

Build-a-Shark Activity

By: Morgan A Pfeiffer, Timothy J Smoot, Abby J Vaughn, Alena Q Anderson, Danielle M McAree, J Marcus Drymon
MASGP-24-034

Description:

How does a shark's body shape match its behaviors and abilities? In this activity, you can piece together different shark body types to uncover the connection between form and function. Discover how tail (caudal fin) shape influences a shark's speed and maneuverability, how body shape and gill size can promote swimming endurance, and how eye size matches hunting habits. Cut out the sharks based on the instructions below, then mix and match the pieces to build your own, unique shark!

This work was supported by the Mississippi-Alabama Sea Grant Consortium, National Oceanic and Atmospheric Administration, U.S. Department of Commerce, and the states of Alabama and Mississippi. Federal grant number NA21OAR4170268. The statements, findings, conclusions and recommendations are those of the authors and do not necessarily reflect the views of any of these funders.

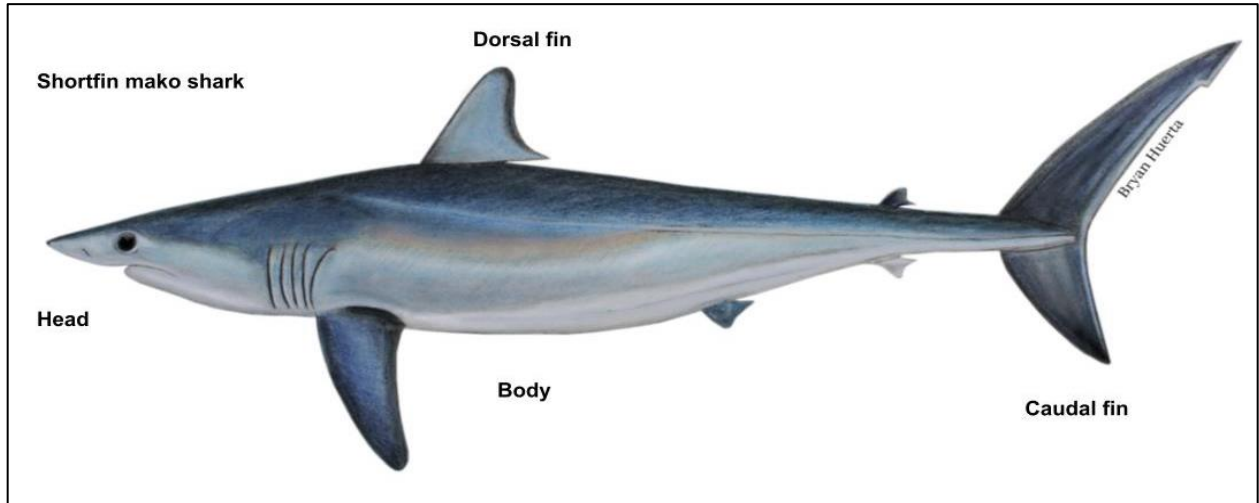


MISSISSIPPI STATE UNIVERSITY™
EXTENSION

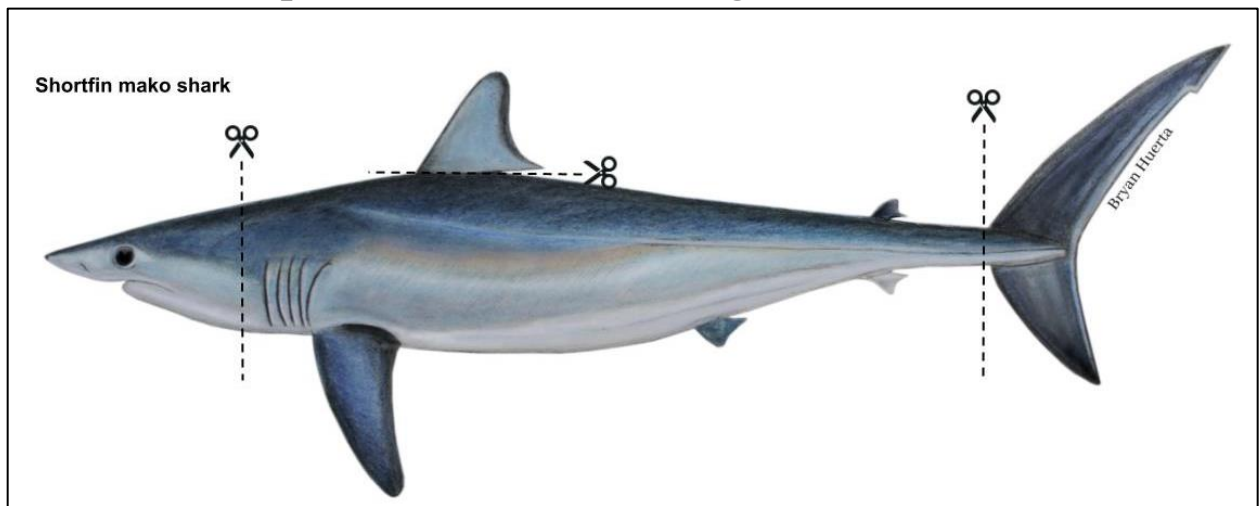


Instructions:

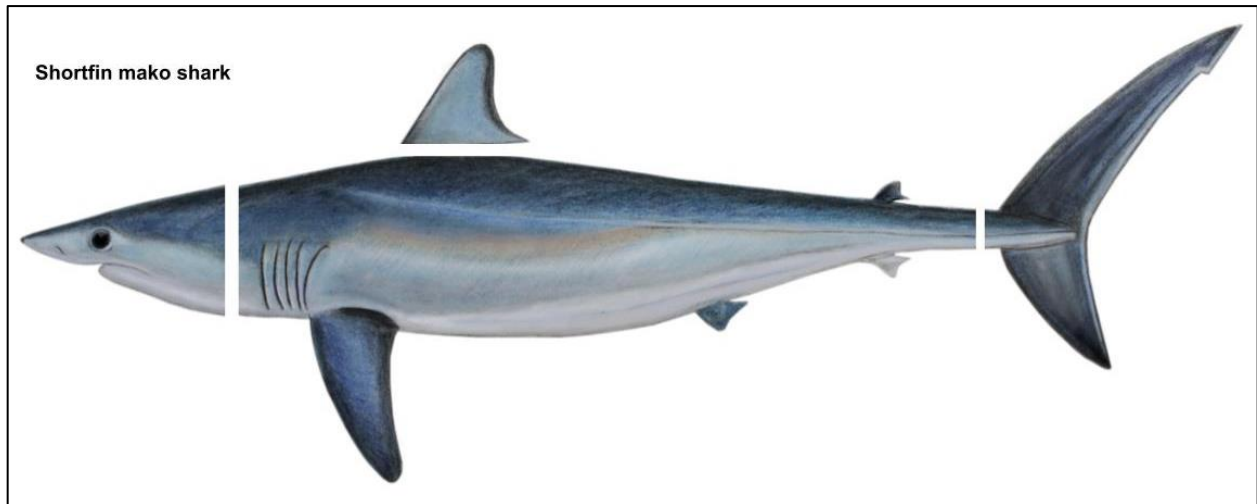
General Layout



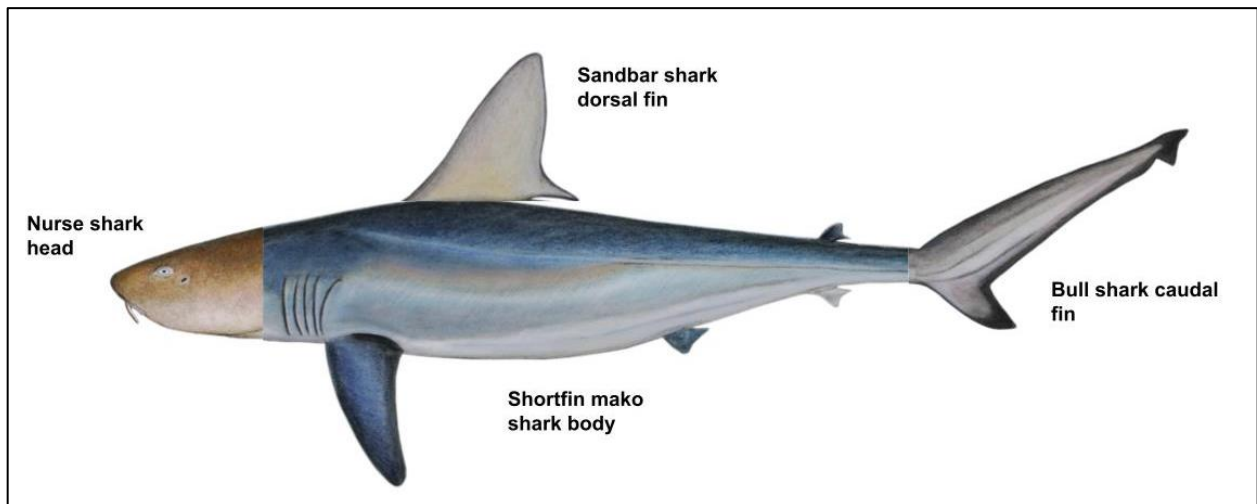
Step 1: Cut each shark along the dotted lines



Step 2: Separate the cut pieces



Step 3: Mix and match with other sharks!



