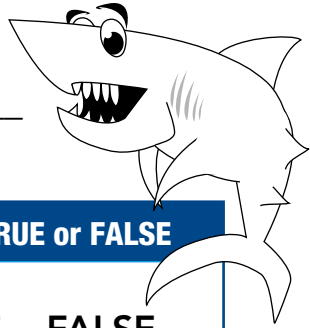
**EGG SAC AND BABY SHARK**







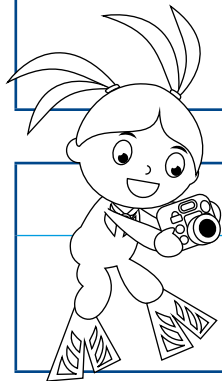
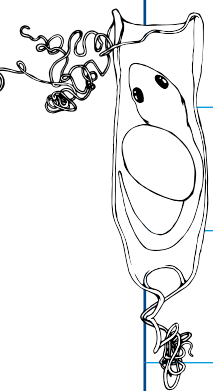
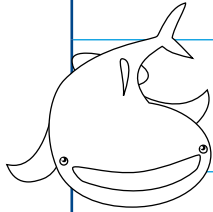
# Shark Trivia



Name \_\_\_\_\_ Date \_\_\_\_\_

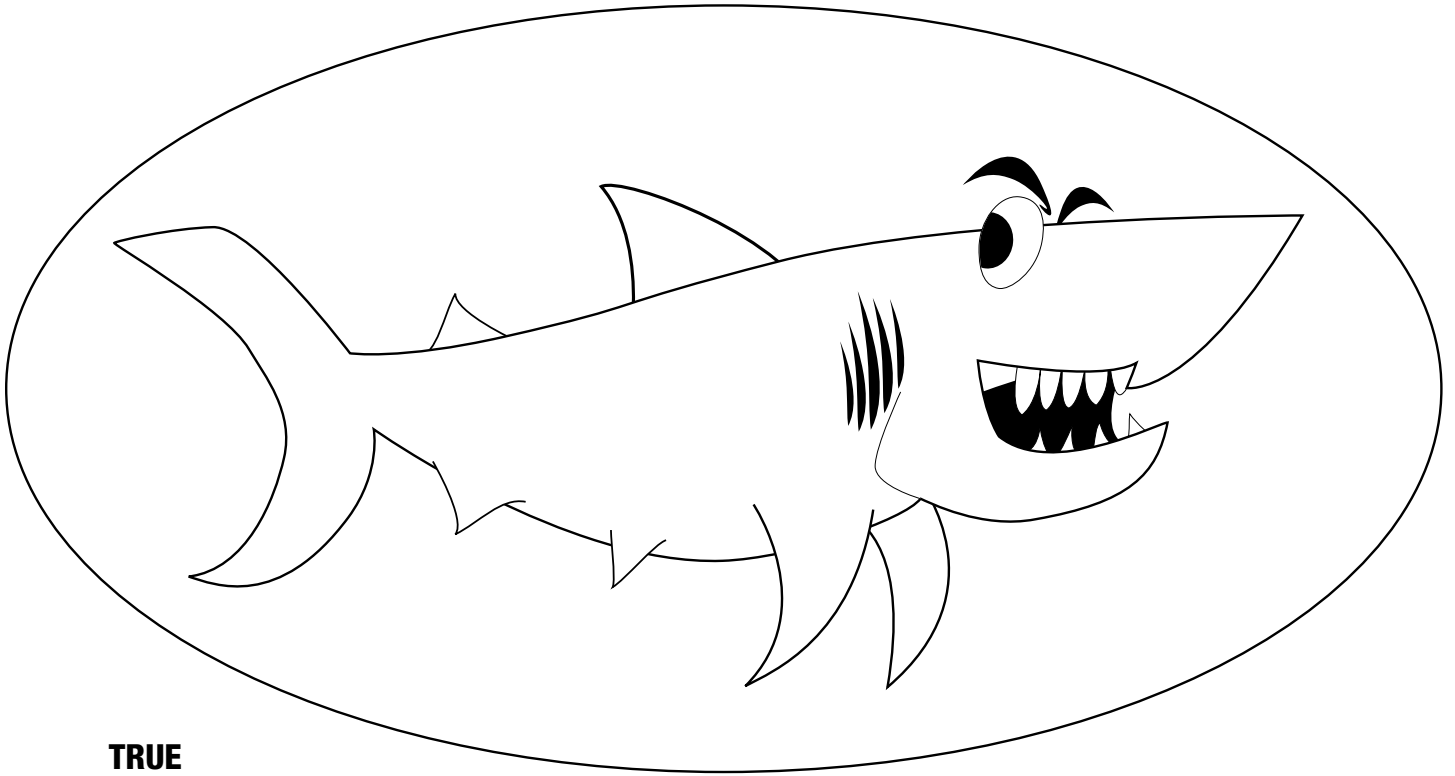
**Directions:** Circle the correct answer to each of the statements below.

