

SHARK IDENTIFICATION ACTIVITY

Sharks can be identified by several different features, but one of the most important is their teeth. The size, shape, and pattern of a shark's teeth are unique to each species and allows for identification, even if only one tooth is present. The main reason for the diversity of shark teeth is that they are adapted to catching and eating the specific prey each shark hunts.

Using the below information about three different shark species, identify the three unknown specimens in the pictures that follow. Pay attention to the tooth shape, any changes in size, and consider how they might be used to capture prey.

Sand Tiger shark – *Carcharias taurus*

Dentition

The teeth of the sand tiger shark have long and narrow primary cusps with small lateral cusplets. The upper anterior teeth are separated by small intermediate teeth at the symphysis. The upper teeth number 44 to 48 and the lower teeth number 41 to 46. The teeth in the corners of the mouth are small and numerous. The ragged looking teeth give the sand tiger shark a menacing appearance.

Food Habits

The diet feeder consists primarily of a wide variety of bony fish including herring, bluefish, flatfish, eel, mullet, snapper, hake, porgie, croakers, bonito, remora, sea robin and sea bass. They also consume rays, squid, crab, lobster and other smaller sharks. Cooperative feeding has been observed by schools of sharks surrounding and bunching schooling prey prior to feeding on them.

Nurse shark - *Ginglymostoma cirratum*

Dentition

Nurse sharks have nine rows of small, tightly packed teeth. Each tooth has one central pointed cusp with 3 small cusplets on either side. They possess an independent dentition, the simplest type of tooth arrangement found in sharks where there is no overlap between teeth. This allows forward movement of replacement teeth that is independent of adjacent teeth in the jaw. (Sharks with imbricate or overlapping dentitions, can only replace teeth when the adjacent "blocking" teeth are also lost). Replacement rates among juveniles are generally faster than for adults. Tooth replacement occurs faster in summer, when water temperatures are higher (Luer et al. 1990).

Food Habits

The nurse shark is a nocturnal predator that feeds mainly on fish, stingrays, mollusks (octopi, squids and clams) and crustaceans. Algae and corals are occasionally found in their stomachs, as well. The nurse shark has a small mouth but its large pharynx allows it to suck in food items efficiently. This system probably allows the species to prey on small fish that are resting at night, but that are too active for the sluggish nurse shark to catch during the day. Heavy-shelled conchs are flipped over, and the snail extracted by use of suction and teeth (Rosa et al. 2006).

Young nurse sharks have been observed resting with their snouts pointed upwards and their bodies supported off the bottom on their pectoral fins. Some suggest this posture may provide a false shelter for crabs and small fishes that the shark can ambush and eat (Compagno et al. 1984).

Bull shark - *Carcharhinus leucas*

Dentition

Upper jaw teeth of the bull shark are broad, triangular, and heavily serrated. Lower jaw teeth have a broad base, and are narrow and triangular with fine serrations. Anterior teeth are erect and nearly symmetrical, while posterior teeth become more oblique in shape.

Food Habits

Bony fishes and small sharks make up the vast majority of the bull shark's diet. In the western Atlantic they commonly feed on mullet, tarpon, catfishes, menhaden, gar, snook, jacks, mackerel, snappers, and other schooling fish. They also consume stingrays and juvenile sharks including small individuals of their own species in their inshore nursery habitats. Other food items occasionally reported in bull sharks include sea turtles, dolphins, crabs, shrimp, sea birds, squid, and dogs. Bull sharks appear sluggish as they cruise slowly along the bottom, but are capable of quick bursts that allow them to capture smaller, agile prey. They have been recorded to move at over 11 mph (19 km/h) over short distances.

Shark information gathered from: <https://www.floridamuseum.ufl.edu/discover-fish/sharks/>

Prehistoric Identification

After you have identified each specimen, look at the tooth on the right and think about what the shark it belonged to might have hunted.

- Was the prey big or small?
- Would the shark have been able to eat the food whole?

This tooth is from a megalodon shark that lived 5-25 million years ago. Even though many sharks have lived on earth, and many have gone extinct, we still find their teeth and can identify them based on this evidence. Using what we know from today's sharks, we can even determine their prey, size, and general appearance.



Shark specimen #1

My guess: _____



Shark specimen #2

My guess: _____



Shark specimen #3

My guess: _____

