

SCIENCE·3D

SHARKS!

In this packet, sample student answers are provided in **red** and notes to teachers are in **blue**.

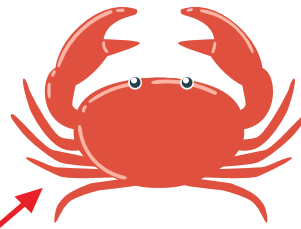
During this **Mission Research**, students will use their knowledge of structure and function to match the shapes of shark jaws and teeth to the types of food those sharks eat. Then, they will use this knowledge to support evidence for how fossil organisms might have lived and moved.



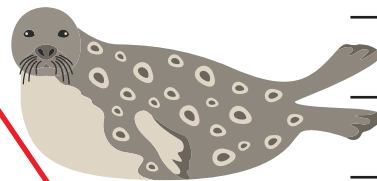
How do scientists study the lives of extinct animals? They can compare their fossils to animals living today. They look for similarities and differences. Let's give it a try with sharks!

Activity 1: Teeth and Food of Today's Sharks and Rays

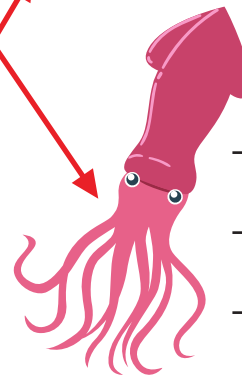
Match the shark tooth and jaw on the left with the types of prey they are best adapted to eat on the right. On the lines next to each food, **describe** evidence for why you think the shark eats this type of food.



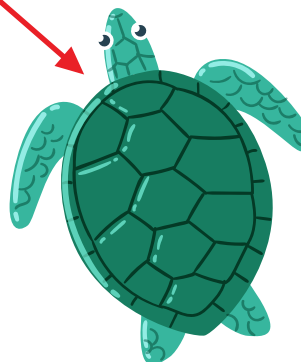
Teeth are built
_____ for crushing/holding



Teeth big/ built
_____ for cutting



Teeth would break
_____ on big prey;
_____ for holding



Teeth are big and will
_____ not break on hard
_____ prey; built for sawing

Activity 2: What Did They Eat?

Scientists compare fossils to structures from living animals to learn about them. They can predict what kinds of foods they ate and environments they lived in. Use this information to answer the questions in Activity 2. The following activity can be completed as an independent or class exercise in which students debate the types of prey and the evidence for their ideas.

1. For each photo of tooth fossils, predict the type of food the shark likely ate. **Describe** the evidence you used to make your predictions based on your answers in Activity 1.



I think this shark ate large prey like big
fish, seals, or dolphins because it looks
like it could cut and is strong.



I think this shark ate small fish and squid. The pointy teeth would be good for
holding slippery prey. They would break on big or hard prey.



Answers may vary. Students may think that this tooth would be good for cutting big and soft prey like big fish, seals, and dolphins (correct). They may, however, think that these are for smaller fish. Credit should be given if answers make sense and are supported with evidence.



This shark probably ate big prey. The cutting edge could likely even eat hard prey, like sea turtles. This ancient tiger shark probably had a very diverse diet and could eat anything from soft prey to hard prey.

2. Examine the pictures of fossils. In the paragraphs below the pictures, circle the best answers and fill in the blanks. Use evidence from the structures in the images and what you know about structures of living animals.



I think this animal lived **on land/in the water** because it has four legs and claws. I think this animal ate **plants/small animals/large animals** because it has large sharp teeth. It is a lot like a lion/bear/tiger, which is an animal that is living today. It is similar to this animal because they both have big sharp teeth, claws, and walk on four legs.



I think this animal lived **on land/in the water** because it has a tail fin. I think this animal ate **plants/small animals/large animals** because it has a long mouth and small teeth. It is a lot like a dolphin (could also say shark), which is an animal that is living today. It is similar to this animal because they both have a beak, large tail fin, dorsal fin, flippers.



I think this animal lived **on land/in the water** because it has four legs and feet for walking.

I think this animal ate **plants/small animals/large animals** because it has flat teeth. It is a

lot like a cow/ sheep/elephant (answers may vary), which is an animal that is living today. It is

similar to this animal because they both have flat teeth, large body, walk on four legs.



I think this animal lived **on land/in the water** because it has four legs with toes.

I think this animal ate **plants/small animals/large animals** because it has big pointy teeth (students may argue large or small animals reasonably). It is a lot like a alligator, lion, tiger (answers vary),

which is an animal that is living today. It is similar to this animal because they both have accept any reasonable answer that draws an appropriate comparison with a living animal.



I think this animal **swam/walked/flew** because it has wings. It is a lot like a bat or bird, which is an animal that is living today. It is similar to this animal because they both have wings.