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

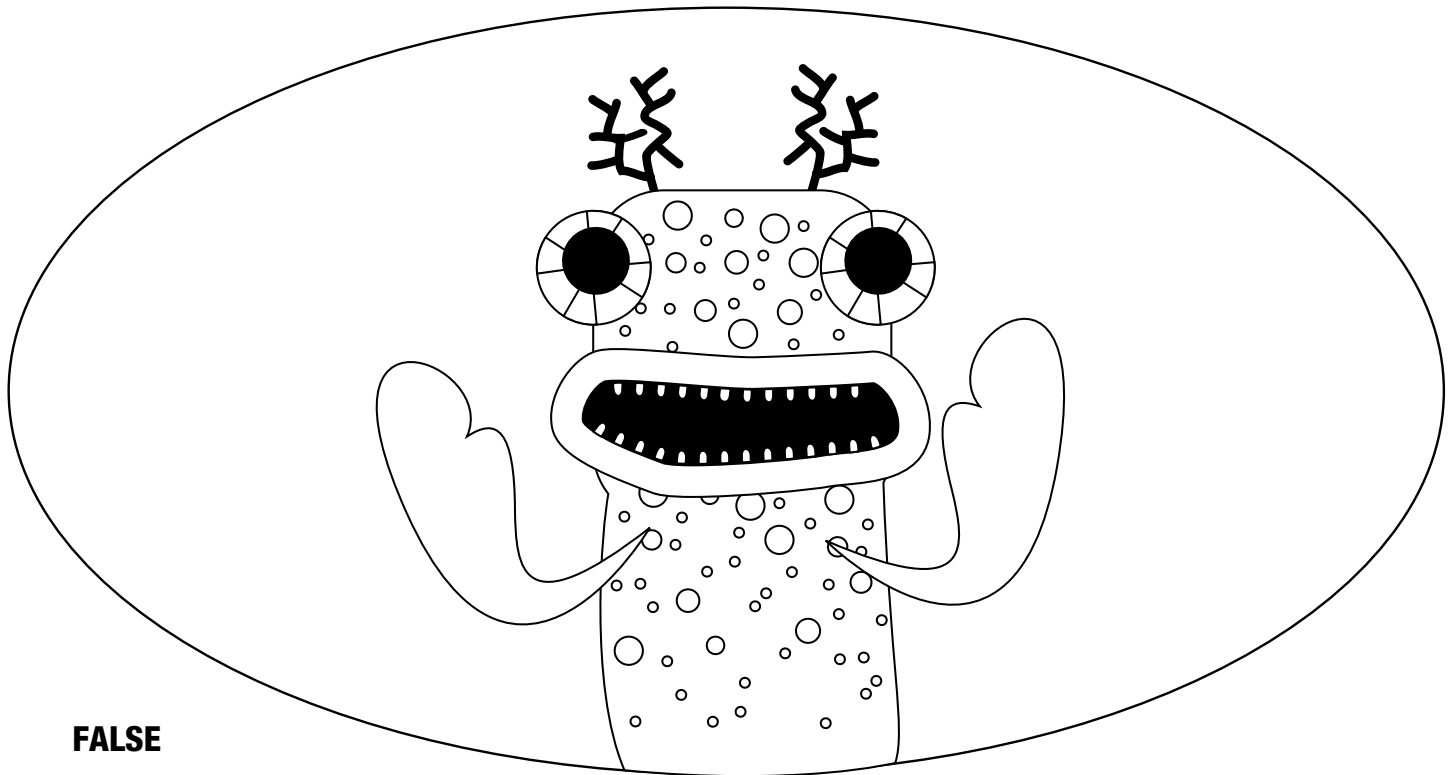


## OCEAN ANNIE'S SUPER SCUBA CHALLENGE

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



**TRUE**



**FALSE**

# Write Your Own Shark Story

strong

declining

deep

skates

bumpy

overfished

body

sandpaper

manta rays

gravel

sting rays

disappearing

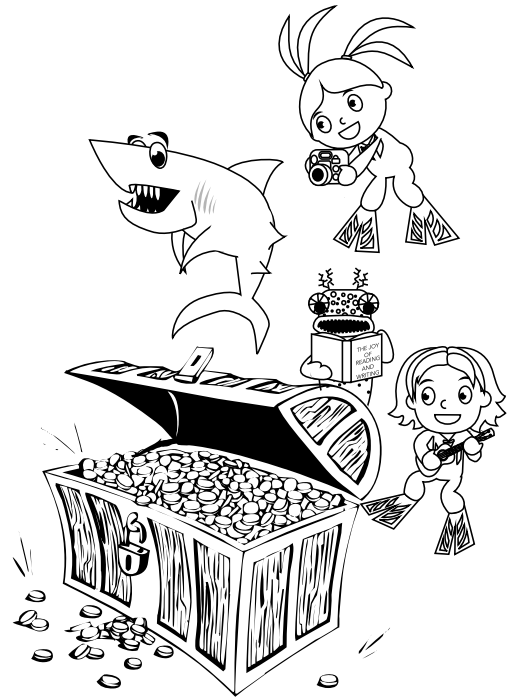
graceful

throughout

amazing

sharp

sharks



endangered

powerful

gills

long

rough

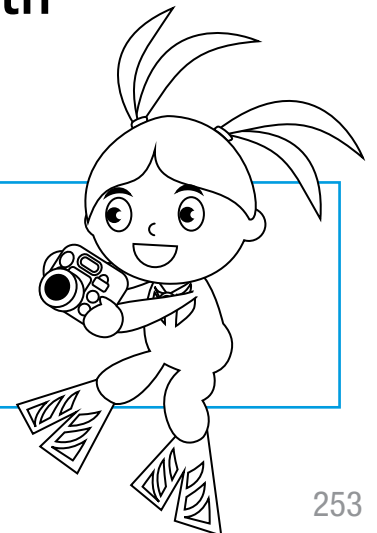
far

smooth

fins

## OCEAN ANNIE'S SUPER SCUBA CHALLENGE

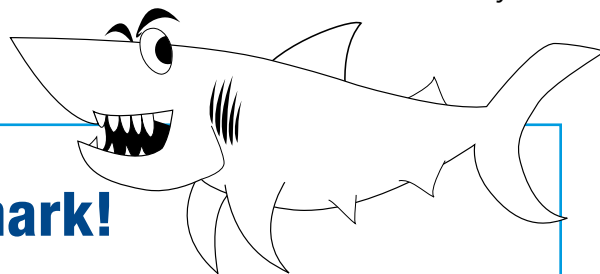
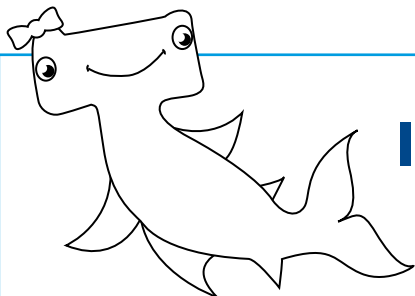
See if you can write sentences or a story about sharks using as many words from this treasure chest as you can.



# Shark Tales

Name \_\_\_\_\_ Date \_\_\_\_\_

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



**I want to be a shark!**

I am a shark and a very \_\_\_\_\_ swimmer,

I use my \_\_\_\_\_ to help me steer as I swim.

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

\_\_\_\_\_ distances. Some of my relatives include

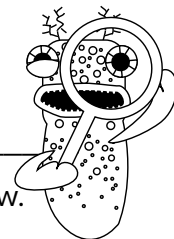
\_\_\_\_\_ and \_\_\_\_\_. My skin is

\_\_\_\_\_ and feels like \_\_\_\_\_. I breathe

through special openings on my body called \_\_\_\_\_.

I need to be protected because sharks are \_\_\_\_\_.

# Shark Mouth 1



Name \_\_\_\_\_ Date \_\_\_\_\_

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

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

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