Step 4: Go through each of the questions listed below to learn more about your new sharks!

Activity Questions:

1. What shape is the caudal fin? Are the upper and lower parts of the fin equal in size (homocercal) or are they different (heterocercal)?
2. Is the dorsal fin relatively small, medium, or large?
3. Is there a difference in coloration between the top and bottom of the shark's body (countershading)?
4. Are the eyes relatively small, medium, or large?
5. Is the body more streamlined or stocky?
6. Does the shark have relatively small, medium, or large gill slits?

Refer to pages 10 & 11 to learn about your shark based on these characteristics!

Labels for Each Shark Section:

Dorsal Fin
Caudal Fin
Body
Head

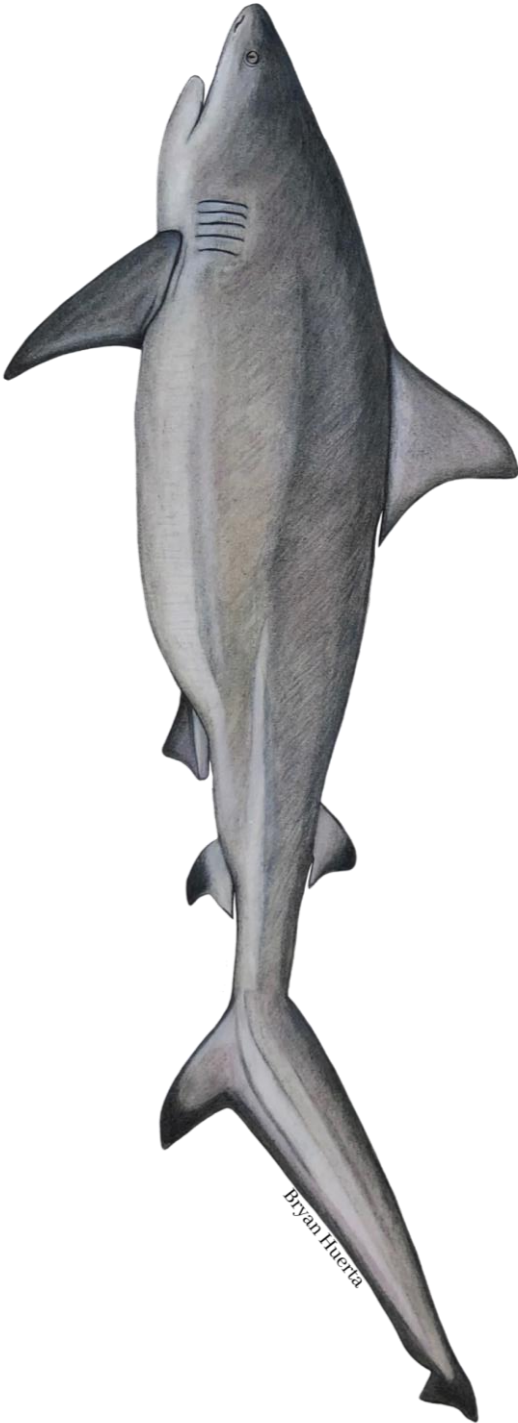
Atlantic Sharpnose Shark



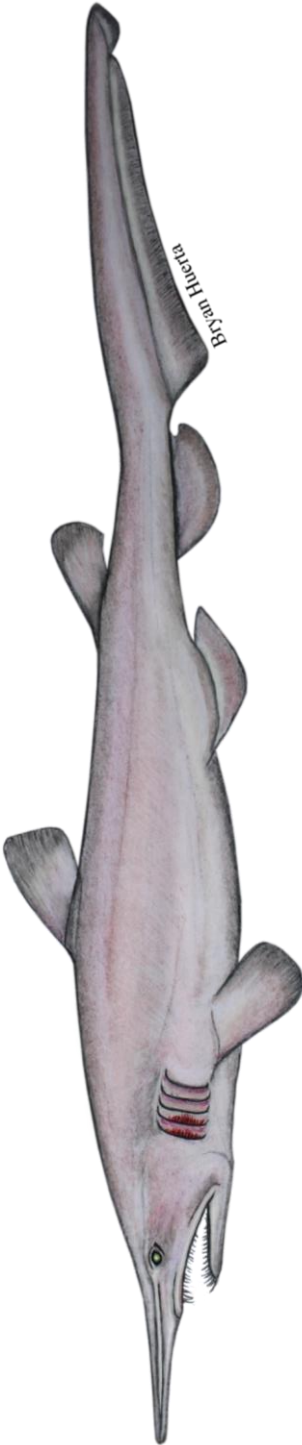
Bonnethead



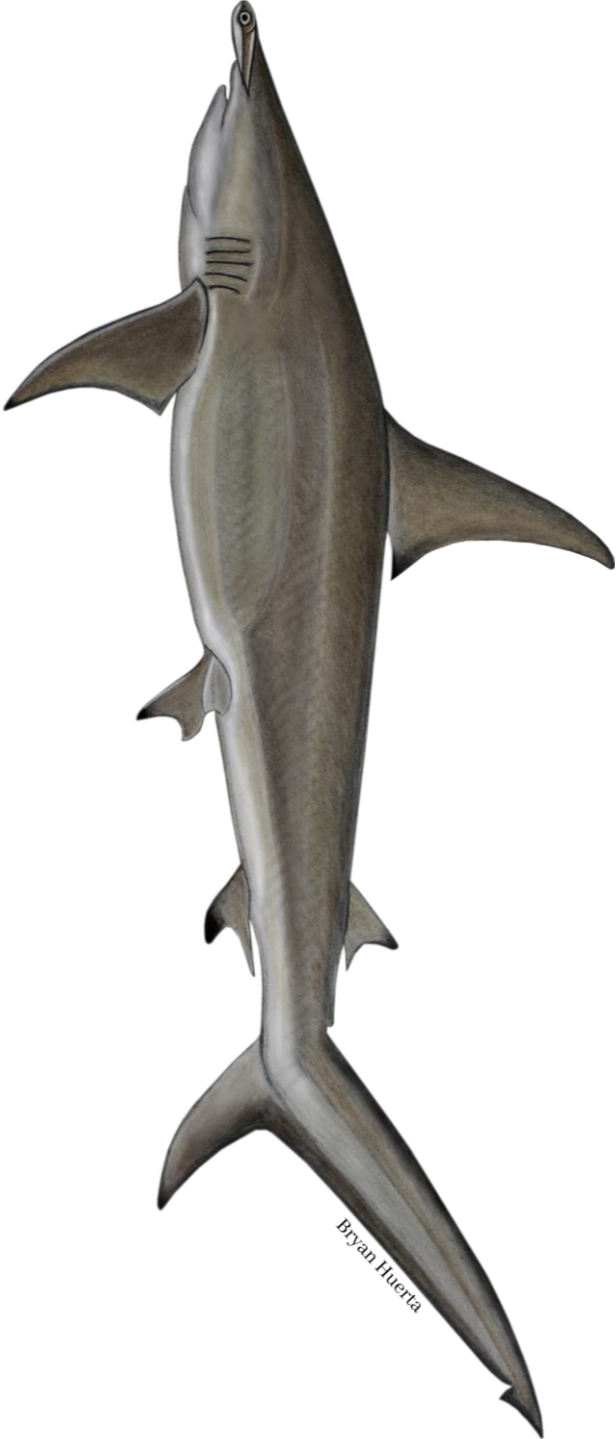
Bull Shark



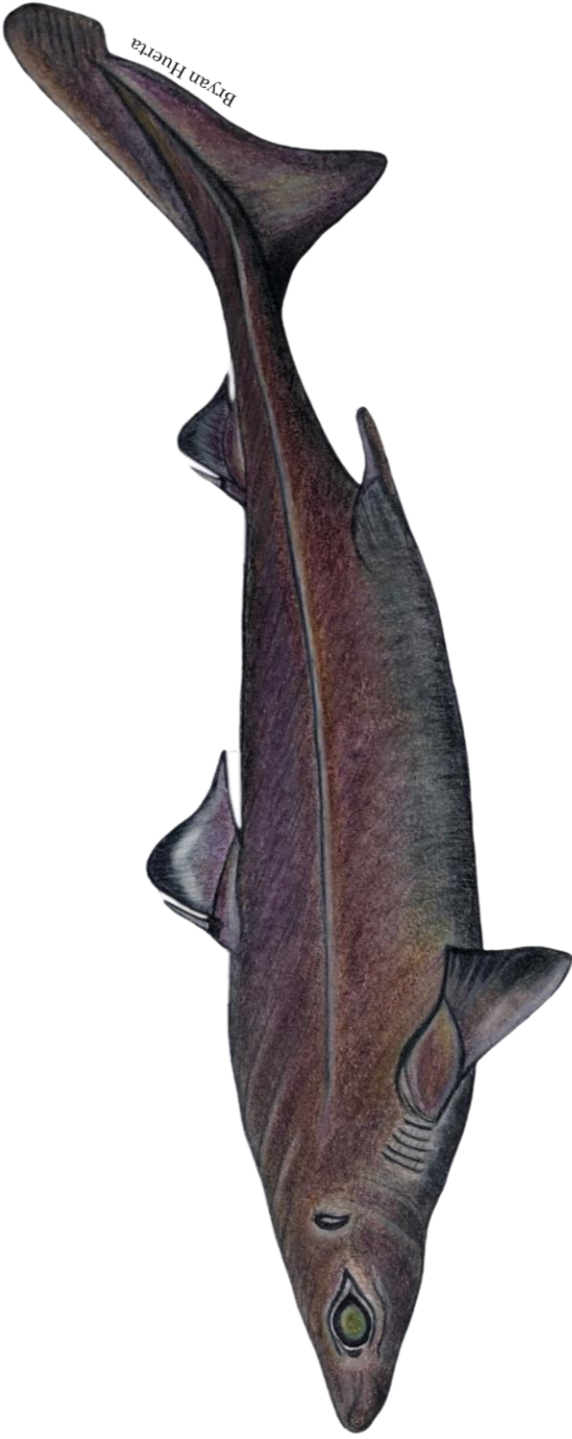
Goblin Shark



Great Hammerhead



Gulper Shark



Nurse Shark



Sandbar Shark



Shortfin Mako Shark



Tiger Shark



Answer Key for Activity Questions:

1. Tails, or caudal fins, with approximately equally sized upper and lower parts (lobes) are considered homocercal, and caudal fins with unequally sized lobes are heterocercal. Homocercal tails promote faster swimming speeds, while heterocercal tails allow for better maneuverability and sharp turns.
