DAY 3 EXPERIMENT

Shark Float

SPECIAL DESIGN FEATURES GOD GAVE SHARKS

Materials

(for up-front demo or groups of 3–4 students)

- ☐ 3 plastic water bottles with lids
- ☐ Optional: Permanent markers like Sharpies®
- ☐ Water
- ☐ Cooking oil
- ☐ Large clear container of water
- ☐ Optional: Pictures of different sharks

Pre-prep

One water bottle needs to be full of water, one half full of water, and one emptied of water and filled with cooking oil (all the way full). Put the lids back on. Using permanent markers, decorate the bottle that is half full of water to look like a fish and the other two to look like sharks.

Or, if time during class, the kids can decorate the bottles with the markers.

Teaching Tie-In

Did you know God in his perfection and wisdom designed every animal so creatively and perfectly? This includes sharks. Did you know sharks are actually considered to be fish? Can you think of any types of sharks? Take responses, and if you have pictures of sharks, show them and share some fun shark facts. Possibilities can include a hammerhead shark (not born with that shape of head; it starts out round and eventually turns into the iconic hammerhead shape), tiger shark (can eat almost anything, including poisonous fish), whale shark (largest fish in the world), nurse shark (can use its pectoral fin to "walk" across the bottom of the ocean floor), zebra shark (only hunts at night and rests during the day), leopard shark (eats animals that live in mud, so God gave it special sensors on its nose to locate animals buried in mud), blue shark (can swim up to 60 mph), great white shark (considered the ruler of the sea), etc. **Let's talk about how God designed sharks so they don't sink.**

Class Time Directions

Sharks are *buoyant*, meaning they don't sink even though they're really heavy. Some great white sharks weigh as much as 7,000 pounds. Wow! That's as heavy as a limo! Can you imagine if they all just sank to the bottom and weren't able to swim easily through the ocean? Yikes! But they don't, because even though they weigh a lot, God gave them three special design features to keep them afloat.

First, they don't have bones. Feel your wrist. Do so. **Bones are heavy! Rather than bones, God gave them cartilage, which is lighter than bone. Feel the tip of your nose.** Do so. **That has cartilage.**

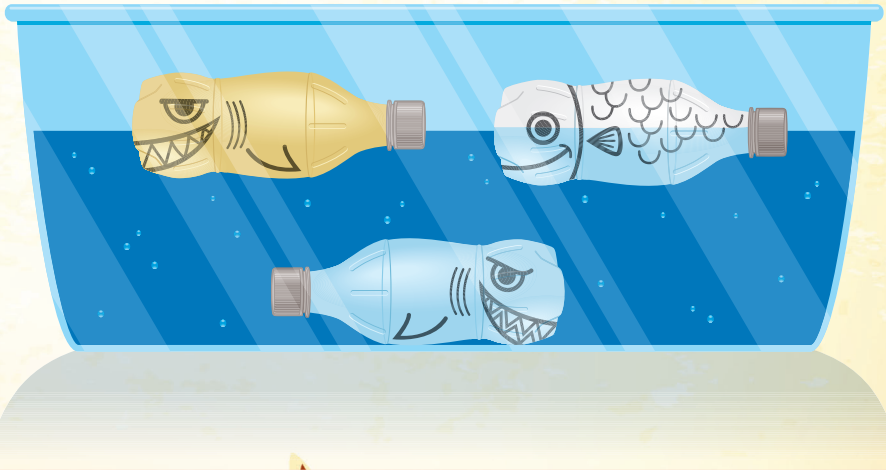
Second, God gave sharks specially shaped fins and tails. The fins lift the shark like wings, while the tail helps push the shark through the water so it doesn't sink.

And third, God gave sharks a super special liver. Let's see how it works.

Here's shark one. Hold up the bottle full of water. **Here's shark two.** Hold up the bottle full of oil. **What's shark one filled with?** Take responses—water. **What's shark two filled with?** Take responses—oil. **Which shark do you think will float in our ocean?** Take responses. **Let's see what happens.**

Place both sharks in the large container of water. The shark filled with water will sink and the one with oil will float.

Why do you think the oil shark floats? Take responses. **Sharks have a big oily liver that helps**



them float. Their livers take up to 90 percent of the space in their body and can weigh as much as 1,000 pounds! In humans, the liver is the largest internal organ, but it's nowhere near as large as a shark's. Because oil is less dense than the water surrounding the shark, the oily liver helps them float. Sharks also use their oily liver to help feed them on long journeys across the ocean.

Now let's check out this fish. Hold up the bottle that's half full of water. It's half full of water. Do you think it will sink or float? Take responses, and place it in the large container of water. It will float. Instead of having an oily liver, most fish have something called a *swim bladder* that is filled with gas. The swim bladder is like a bubble of air that keeps the fish afloat.

As you think about sharks and other fish, keep in mind that God's design for you is perfect, too.

Tip Corner

- The test churches found it easier to decorate bottles without ridges.
- The water shark bottle must be completely full to the absolute top.
- Science terms introduced today are *buoyancy* and *swim bladder*.