Grade 8 · Science

Sharks: Masters of the Ocean

Sharks find hidden prey using electricity, vibration and smell.

How can a shark find a fish buried in the sand without seeing it?





Do Now

Answer in silence, with no notes. 5 minutes.

1. What is a producer in a food chain?
2. What is a consumer in a food chain?
3. Where does the energy in most ocean food chains originally come from?
4. In a food chain, what happens to the energy as it moves from one organism to the next?

By the end of this lesson

1. I can explain how a shark's cartilage skeleton and gills support its life in water.
2. I can analyze how the lateral line and ampullae of Lorenzini help sharks detect prey.
3. I can evaluate how sharks as predators affect energy flow and balance in an ecosystem.

Key words

Chondrichthyan
Cartilaginous fish-sharks, rays and skates-have cartilage skeletons.

Cartilage
Flexible connective tissue that forms a shark's skeleton instead of bone.

Lateral line
A shark's lateral line senses water vibrations and movement.

Ampullae of Lorenzini
Organs that sense electrical fields given off by other animals.

Predator
An animal that hunts and eats other animals for energy.

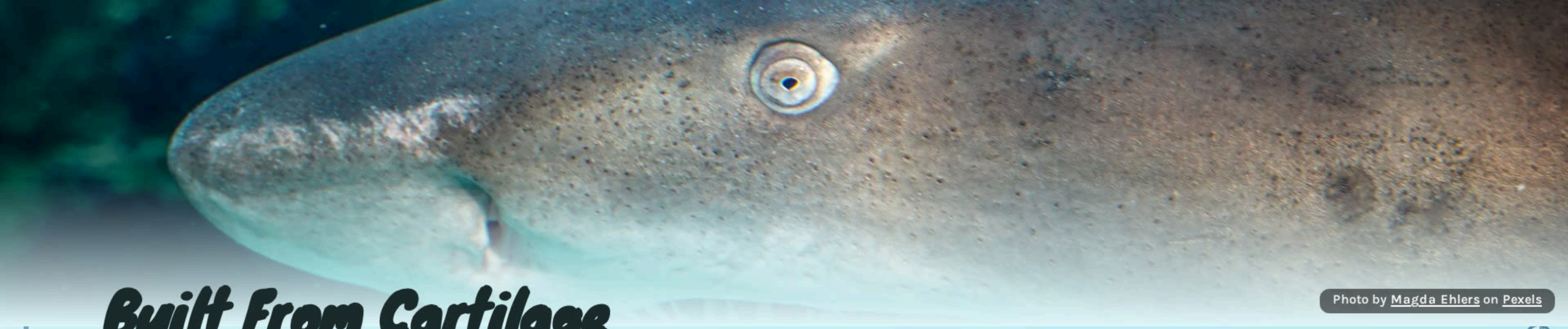


Photo by Magda Ehlers on Pexels

Built From Cartilage

How does cartilage help a shark swim?

- **Chondrichthyans**: sharks, rays and skates have cartilage skeletons, not bone.
- **Tooth replacement**: sharks constantly replace their teeth throughout their lives.
- Sharks use gills to pull oxygen from water flowing over them.
- **Placoid scales**: tooth-like scales that reduce drag as the shark swims.
- Sharks are chondrichthyans, the same group as rays and skates.

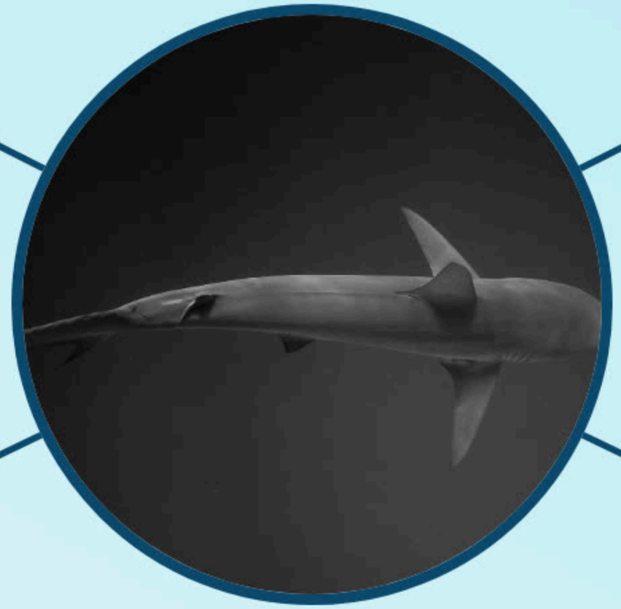
> How might constantly replacing teeth help a shark that hunts?

Shark Senses and Body Parts

Which sense would help a shark find a hidden fish in murky water?

Gills
Extract oxygen from water passing over them.

Lateral line
Detects vibrations and movement in surrounding water.



Ampullae of Lorenzini
Sense electrical fields given off by other animals.

Cartilage skeleton
Flexible skeleton made of cartilage, not bone.

Photo by Daniel Torobekov on Pexels

Sharks as Predators

How do sharks move energy through a food web?

Sharks are carnivores, so each meal moves matter and energy through the food web from one organism to the next. As **predators**, they help control prey populations, which keeps ecosystems in balance. Whale sharks are the exception, filter-feeding on plankton instead of hunting other animals.

> What might happen to fish populations if sharks disappeared from a reef?

Match Shark Features to Functions

Match each word to its meaning.

1. **Cartilage**
2. **Placoid scales**
3. **Lateral line**
4. **Ampullae of Lorenzini**
5. **Predator**

a. Detects vibrations and movement in the surrounding water

b. An animal that hunts and eats other animals for energy

c. Sense electrical fields given off by other animals

d. Tooth-like structures that reduce drag as the shark swims

e. Flexible tissue that forms a shark's skeleton instead of bone

Answers: Match Shark Features to Functions

- ✓ Cartilage: Flexible tissue that forms a shark's skeleton instead of bone
- ✓ Placoid scales: Tooth-like structures that reduce drag as the shark swims
- ✓ Lateral line: Detects vibrations and movement in the surrounding water
- ✓ Ampullae of Lorenzini: Sense electrical fields given off by other animals
- ✓ Predator: An animal that hunts and eats other animals for energy

Predator Role Explanation

1. Read the prompt: Explain how a shark's lateral line or ampullae of Lorenzini helps it feed, and how this affects prey populations.
2. Write a Claim sentence: My claim is _____.
3. Write one Evidence sentence using a fact from slide 6 or slide 7, starting with: The evidence is _____.
4. Write a Reasoning sentence that links the evidence to prey populations and ecosystem balance, starting with: This matters because _____.
5. Check that your answer uses at least two of these terms: predator, lateral line, ampullae of Lorenzini, prey population, ecosystem balance.

Students work solo 12 min on paper; check claim, evidence, reasoning.