 - a. Homocercal caudal fin: shortfin mako shark
 - b. Heterocercal caudal fin: all other sharks above
2. Small dorsal fins create a more hydrodynamic or streamlined body shape, and therefore allow the shark to swim faster. Large dorsal fins are used for balance and stability.
 - a. Small dorsal fin: Atlantic sharpnose shark, goblin shark, gulper shark, shortfin mako shark, tiger shark
 - b. Medium dorsal fin: bonnethead, bull shark, nurse shark
 - c. Large dorsal fin: great hammerhead, sandbar shark
3. Countershading, a type of camouflage, describes the difference in coloration on the top (dorsal) versus bottom (ventral) sides of the shark. This allows sharks to blend in with their environments. Sharks that have distinct countershading tend to live in clear, open water, while those that live in the deep sea or in murky waters have less distinct color changes across their bodies.
 - a. Countershading present: Atlantic sharpnose shark, bonnethead, bull shark, great hammerhead, nurse shark, sandbar shark, shortfin mako shark, tiger shark
 - b. Countershading absent: goblin shark, gulper shark

4. Sharks that are less dependent on sight tend to have smaller eyes and are often found in more murky (turbid) environments. Deep-water sharks and pelagic predators typically have larger eyes. The large eyes of deep-water sharks are adapted to hunt in low light conditions, while pelagic sharks use their vision to find prey in clear water.
 - a. Small eyes: bull shark, goblin shark, great hammerhead, nurse shark
 - b. Medium eyes: Atlantic sharpnose shark, bonnethead, sandbar shark, tiger shark
 - c. Large eyes: gulper shark, shortfin mako shark
5. Streamlined body shapes allow for quicker swimming speeds, while sharks with stocky body shapes trade speed for strength.
 - a. Streamlined body: Atlantic sharpnose shark, bonnethead, goblin shark, shortfin mako shark
 - b. Stocky body: bull shark, great hammerhead, gulper shark, nurse shark, sandbar shark, tiger shark
6. Larger gill slits are found in fast-swimming sharks and increase oxygen intake from the water during times of high activity, like when hunting for prey or escaping from a larger predator.
 - a. Small gill slits: Atlantic sharpnose shark, bonnethead, gulper shark
 - b. Medium gill slits: bull shark, goblin shark, great hammerhead, nurse shark, tiger shark
 - c. Large gill slits: sandbar shark, shortfin mako shark