

LET'S EXPLORE THE GREAT BIG BLUE

An Introduction to Oceans

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Lesson 1 of 6

Skill Level

Beginner (4th/5th Graders), Intermediate (6th-8th Graders)

Educational Standards Supported

World Geography 3.06

3.LS1.1

4.ESS2.2

4.LS.1

6.LS2.4

6.LS4.2

Learner Outcomes

The learner will be able to:

- Explore oceans and everything that lives underwater
- Identify and locate oceans
- Critically think through research questions to understand the ocean

Tag(s)

4-H Science

Time Needed

30-45 minutes

Materials Needed

LCD Projector/Computer

Nearpod Lesson

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Introduction to Content

This lesson will provide youth with an introduction to oceans. The Earth is comprised of four water basins that occupy 70 percent of its surface. Oceans take up 99 percent of the biosphere, leaving just 1 percent for us to live.

This lesson will explore oceans and provide an understanding of how significant oceans are to Earth.

Introduction to Methodology

Youth will participate in a Nearpod activity. They will also participate in a discussion explaining what they learned in the lesson.

Terminology/Vocabulary/Concepts

Ocean – Can be defined as any body of saltwater

Setting the Stage/Opening Question

Open the Nearpod:

np1.nearpod.com/sharePresentation.php?code=82c68c9a85cb6ffb27410a0ac729149a-1&oc=user-created&utm_source=link

Provide youth with a code to log in on their personal device or display the Nearpod in the classroom and have students answer questions as the slides are presented.

Say, “Let’s take a deep dive.”

Have students watch the short, two-minute video on the ocean and its many properties. Students will then participate in an activity on the Nearpod entitled, “Time to Climb.” This activity will lead students through a series of questions to test their current knowledge of oceans.

The questions in “Time to Climb” are as follows:

- There are _____ oceans in the world. **Answer: 5**
- The _____ ocean is the largest ocean. **Answer: Pacific**
- The _____ ocean is the smallest ocean. **Answer: Arctic**
- Oceans cover how much of the Earth’s surface? **Answer: 71 percent**
- The _____ ocean separates Europe and Africa from North and South America. **Answer: Atlantic**
- The _____ ocean is located near the south pole and the southern part of the Earth. **Answer: Southern**

Congratulate the winners of the activity.

Experience

When the “Time to Climb” activity is complete, youth will use the information learned to properly label the oceans on a world map. This can be accomplished using the drag and drop feature on Nearpod. Once this is complete, a world map will appear, correctly labeling the location of the oceans.

Students will receive a few research questions and enter a virtual reality activity, allowing them to explore the different oceans. Possible answers to the research questions can be discovered in this activity.

Give youth post-it notes to write down their thoughts as they research oceans. Once completed, have youth share their findings with the class by posting answers on flip chart paper or on the whiteboard.

Say, “Let’s explore sea creatures.”

Strategies to Increase Student Engagement

Have students use maps in the classroom to point out where the oceans are located.

Say, "Search around the Nearpod, and see if you can spy all the different species I found. In every inch of the ocean, there are a number of marine species that range from microscopic algae to the largest creatures we have ever seen. There are still many unknown creatures we have yet to identify or even come into contact with."

Ask, "What plants do you think live in the ocean?"

There are five types of ocean plants: phytoplankton, red algae, kelp, seagrass and sargassum. Sea lettuce, sea anemone, Irish moss, manatee grass, wakame, waterwheel plant, and sugar kelp are a few examples of these ocean plant types.

Say, "Floating plants, like sargassum, live near the surface of the water. Rooted plants, on the other hand, must acquire sunlight to survive, so they live in shallow waters near the shore. Underwater plants provide oxygen, food, and shelter."

Ask, "What is a coral reef? And what is its purpose?"

A coral reef is _____. Coral reefs grow slowly. It's important we protect them as it takes 10,000 years to form. They are typically found in tropical waters close to the shore. They shelter coastlines from bad weather and protect many fish species by giving them a place to breed and develop safely (Nearpod).

What adaptations do you think creatures need to survive under water?

- **Suckers or suction cups -**
 - Suction cups help animals, like octopuses, grab food or gain stability on surfaces or use the receptors on the suction cups to detect the environment around them
- **No bones to wiggle and bend in many different places -**
 - Animals have the flexibility to move in various places in the water to hide from predators or to grab food. Also, these places which they can wiggle into help them find various shelters to rest.
- **Clear or certain color to hide in the ocean -**
 - The color patterns help species blend into their environment to camouflage from their predators.
- **Swimming fast -**
 - Being able to swim fast aids the species to move away quickly if they are being attacked by a predator or if they are trying to chase another species for their food.

- **Blubber for insulation -**
 - Blubber is important to help species with insulation to prevent heat loss. Blubber is very common in species that live in aquatic habitats near colder regions of the world. The blubber traps the heat inside the animal as part of their insulation.
- **Gills -**
 - Gills are important for marine animals as it helps the species breathe. The gills also help the animals exchange oxygen and carbon dioxide efficiently.
- **Blow holes -**
 - Blow holes provides the capability to animals, like whales and dolphins, to minimize their energy use and utilize their blow hole when they come to the surface of the water to breathe efficiently (known as surfacing).

Say, "We will explore what others have located and try to understand what is left to discover in certain parts of the ocean. The ocean is so deep and so vast, we do not have the capabilities to explore all of it. Because of this, there are many unknown lifeforms we have yet to identify."

Share/Process

Ask students, “During the lesson, you learned several things about the ocean. Was there anything that surprised you? Turn to a classmate and share what it was.”

Generalize

Ask students, “Why do you think there are parts of the ocean we have not discovered yet?”

Apply

Ask, “What careers do you think you could have related to exploring oceans and marine life?”

Optional Questions

Ask, “What is something you will research further after today’s lesson?”

References

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Supplemental Information

Educational Standards Met

3.06 Identify and locate the major continents and oceans using maps and globes: Africa, Antarctica, Asia, Australia, Europe, North America, South America, Arctic Ocean, Atlantic Ocean, Pacific Ocean, Indian Ocean and Southern Ocean.

3.LS1.1 Analyze the internal and external structures that aquatic and land animals and plants have to support survival, growth, behavior, and reproduction.

4.ESS2.2 Interpret maps to determine that the location of mountain ranges, deep ocean trenches, volcanoes and earthquakes occur in patterns.

4.LS2.1 Support an argument with evidence that plants get the materials they need for growth and reproduction chiefly through a process in which they use carbon dioxide from the air, water and energy from the sun to produce sugars, plant materials and waste (oxygen); and that this process is called photosynthesis.

6.LS2.4 Using evidence from climate data, draw conclusions about the patterns of abiotic and biotic factors in different biomes, specifically the tundra, taiga, deciduous forest, desert, grasslands, rainforest, marine and freshwater ecosystems.

6.LS4.2 Design a possible solution to maintain biodiversity of ecosystems while still providing necessary human resources, without disrupting environmental equilibrium.

TIPPS *Life Skills*

4th Grade

Heart – Actively listening to what others are saying, be able to restate or summarize what has been said

5th Grade

Head – Communicate information learned from a specific project area

Heart – Understand one's ability, strengths, and limitations



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