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

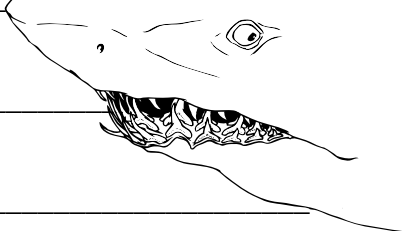
The rice in this bowl represents plankton. Plankton is comprised of phytoplankton and zooplankton. Although some plankton can barely be seen, other plankton can be quite large like jellies. Plankton means organisms that drift in the ocean or fresh water.

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

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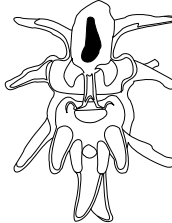


2. Which of the three mouth tools do you think will be least effective for catching plankton? Why?

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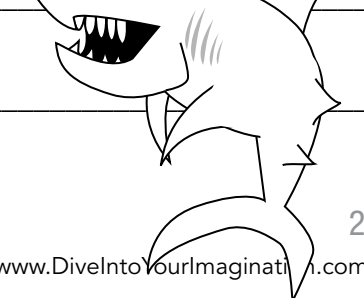
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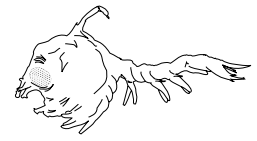
3. For thirty seconds use the net and catch as much plankton, or rice, as you can. Pour plankton into the graduated cylinder as you go along. How much plankton did you catch?

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



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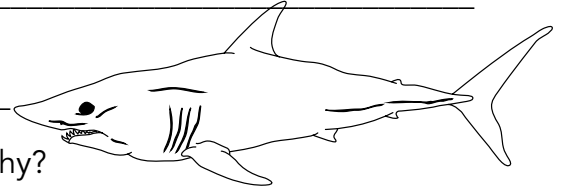
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5. Next use the spaghetti grabber to catch the plankton. How much plankton (rice) did you catch?

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

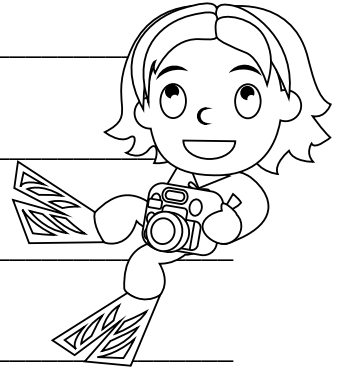


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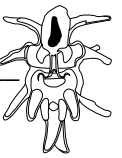
7. Which tool was least effective at catching the plankton and why?



