

What Makes a Shark a Shark?

Objective

- To teach students the external anatomy of the shark.

The Activity

Sharks have a very unique physiology that makes them a perfectly adapted ocean predator. In this activity students will explore the external anatomy of the shark by labeling the following features on the activity sheet.

Skin

The shark's skin is unique from any other creature. Instead of scales, sharks have what is known as dermal denticles. These dermal denticles have the same composition as teeth and cover the sharks' body in a pattern that allows for water to flow smoothly over the shark maximizing its speed. Because the shark's skin is like sandpaper, cut out a piece of sandpaper to cover the body of the shark. Glue it onto the activity sheet and draw an arrow to label the skin "dermal denticle".

Movement

For each of the following fins draw them in the proper position on the shark activity sheet and label them with their correct names.

The caudal fin is the tail fin of the shark. It is used for propulsion during locomotion. The caudal fin is divided into a larger dorsal lobe and a smaller ventral lobe. This uneven tail type is known as heterocercal.

The paired fins that are located at the front, underside of a shark are known as the pectoral fins. These fins move the shark up and down as it swims.

Fins found on the sharks back are called the dorsal fins. Some sharks have one and some have two.

The pelvic fins are paired fins located further back on the underside of the shark.

The anal fin is a single fin located back near the tail of the shark. The dorsal, pelvic and anal fins all keep the shark stabilized as it swims.

Breathing

Using a permanent marker, draw in the following features on top of the sandpaper and label them by drawing an arrow indicating which feature you are labeling.

For respiration to occur, oxygenated water must flow over the gills at all times. Unlike most fish, sharks do not have gill covers. Water flows over the gills when the shark moves, when the shark stays still in a current or when the shark fans water over its gills. All sharks have 5-7 gills on the side of their heads.

The spiracle is a gill slit found directly behind the eye. It is most pronounced in bottom dwelling sharks and rays. The spiracle is used to provide oxygenated blood directly to the eyes and brain.

Sensory

Draw these features using a series of dots onto the sandpaper. Create arrows pointing towards these features and label them properly.

The ampullae of Lorenzini are a sensory network of pores that appear as dots around the head of the shark. These pores are a way of spotting prey for sharks as they detect magnetic fields coming from other fish. The ampullae also allow sharks to detect changes in water temperature.

Like the ampullae of Lorenzini, the lateral line is a series of sensory pores. The pores lie just below the skin and are open to the outside, allowing movement by prey to be detected.

One Fish at a Time