

Apex Legend: The World of the Great White Shark

Lesson Overview

In this lesson, Keatyn will dive into the deep blue to discover why the Great White Shark is the ocean's most misunderstood "superhero." We will explore their amazing bodies, their "sixth sense," and why they are vital to a healthy ocean.

Materials Needed

- Access to the internet (for a short video clip or research)
- A large bowl of water
- Two small balloons or Ziploc bags
- Vegetable oil and water
- Paper, markers, or colored pencils
- A ruler or measuring tape
- A few small metal objects (like paperclips) and a magnet

Learning Objectives

By the end of this lesson, Keatyn will be able to:

- Identify three physical adaptations that make the Great White a top predator.
- Explain the concept of "buoyancy" and how a shark's liver helps them swim.
- Describe the "Sixth Sense" (Ampullae of Lorenzini) using a simple model.
- Argue why Great White Sharks are important for the ocean ecosystem.

1. Introduction: The Hook (5-10 Minutes)

The Scenario: "Keatyn, imagine you are a professional surfer. Suddenly, you see a dark shape beneath your board. Most people would be scared, but today we're going to learn why that shark is actually the 'Security Guard' of the ocean. Did you know a Great White can smell one drop of blood in 100 liters of water? That's like smelling a single chocolate chip inside a giant vat of cookie dough!"

Quick Question: If you could have one shark superpower (super smell, super speed, or never having to go to the dentist because your teeth grow back), which would you choose?

2. I Do: Shark Secrets (Instruction)

Body Design: Explain that sharks aren't made of bone like us; they are made of *cartilage* (wiggle your ears and nose—that's what their whole skeleton feels like!). This makes them light and flexible.

The Teeth: Great Whites have "conveyor belt" teeth. When one falls out, another slides forward. They

can go through 30,000 teeth in a lifetime!

The Sixth Sense: Humans have five senses. Sharks have a sixth called *Electroreception*. They have tiny holes on their snouts (Ampullae of Lorenzini) that let them feel the electricity of a heartbeat from a hidden fish.

3. We Do: The Science of Swimming (Guided Practice)

Activity: The Floating Liver Experiment

1. **The Problem:** Sharks don't have "swim bladders" (air pockets) like other fish to stay afloat. How do they keep from sinking?
2. **The Test:** Fill one balloon with water and another with vegetable oil.
3. **The Result:** Place both in a large bowl of water. The water balloon sinks; the oil balloon floats.
4. **The Lesson:** Explain that Great Whites have huge, oily livers. Oil is lighter than water, so their "fatty liver" acts like a built-in life jacket!

Activity: Feeling the Pulse

1. Cover a few paperclips with a thin piece of paper.
2. Have Keatyn move a magnet over the paper until they "feel" the pull.
3. **The Lesson:** "That magnetic pull is like what a shark feels when a prey animal's heart beats. They can 'feel' you even if they can't see you!"

4. You Do: The Shark PR Agency (Independent Application)

The Challenge: Sharks have a "bad reputation" because of movies. Keatyn's job is to be a Public Relations (PR) agent for Great Whites. Choose one of the following projects:

- **Option A: The Fact Sheet Poster.** Draw a Great White and label five "High-Tech Features" (like the serrated teeth, the oily liver, and the counter-shading—dark on top, light on bottom).
- **Option B: The "Day in the Life" Comic.** Create a 4-panel comic strip showing a shark helping the ocean by cleaning up sick fish and keeping the "ocean garden" healthy.
- **Option C: The Measurement Challenge.** A Great White can grow to 20 feet. Using a measuring tape, mark out 20 feet in the hallway or driveway. Find items in the house that, when added together, equal the length of one shark!

5. Conclusion: Recap & Reflection

Summary: Today we learned that Great Whites are lightweight athletes made of cartilage, they use oily livers to stay afloat, and they have a "sixth sense" to find food. Most importantly, they are "Apex Predators," meaning they are the bosses who keep the ocean's food chain in balance.

The Exit Ticket: Ask Keatyn to name one thing that would happen to the ocean if all the Great White Sharks disappeared tomorrow. (Correct line of thought: Other fish populations would get too big/sick, and the ecosystem would break.)

Success Criteria

Keatyn has mastered this lesson if they can:

- Explain that sharks are made of cartilage, not bone.
- Identify "electroreception" as the sixth sense.
- Demonstrate why oil helps a shark float.
- Give one reason why sharks are "good guys" for the planet.

Differentiation & Adaptability

- **For More Challenge:** Research "Carcharodon carcharias" (the scientific name) and find out how their body temperature is different from other "cold-blooded" fish.
- **For Less Writing:** Instead of a comic or poster, do a "Shark Talk" oral presentation where Keatyn teaches a family member or friend three "Jaw-some" facts.
- **Kinesthetic Variation:** Create a "Shark Sensory Bin" using blue-dyed water, plastic sharks, and various "prey" items for younger siblings to join in.