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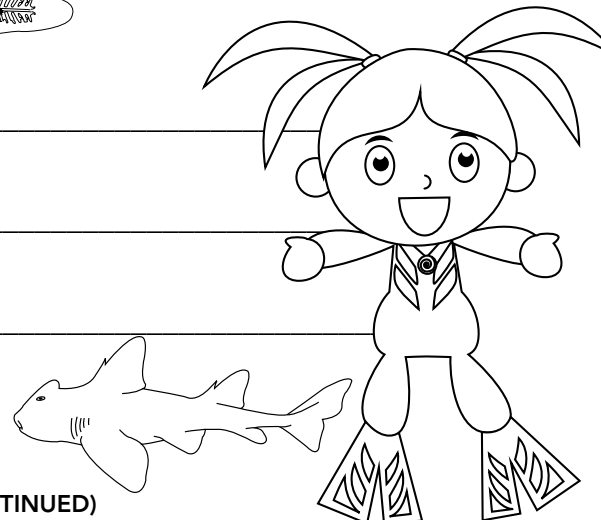
8. What kind of shark do you think eats plankton?



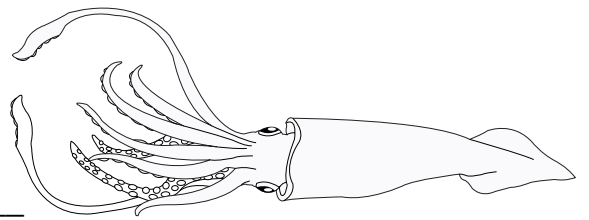
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# Shark Mouth 2



Name \_\_\_\_\_

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

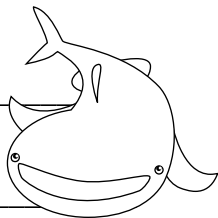
**Net** - like the mouth of the whale shark or basking shark. They sift water and filter plankton as the animal swims along.

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

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

**The pasta in this bowl represents squid.**

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



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

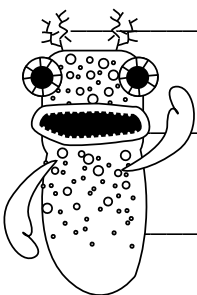


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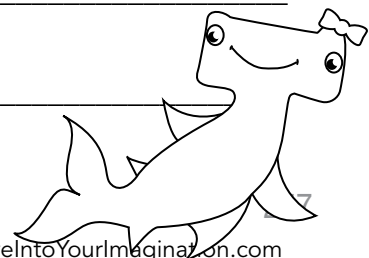
3. For thirty seconds use the net to catch as much squid as you can and then count how many squid you caught. How much squid did you catch?



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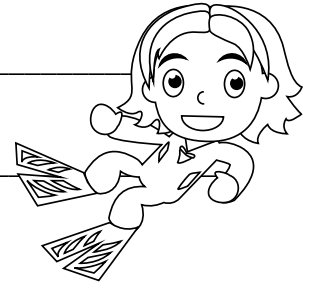


4. For thirty seconds use the pliers to catch as much squid as you can and then count how many squid you caught. How much squid did you catch?

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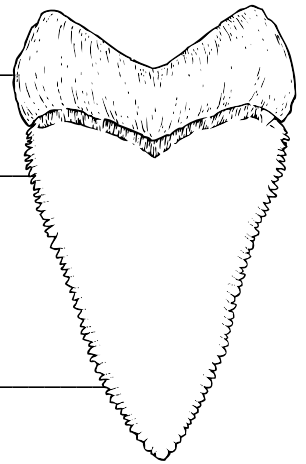
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5. For thirty seconds use the spaghetti grabber to catch as much squid as you can and then count how many squid you caught. How much squid did you catch?

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

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

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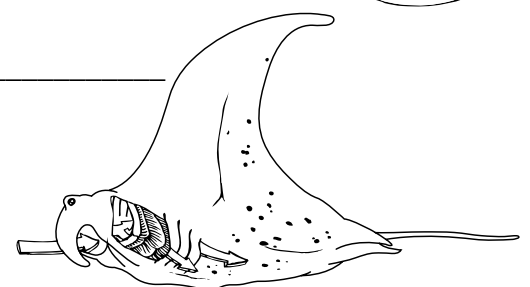
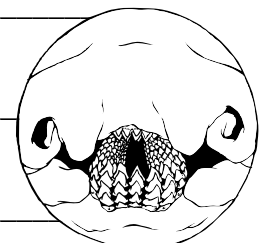
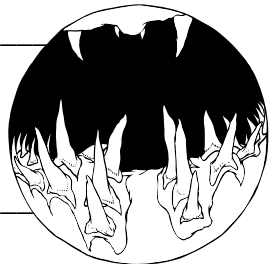
8. What kind of sharks do you think might eat squid? Explain your thinking.

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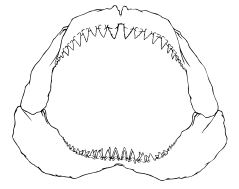
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# Shark Mouth 3



Name \_\_\_\_\_ Date \_\_\_\_\_

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

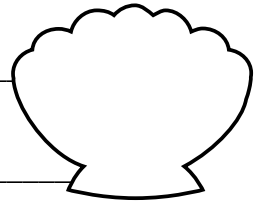
**Net** - like the mouth of the whale shark or basking shark. They sift water and filter plankton as the animal swims along.

