Grade Level: 6-8
Time Estimate: 4-8 days

PHYSICS OF SHARK MOVEMENT PART 2 / LESSON OVERVIEW

Objectives

The students will:

- understand the difference between scalar and vector quantities;
- utilize the OCEARCH Global Shark Tracker™ and data to locate tagged Great White sharks and calculate distance, displacement, speed, velocity, acceleration and momentum;
- form ideas based on data sets as to why sharks travel certain distances, speeds, accelerations, momentums and estimate future migratory paths;
- discover how shark tails affect the physics of movement.

Lesson Summary

Part 1. Distance versus Displacement (20 – 25 minutes)
Differentiate between distance and displacement.

Part 2. Speed versus Velocity (35 – 45 minutes)
Differentiate between speed and velocity. Use formulas to solve for missing variables.

Part 3. Acceleration (25 – 35 minutes)
Define "acceleration" and use its formula to solve for missing variables.

Part 4. Momentum (25 – 35 minutes)
Define "momentum" and use its formula to solve for missing variables.

Part 5. Shark Tails: Form and Function (15 – 20 minutes)
Students learn how form affects function by studying the tail shapes of various shark species.

Part 6. Review

Activity 1. Tracking Shark Movement (45 – 60 minutes or take-home)
Students will use the OCEARCH Global Shark Tracker™ to collect data and make calculations to hypothesize future movements of individual sharks. Materials: Computer with internet access, paper, writing utensil, ruler, and calculator.

Activity 2. Shark Tails (45 – 60 minutes or take-home)
Students use the Global Shark Tracker™ and their own research skills to understand how a shark's caudal fin design affects the physics of how it swims. Student handout provided.