



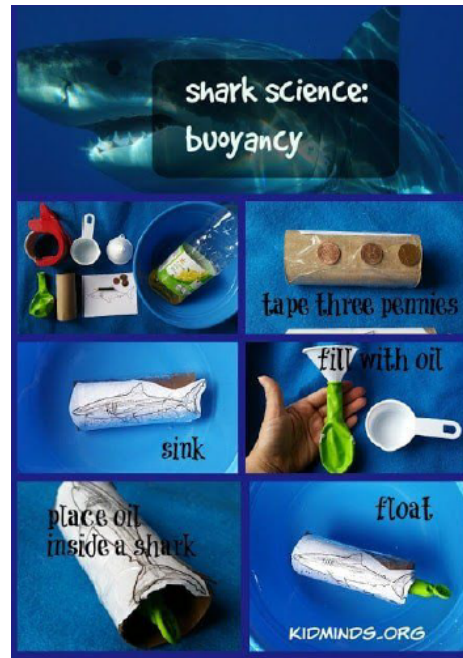
## SHARK BUOYANCY

### Provided Materials:

- Toilet paper roll
- Balloon filled with cooking oil
- 3 aluminium can tops
- Shark Coloring Outline

### Household Materials Needed:

- Coloring Supplies
- Bowl
- Water
- Tape



\*\*Pennies were replaced with aluminium can tops to be more eco friendly.\*

### Directions:

1. Color and cut out the paper shark and tape it on the toilet paper roll.
2. Tape 3 aluminum can tops, equally spaced, on the bottom of the toilet paper roll.
3. Fill the bowl with water.
4. Ask: what's going to happen to the shark? Drop the shark in the water and watch him sink. Discuss.
6. Place the balloon inside the toilet paper roll, evenly.
7. Observe: it's much heavier now! Ask: what's going to happen to the shark? Place the shark in the bowl of water and watch him float. See further discussion information on the back!

## **Shark Buoyancy Discussion**

The oil in the shark makes him buoyant!

Application and explanation:

ASK: What is holding us to the earth? (gravity). What is gravity?

There is gravity on land AND in the ocean. All the animals in the ocean are being pulled down, just like you are. Gravity holds us to the floor, and all our houses, cars, and toys, too. It also holds the ocean and the animals in the ocean down. But they aren't on the bottom of the ocean floor like you're standing on the floor! What are they doing? They're floating. How is this possible? Buoyancy!

ASK: What in the world is buoyancy?

Gravity pulls us down and buoyancy pushes us up! So the fish have made it so they can balance, or float. Many of them have a bladder, kind of like a ball, inside their bodies that is filled with gas. Think of a balloon when it's filled with air. The balloon is that bladder and the air in the balloon is the gas inside it. Sharks don't have a bladder filled with gas. So what is helping them float? Their bodies do not have ANY bones, instead, they have cartilage. This cartilage is less dense. Less dense items float easier in the water. Your ears and tip of your nose is made out of cartilage, too! Sharks also have a very large liver, and fins that help them steer and stay afloat. Their bodies are still pretty heavy, of course, heavier and more dense than water. Their fins help them to move forward all the time. They never stop moving! Their liver is much larger than ours. It's filled with oil, like what we just used in our experiment. It is similar to the bladder in the fish we just talked about. It gives the sharks neutral buoyancy. That means that it's not getting pushed

up and it's not sinking down, but staying at the same level. All of these things combine to help sharks stay afloat and not sink to the bottom of the ocean floor! Pretty cool, huh!?

