

JSD 3D Learning Activity Template

Grade: 6th

Title: The Ocean is Essential to Life on Earth

Utah Science with Engineering Education Standard (SEEd): 6.3.3 Develop and use a model to show how unequal heating of the Earth's systems causes patterns of atmospheric and oceanic circulation that determine regional climates. Emphasize how warm water and air move from the equator toward the poles. Examples of models could include Utah regional weather patterns such as lake-effect snow and wintertime temperature inversions.

Key crosscutting concept(s) (CCC): Patterns, Systems and system models

Key science and engineering practice(s) (SEP): Developing and using models.

Materials: iPad or laptop, student page and color pencils.

Time: 30 minutes, students will have to view the video several times and pause at sections to complete their model.

Teacher background, key content information and hints: The Ocean is essential to life on Earth. Most of Earth's water is stored in the ocean. Although 40 percent of Earth's population lives within, or near coastal regions- the ocean impacts people everywhere. Without the ocean, our planet would be uninhabitable. This animation helps to convey the importance of Earth's oceanic processes as one component of Earth's interrelated systems. https://youtu.be/LDnb_tqZ3J8

Prior knowledge that students need: Students know that hot air rises and cold air drops.

Learning Activity Plan

These three aspects of a lesson should be identified in your learning activity.

Gathering: Obtain Information - using the video to draw currents, students will begin to see patterns.

Reasoning: Evaluate Information - the patterns will allow them to see how the Sun and Earth system and use of energy causes the patterns.

Communicating: Use Models to Communicate - They can use their models to explain the relationship between heat from the Sun and the energy absorbed by the ocean, creates currents and that those currents help create regional climate.

Phenomenon: Earth's systems causes patterns of atmospheric and oceanic circulation

Learning Activity: Students will view the video and notice how the sun's energy heats up the ocean, and that causes the currents. <https://climatekids.nasa.gov/ocean/>

Assessment of student learning Students' models and explanation can serve as a formative assessment, they should be able to notice the patterns of the currents and the effect it has on land temperatures.

Student Page

Name _____

Title: Patterns of atmospheric and oceanic circulation

Directions: Use the following link https://youtu.be/LDnb_tqZ3J8 to draw atmospheric and oceanic circulation, then write and

