Shark's Buoyancy

PROGRAM GOALS
- Learn about how sharks are able to stay afloat in the water
- Discuss their adaptations in ocean

GRADES
K to 3rd

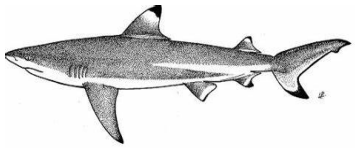
MATERIALS
- 2 small Ziploc bags
- Shark cutout
- Cooking oil
- Water
- Large container filled with water
- Sharpies
- Optional: Plastic shark

RECOMMENDED ASSESSMENT
- Assess students on appropriateness of words used to describe shark

How Does a Shark Stay Afloat?

Practice your students' observation skills while they learn about the Fort Wayne Children's Zoo sharks and their buoyancy. Buoyancy is the animal's ability to float in the water, especially in the ocean. See below for a variety of questions to engage your students even further:

- How do you think sharks maintain buoyancy in the ocean?
- How do you stay afloat in the water?
- Can you describe how they normally swim?
- Do they have to swim all day, every day, or can they take a break? Why?



Most bony fish have a swim bladder, an internal organ that can be filled with gas to help the fish float without swimming. Unfortunately, sharks do not have a swim bladder, but they have unique adaptations to survive in the oceans. Be on the lookout for the sharks at the zoo! Share your lessons with the Fort Wayne Children' Zoo. Tag #fwkidszoo or email education@kidszoo.org to express how you used these supplemental activities!

Experiment:

Fill the Ziploc bag with oil and the other one with water. Encourage kids to draw shark jaws on the shark cutout as the large container/bin is filled with water. The Ziploc bag filled with oil represents the oil inside the shark liver. Ask them, do you think this shark will sink or float? *Take responses.* Place the Ziploc bag filled with oil in the container and watch what happens. The Ziploc bag filled with water represents what will happen if they don't have oil in the shark's liver. Will this shark sink or stay afloat in the water? *Take responses.* Without the oil in their livers, the sharks will sink to the bottom of the ocean! Oil is much lighter than water, which is why it was afloat while the water sunk. Sharks mainly rely on their large oil-filled liver to stay buoyant in the oceans. This is one of many ways that sharks are able to remain buoyant in the water without a swim bladder.

What are other ways do you think a shark's body helps with buoyancy. *Take responses.*

- Their bodies are made of cartilage, not bones. Cartilage is a type of connective tissue that is strong enough to give support, but it is much lighter, which helps the shark remain afloat. We have cartilage too! It is found in our ears and nose.
- The side fins or known as pectoral fins, move in a wing-like motion to swim up and down, while the tail fin (caudal fin) helps the shark propel forward in the ocean. They can only move forward, so they cannot swim backward! If they stop swimming, they can slowly sink to the bottom of the sea, so their fins and tail play an important role in maintaining the shark's buoyancy.

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