EXPERIMENT

WHY DON'T SHARKS SINK?

This experiment illustrates the various ways sharks have adapted to maintain buoyancy in the marine environment.

What do we know?

- Gravity is a force that pulls objects down towards the Earth. This is why we don't float into space.
- Gravity works on land **and** in the sea.
- Sharks are not pulled to the bottom of the seafloor; they can maintain neutral buoyancy.

Neutral buoyancy: an object that has neutral buoyancy will neither sink nor rise.

Materials

- Large bowl
- 2 bottles (of the same volume)
- Water
- Vegetable oil
- Towel (to clear up any spills)
- Pen
- Paper

Procedure

1. Fill the bowl with water
2. Fill 1 bottle with water
3. Fill the other bottle with vegetable oil
4. Hold the bottles in each hand

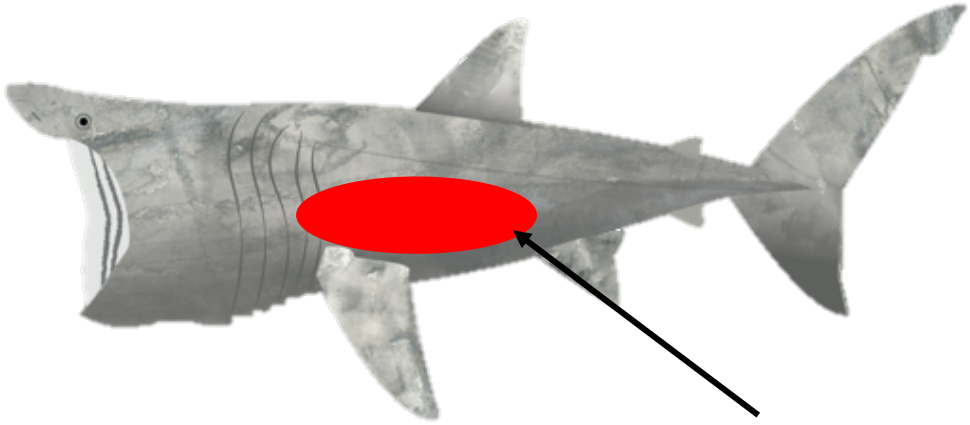
   Do they feel the same? Do you think they will float or sink?
5. Write your hypothesis down on paper
6. Now test your bottles by placing them one by one in the bowl of water

Results

1. Did the bottle of water float or sink?
2. Did the bottle of oil float or sink?

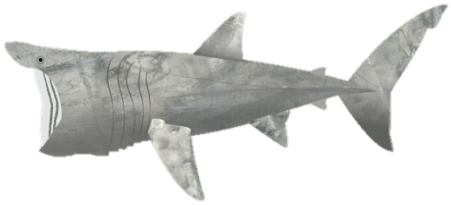
Why?

- The bottle of water sank to the bottom of the bowl.
- The bottle of oil floated at the surface of the bowl. This is because oil is less dense than water. Oil will float on top of water.
- Sharks that have large oily livers inside their bodies enable them to be neutrally buoyant in the water and not sink to the bottom of the seafloor.



Fun Facts!

Some sharks such as the Basking Shark have livers that are so large, it takes up one third of their entire body weight! Sadly, Basking Sharks used to be hunted because humans used the oil from the livers in manufacturing and cosmetic products.

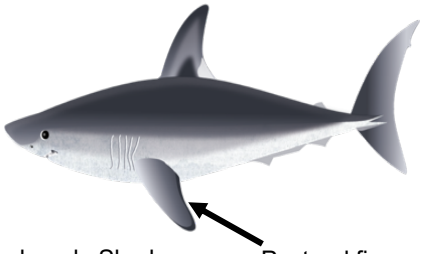


Basking Shark

Small Spotted Catshark

Some sharks like to spend their time on the seafloor and so do not need to be very buoyant. These types of sharks are called bottom-dwellers. An example of a bottom dweller shark that lives in Northern Ireland seas is the Small Spotted Catshark.

Many sharks make long journeys across open ocean. To prevent them from sinking to the bottom they have very large pectoral fins; the fins on the side of the shark. The large pectoral fins act like aeroplane wings providing the shark lift as they swim through the water preventing them from sinking.



Porbeagle Shark

Further thinking

1. What other functions do sharks fins have?
2. Do all sharks have the same number of fins?
3. Are sharks fins all the same shape?