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

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

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

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



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

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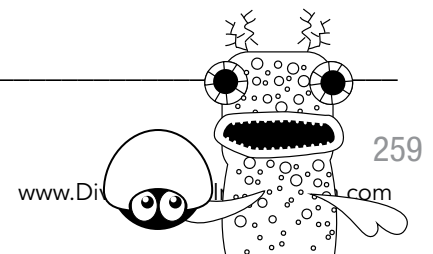
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3. For thirty seconds use the net to catch and crack open as many clams as you can. You must be able to crack them open with the net to eat them. Count how many clams (nuts) you caught and opened. How many clams could you catch? How many of the clams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

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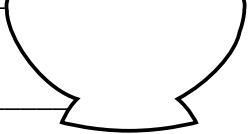


4. For thirty seconds use the pliers or nutcracker to catch and crack open as many clams as you can and then count how many clams (nuts) you caught. How many clams did you catch? How many of the clams could you crack open and eat?

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

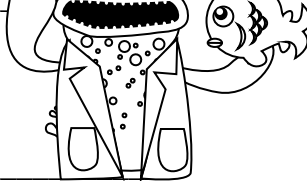
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6. Which tool was most effective at catching the clams?

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

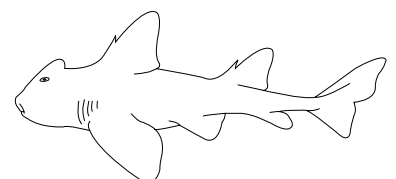
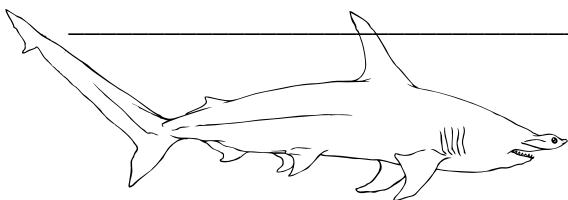
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8. What kinds of sharks do you think might eat clams? Explain your thinking.

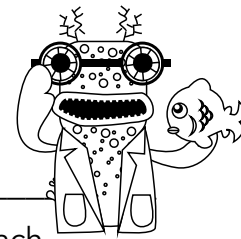
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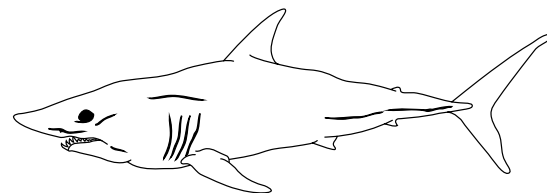
# Shark-A-Mania Math



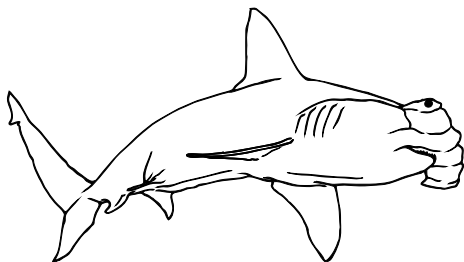
Name \_\_\_\_\_ Date \_\_\_\_\_

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

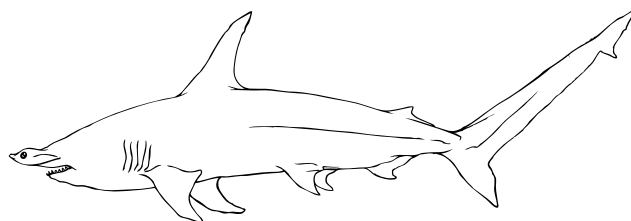
1. If a shark eats two squid a month, how many squid can a shark eat in a year? (*Hint, there are twelve months in a year.*) **Answer** \_\_\_\_\_



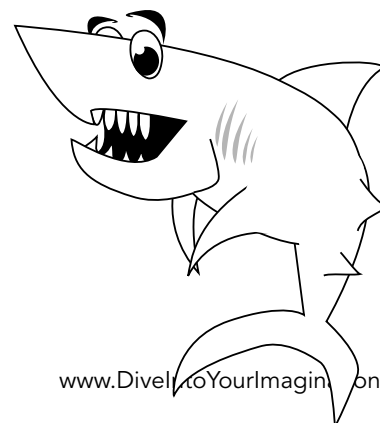
2. If a shark eats three fish every day, how many fish total will the shark have eaten in a week? (*There are seven days in a week.*) **Answer** \_\_\_\_\_



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

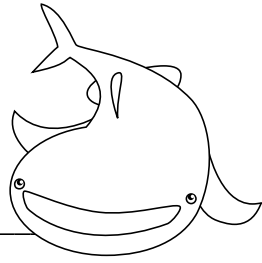


4. While swimming in the ocean a shark passes by one angelfish every ten minutes. How many angelfish would the shark have passed in two hours? (*Hint, there are 60 minutes in one hour.*) **Answer** \_\_\_\_\_



