



Meet the sharks

Background reading for teachers

You don't need to be a shark expert to teach this lesson. This reading gives you the science behind each slide, with sources you can check. Numbers such as shark bites change every year, so it is worth checking the latest International Shark Attack File summary before you teach.

Sharks on our reefs

Sharks and rays are becoming a regular sight on the reefs MCP monitors in Zamboanguita, Negros Oriental. In the 12 months to April 2026, MCP volunteers recorded six whale sharks at four sites, at least three manta rays, four eagle rays, and bamboo sharks seen five or more times at two marine protected areas. The bamboo sharks are probably the same two animals, living there full time. Nobody knows yet whether this is a sign of reef recovery, of warming seas moving animals around, or both.¹

What is a shark?

Sharks are fish. Together with rays and the deep-sea chimaeras, they make up the cartilaginous fishes, whose skeletons are made of cartilage rather than bone. The only parts that are not cartilage are the teeth, which is why most shark fossils are teeth.⁶ The oldest shark-like scales are about 450 million years old, which makes sharks older than trees. The first trees appeared about 385 million years ago.^{6, 7} The last global assessment covered 536 species of sharks, 611 rays and 52 chimaeras.⁵

The myths, and what the evidence says

- **Shark bites are rare.** In 2025 the International Shark Attack File confirmed 65 unprovoked bites worldwide, a little below its ten-year average of 72. Nine were fatal.²
- **Sharks don't hunt people.** Most unprovoked bites are classed as mistaken identity in poor visibility, or a shark investigating something unfamiliar. Predation on people is rare. Feeding sharks and spearfishing also lead to bites, which is why the file counts them separately.³
- **Not all sharks are big and fierce.** The whale shark, the largest fish alive, grows to about 13 metres, with reports of up to 18 metres. It feeds on plankton, fish eggs and small fish, and it is listed as Endangered.¹¹
- **Sharks have a good sense of smell, but not a magical one.** Tests suggest they are about as sensitive as other fish, picking up some chemicals at around one part in 10 billion, roughly a drop in a small swimming pool. The smell also has to drift to them on the current.⁸
- **Only some sharks must keep swimming.** Great whites, makos and whale sharks can only breathe by swimming with their mouths open. Many others, including the bamboo sharks on our reefs, can rest on the bottom and pump water over their gills.⁹
- **Megalodon is extinct.** Its fossil record ends about 3.6 million years ago.¹⁰
- **Sharks replace their teeth all their lives.** Some lose tens of thousands of teeth over a lifetime.¹²

The super senses, station by station

- **A, skin:** shark skin is covered in dermal denticles, tiny tooth-like scales that point towards the tail. They protect the shark and are thought to help water flow smoothly over the body.
- **B, cartilage:** lighter and more flexible than bone, which helps sharks twist and turn.
- **C, electric sense:** the ampullae of Lorenzini are jelly-filled pores around the snout that pick up the weak electric fields made by other animals' muscles. They help sharks find prey hidden in sand. Hammerheads sweep their wide heads over the seabed like a metal detector.
- **D, lateral line:** a line of sensory pores along each side of the body that detects movement and vibration in the water, such as a struggling fish.
- **E, eyes:** a mirror-like layer behind the retina, the tapetum lucidum, reflects light back through the eye so sharks can see in dim light. Cats have one too.
- **F, teeth:** tooth shape matches diet, from the saw-edged tiger shark tooth that can cut turtle shell to the tiny teeth of the whale shark, which filters its food and hardly uses its teeth.

Why this matters

The numbers on slide 17 are the heart of the lesson. Fishing killed about 80 million sharks in 2019, and about 25 million of them belonged to threatened species. Counting sharks that were not identified to species, the total may have been as high as 101 million.⁴ More than a third of all sharks and rays are now threatened with extinction, and overfishing is the main cause.⁵ Lesson 3 looks at why this happens and what people are doing about it.

Sources

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