5/6 G&T Unit B1: Oceans

Content Area: **Gifted & Talented**
Course(s):
Time Period: **MP1**
Length: **30 days**
Status: **Published**

NJSLS

MS-LS2-1	Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.
MS-LS2-2	Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.
MS-LS2-3	Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.
MS-ESS2-5	Collect data to provide evidence for how the motions and complex interactions of air masses result in changes in weather conditions.
MS-ESS2-6	Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.
MS-ESS3-4	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

Rationale and Transfer Goals

In this unit, students will explore the complexity and diversity of our planet's oceans. The unit will be broken into several smaller areas of study, each of which will have a culminating project or activity. Starting with the ocean and weather, students will explore weather phenomena, map their locations and effects, and learn how weather is predicted. Next, students will learn about animal adaptations found in marine life, as well as animal habitats. Students will then explore hydrothermal vents and understand the life that exists within the harsh surroundings of that ecosystem. Finally, students will understand the ocean as a resource, as they learn about how humans interact with the oceans and what our impact is on life within marine ecosystems.

Enduring Understandings

Our world is delicately balanced. The oceans play a critical role in human life. We are responsible for caring for our environment, including the oceans and all life within it. Our survival is dependent on the health of the planet. Ecosystems can change. The impact of human life on marine life can be detrimental.

Essential Questions

Why study the ocean?

How do humans impact marine life?

How can we be more responsible for the health of our environment?

How is the ocean a resource?

What can maps of the ocean be used for?

How do animals adapt to survive?

What life can exist in harsh environments?

Content - What will students know?

- Students will know what El Nino and El Nina are.
- Adaptations in marine animals relate to finding food, providing camouflage, or dealing with changes in temperature, salinity, or need for oxygen.
- Students will realize it gets colder and darker and pressure increases as one moves from the surface to the bottom of the ocean.
- Students will know that a hydrothermal vent is a fissure on the ocean floor that spews hot, toxic fluids and gas.
- The ocean can be divided into different zones based on proximity to the surface.

Skills - What will students be able to do?

- Understand the connection between weather phenomena and the oceans.
- Identify types of animal adaptations and how an animal's environment impacts the species.
- Map parts of the Mariana Trench.
- Make predictions about life in different zones of the ocean.
- Explain the adaptations needed for living things to thrive in harsh conditions.
- Analyze the impact of human life on our oceans.
- Discuss the importance of making positive choices for our environment.

Activities - How will we teach the content and skills?

- Small group, whole class, and paired discussions.
- Individual research
- Paired map-making
- Viewing documentary footage of different ocean zones.
- Reading informational texts about the oceans.
- Studying maps or the ocean floor, the Mariana Trench, and the geography of ocean currents.

Evidence/Assessments - How will we know what students have learned?

- Students will produce several examples of thoughtful, well-researched work in forms of their choosing.
- Students will present their work aloud in class.

Key Resources

https://www.nationalgeographic.org/education/programs/oceans-education/

https://climatechange.stanford.edu/curriculum

https://www.oceanexplorer.noaa.gov/edu/welcome.html

21st Century Life and Careers

9.2.8.CAP.12	Assess personal strengths, talents, values, and interests to appropriate jobs and careers to maximize career potential.

Career Readiness, Life Literacies, & Key Skills

9.4.8.IML.1	Critically curate multiple resources to assess the credibility of sources when searching for information.
9.4.8.IML.7	Use information from a variety of sources, contexts, disciplines, and cultures for a specific purpose (e.g., 1.2.8.C2a, 1.4.8.CR2a, 2.1.8.CHSS/IV.8.AI.1, W.5.8, 6.1.8.GeoSV.3.a, 6.1.8.CivicsDP.4.b, 7.1.NH. IPRET.8).
9.4.8.IML.8	Apply deliberate and thoughtful search strategies to access high-quality information on climate change (e.g., 1.1.8.C1b).
9.4.8.IML.12	Use relevant tools to produce, publish, and deliver information supported with evidence for an authentic audience.

Interdisciplinary Connections/Companion Standards

LA.W.6.2	Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
LA.W.6.4	Produce clear and coherent writing in which the development, organization, voice and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)