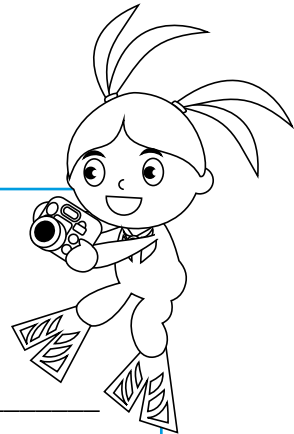
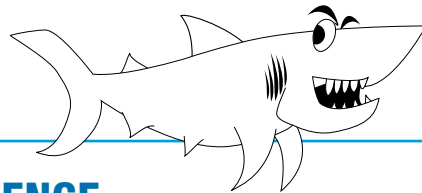
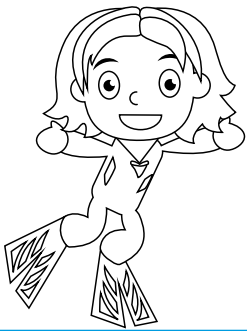
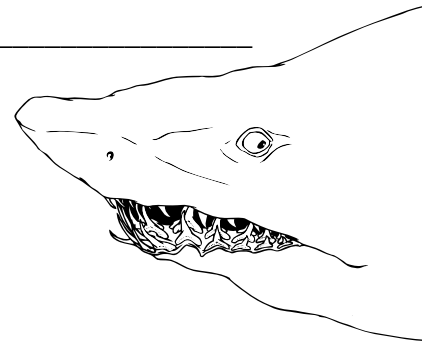
5. A shark passes through a cave once a week. How many times would the shark pass by the cave in a year?  
(Hint, there are 52 weeks in a year.)

Answer \_\_\_\_\_



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

Answer \_\_\_\_\_

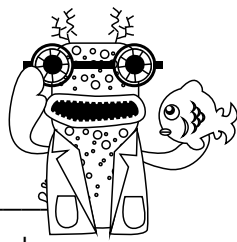


## OCEAN ANNIE'S SUPER SCUBA CHALLENGE

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

Answer \_\_\_\_\_

# Shark-A-Mania Math

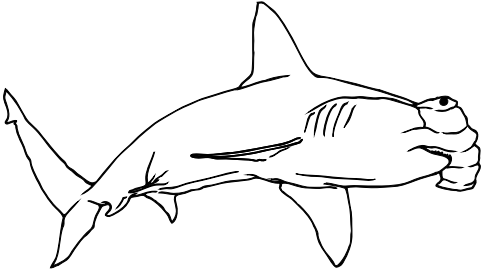


Name \_\_\_\_\_ Date \_\_\_\_\_

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

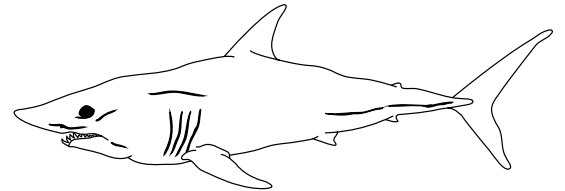
1. If a shark eats seven squid a month, how many squid can a shark eat in a year? (*Hint, there are twelve months in a year.*)

\_\_\_\_\_



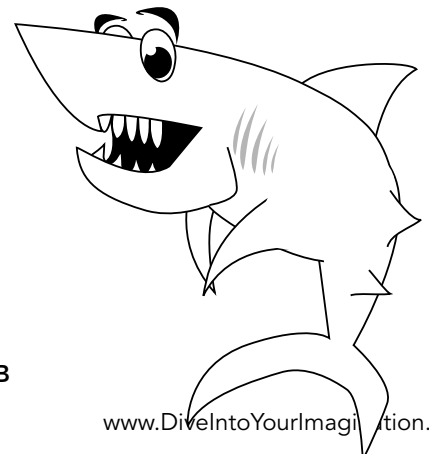
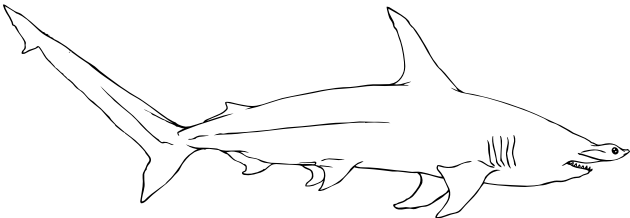
2. If a shark eats four fish every day, how many fish total will the shark have eaten in a week? (*Hint, there are seven days in a week*)

\_\_\_\_\_

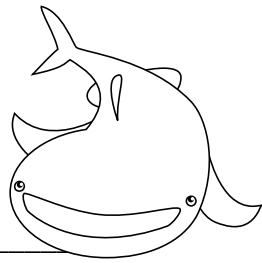


3. If a shark swims six miles an hour, how far can the shark travel over the course of a day? (*Hint, there are 24 hours in a day.*)

