

Marine Mammal Tracking

Grade/Grade Band: Grades 4 and 5	Topic: Life Science	Lesson Title: Shark Tracking
Brief Lesson Description: Students will compare and contrast typical shark behavior with data from satellite.		
NGSS Performance Expectations: 4-LS1-1 4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. [Clarification Statement: Examples of structures could include thorns, stems, roots, colored petals, heart, stomach, lung, brain, and skin.] [Assessment Boundary: Assessment is limited to macroscopic structures within plant and animal systems.]		
Specific Learning Outcomes: Students will be able to conduct research about a specific shark breed and generate questions to determine if the data supports or refutes typical animal behavior.		
Specific Modifications for Struggling Learners: Students who need extra support will have a shark breed assigned to them and one question provided to scaffold the project.		
Specific Modifications for Advanced Learners: Students will compare the location of the shark and food source with the location found on the satellite.		
Prior Student Knowledge: Use questioning techniques to activate prior knowledge about sharks.		
Science & Engineering Practices: Engaging in Argument from Evidence Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s). <ul style="list-style-type: none"> Construct an argument with evidence, data, and/or a model. 	Disciplinary Core Ideas: LS1.A: Structure and Function <ul style="list-style-type: none"> Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction. 	Crosscutting Concepts: Systems and System Models <ul style="list-style-type: none"> A system can be described in terms of its components and their interactions.
Possible Preconceptions/Misconceptions: Students may think that the great white shark (<i>Carcharodon carcharias</i>) is the only shark breed.		
LESSON PLAN – 5-E Model		
ENGAGE: Opening Activity – Access Prior Learning / Stimulate Interest / Generate Questions: How do you think marine biologists study sharks? Generate ideas and post on a Padlet		
EXPLORE: Lesson Description: Students will learn about the anatomy of a shark using the open source resource from Ocearch.	Probing or Clarifying Questions to ask while students explore: What patterns of behavior do you notice? Is it consistent with the data you collected?	Materials Needed Chromebooks https://www.ocearch.org/tracker/ Google Slides Shark Tracker Chart

<p>EXPLAIN: Concepts Explained and Vocabulary Defined: Students will use the shark tracker website from ocearch and select one shark to research. Students will research the specific breed and indicated specific areas where the shark tends to live as well as feed. Students will explain if the behavior of the shark is aligned with where it was most recently located on the ocearch site.</p>		<p>Key Vocabulary: SPOT tag Satellite Dorsal fin</p>
<p>ELABORATE: Connecting Concepts to the CCC and SEP. Making sense through building models and constructing explanations</p> <p>Students will generate questions to elaborate on the shark's behavior. For example, if a student notices that a juvenile tiger shark is located close to shore, is that typical behavior? Or could there be a reason that the shark is located in a different location?</p>	<p>SEP</p> <ol style="list-style-type: none"> 1. Asking questions 2. Developing and using models 3. Planning and carrying out investigations 4. Analyzing and interpreting data 5. Using mathematics and computational thinking 6. Constructing explanations 7. Engaging in argument from evidence 8. Obtaining, evaluating, and communicating information 	<p>CCC</p> <ol style="list-style-type: none"> 1. Patterns. 2. Cause and effect 3. Scale, proportion, and quantity. 4. Systems and system models. 5. Energy and matter 6. Structure and function 7. Stability and change.
<p>EVALUATE Formative Monitoring (Questioning / Discussion): Students will record a Flipgrid sharing their observations, research and conclusions.</p>		<p>Summative Assessment (Quiz / Project / Report): Students will share their findings and Google Slide presentation with peers from another class.</p>
<p>Elaborate Further / Reflect: Enrichment: Use various pings to calculate the distance traveled in miles. Convert that number into kilometers.</p>		