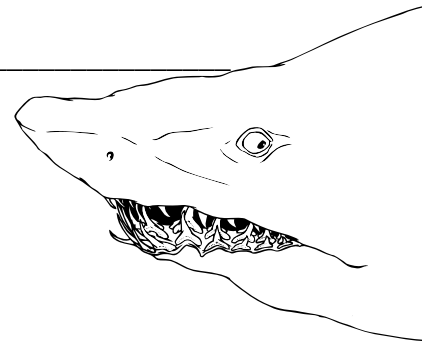
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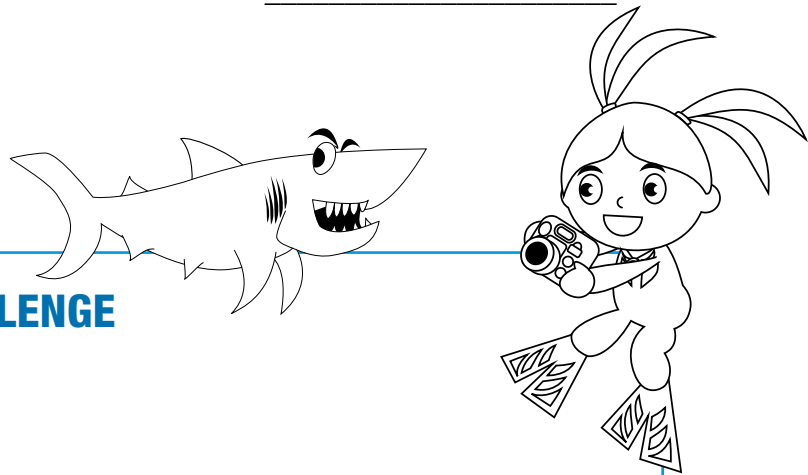
4. While swimming in the ocean a shark passes by one angelfish every twenty minutes for three hours. How many angelfish would the shark have passed in two hours? (*Hint, there are 60 minutes in an hour.*)



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

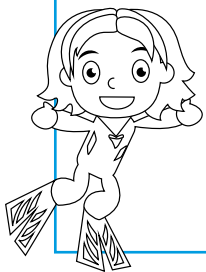


6. A hungry shark eats six fish, three squid, four sea urchins, and five crabs on Monday. How many sea creatures would the shark have eaten if he had the same thing all week? (*Remember there are seven days in a week.*)

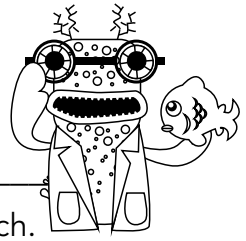


### OCEAN ANNIE'S SUPER SCUBA CHALLENGE

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



# Shark-A-Mania Math



Name \_\_\_\_\_

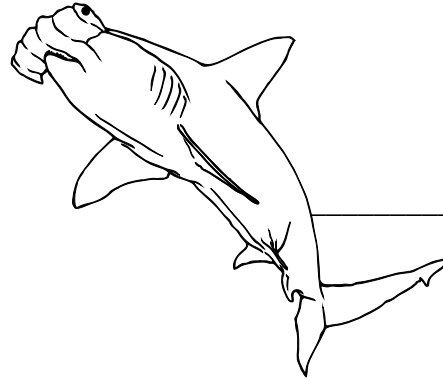
Date \_\_\_\_\_

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

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

\_\_\_\_\_

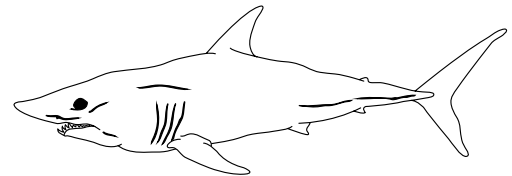
2. If a shark eats four fish every day, how many fish total will the shark have eaten in a week? (*Hint, think about how many days are in a full week.*)



\_\_\_\_\_

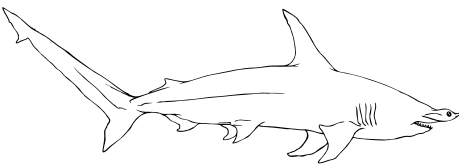
3. If a shark swims nine miles an hour, how far can the shark travel over the course of a day? (*Remember, they swim day and nighttime.*)

\_\_\_\_\_



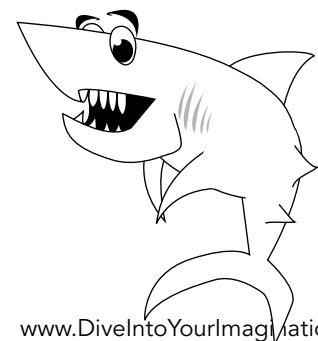
4. While swimming in the ocean a shark passes by one angelfish every fifteen minutes for an hour. How many angelfish would the shark have passed in two hours? (*Hint, how many minutes are in an hour?*)

\_\_\_\_\_

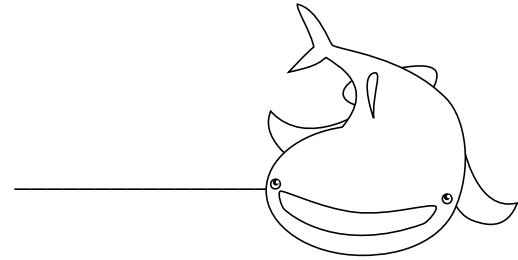


5. If a shark passes through a cave three times a week, how many times would he pass through the cave in a month? (*Look at your classroom calendar, how many weeks in are a month?*)

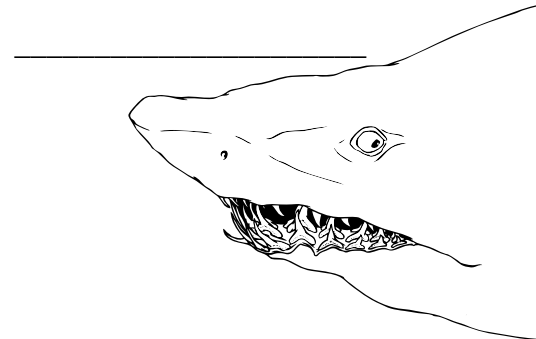
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6. One pilot fish joins in swimming alongside a shark every ten minutes for an hour. How many pilot fish will be swimming along with the shark at the end of an hour?  
*(Think about how many minutes are in an hour.)*

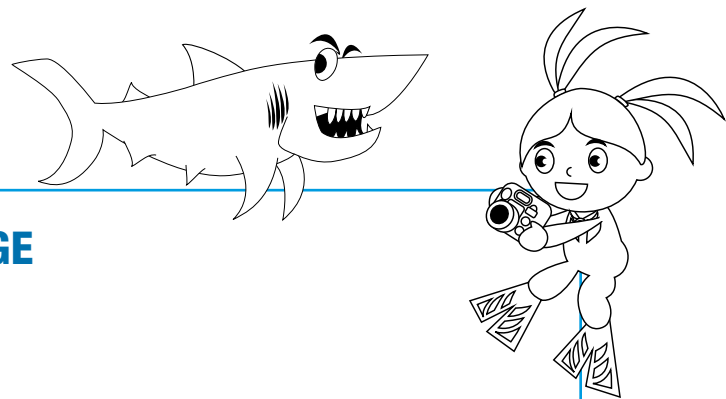


7. A shark passes by the coast of Hawaii twice a week, how many times will she pass by Hawaii in one year?  
*(Hint, how many weeks are in a year?).*



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

\_\_\_\_\_



## OCEAN ANNIE'S SUPER SCUBA CHALLENGE

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

\_\_\_\_\_









**CLASSROOM ACTIVITY STATION F3 - SHARK TRIVIA ANSWERS**

Questions for Students	Answers for Teachers
Some sharks spend much of their day resting nearly motionless on the sand.	<i>TRUE, it is a common misunderstanding that sharks must swim all the time in order to pass water through their gills to breathe. Many types of sharks remain still for long periods of time and "breathe" by using muscles in the gills to pump the water in and out rather than swimming.</i>
Some sharks can swim into river areas for periods of time.	<i>TRUE, though there is no such thing as a "fresh water" shark, some types of shark can tolerate fresh water for long periods and are known to travel impressive distances up rivers. Bull sharks and saw sharks both have been documented in river mouths.</i>
Sharks always swim alone.	<i>FALSE, sometimes sharks are seen in groups of hundreds. Certain hammerhead sharks are famous for exhibiting this schooling behavior.</i>
Sharks can swim in water as shallow as 2ft and as deep as or deeper than 4,000 feet.	<i>TRUE, sharks do not have the sensitive gas-filled swim bladder that most fish have, so they are able to tolerate a wide variety of water depths and the change in pressure that goes with it.</i>
Like all fish, sharks have only one pair of gills.	<i>FALSE, sharks usually have five, but may have six or even seven pairs of gills.</i>
Some sharks have an endless supply of teeth and can replace as many as they loose for as long as they live.	<i>TRUE, some sharks replace entire rows of teeth while others replace individual teeth that are lost. Some sharks will grow thousands of teeth during their lives.</i>
Some sharks lay eggs.	<i>TRUE, shark eggs are very leathery and some look like cork screws, while others look like pouches and are often called mermaid's purses.</i>
Shark parents work hard raising their young to protect them in the ocean.	<i>FALSE, new born sharks are tiny versions of adults, capable of protecting themselves and are on their own from the day they are born.</i>
Some sharks can jump over twenty feet in the air.	<i>TRUE, mako sharks are known for their ability to leap from the water and have been reported to jump as high as thirty feet! Also Great White Sharks have been observed jumping out of the water when hunting.</i>
Sharks were swimming in the ocean even before dinosaurs walked the earth.	<i>TRUE, the oldest shark fossils go back about 420 million years, while the oldest dinosaur fossils only date back about 240 million years!</i>

**OCEAN ANNIE'S SUPER SCUBA CHALLENGE**

<p>What part of the sharks' bodies do we find as fossils? Do you know why?</p>	<p><i>TEETH! Sharks bodies do not usually fossilize because they are made of cartilage. Have students look at a skeleton of a human body and skull. You never see a person's nose or ears because these are made of cartilage. Teeth are the only part of a shark that can fossilize!</i></p>
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**CLASSROOM ACTIVITY STATION F6 - SHARK-A-MANIA MATH****FORM A**

1. 48
2. 21
3. 48
4. 12
5. 52
6. 56
- Challenge
- 1200

**FORM B**

1. 84
2. 28
3. 144
4. 6
5. 104
6. 126
- Challenge
- 2400

**FORM C**

- |        |           |
|--------|-----------|
| 1. 72  | 8. 105    |
| 2. 28  | Challenge |
| 3. 216 | 7500      |
| 4. 8   |           |
| 5. 12  |           |
| 6. 6   |           |
| 7. 104 |           |

**CLASSROOM ACTIVITY STATION G1 - Munch-A-Bunch****FORM A**

1. 7
2. 10
3. 4
4. 9
5. 4
6. 6
7. 10
8. 20

**FORM B**

1. 17
2. 18
3. 10
4. 18
5. 9
6. 6
7. 24
8. 21

**FORM C**

1. 37
2. 79
3. 40
4. 29
5. 5
6. 11
7. 32
8. 40