

Aloha Telescope Lesson Plan

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Lesson: Earth vs Moon Scavenger Hunt

Grade Level

6th Grade

Standards

S6E3.c. Ask questions to identify and communicate, using graphs and maps, the composition, location, and subsurface topography of the world's oceans.

S6E4.a. Analyze and interpret data to compare and contrast the composition of Earth's atmospheric layers and greenhouse gases.

S6E5.a. Ask questions to compare and contrast the Earth's crust, mantle, inner and outer core, including temperature, density, thickness and composition.

S6E5.f. Construct an explanation of how the movement of lithospheric plates, called plate tectonics, can cause major geologic events such as earthquakes and volcanic eruptions.

Further Investigations

- [Lunar Landforms Lesson Plan](#)
- [Field Trip to the Moon Lesson Plan](#)

Vocabulary

- crater
- topography
- mare
- atmosphere

Related Resources

- [List of Craters on the Moon](#)
- [Map of the Moon](#)
- [NASA: Earth's Moon](#)
- [The Earth's Moon](#)

Lesson Plan Overview

In this activity, students will research both the moon and earth to compare the topography, geology, and hydrology of both celestial bodies. Students will complete task cards to guide them in their research.

This activity can be completed by dividing students into groups to complete the task cards and compile them at the end OR students can complete the task cards individually. Additionally, the task cards can be placed around the room as an optional activity for early finishers.

Materials

Task Cards (individual or per group)
Internet Access

Lesson

Open with a group discussion of different geographic features of Earth. Extend the discussion to any geographic features students know of on the moon. Then distribute the task cards, either as a whole sheet or as individual cards.

Topography

Find the following on the Earth and the Moon!

- Tallest Mountain
- Lowest Point
- Largest Crater

Find a crater on the moon the same size as...

- The length of the Okefenokee Swamp (64 km)
- The diameter of Atlanta inside the perimeter (147 km)
- The width of Tennessee (195 km)

A mare ("sea" in Latin) the diameter of...

- The Caspian Sea (1,199 km)

Geology

Tectonic Activity

- How do moonquakes compare to earthquakes?

Inner Layers

- Compare earth's crust, mantle and core to the Earth's crust, mantle and core in terms of composition, thickness, and state of matter (solid or liquid)

Hydrology

Atmosphere

- Compare Earth's atmosphere with the moon's atmosphere - why doesn't the moon have an atmosphere?

Telescope Connection

Students should use their time on the telescope to locate features identified when completing the task cards.

Student Task Cards

<p style="text-align: center;">Tallest Mountain</p> <p>Earth Name _____ Height _____</p> <p>Moon Name _____ Height _____</p>	<p style="text-align: center;">Lowest Point</p> <p>Earth Name _____ Depth _____</p> <p>Moon Name _____ Depth _____</p>
<p style="text-align: center;">Largest Crater</p> <p>Earth Name _____ Length _____</p> <p>Moon Name _____ Length _____</p>	<p style="text-align: center;">Crater the Size of...</p> <p>Earth Name <u>Okefenokee Swamp</u> Length <u>64 km</u></p> <p>Moon Name _____ Height _____</p>
<p style="text-align: center;">Crater the Size of...</p> <p>Earth Name <u>Atlanta (inside the perimeter)</u> Length <u>147 km</u></p> <p>Moon Name _____ Height _____</p>	<p style="text-align: center;">Crater the Size of...</p> <p>Earth Name <u>Tennessee (width)</u> Length <u>195 km</u></p> <p>Moon Name _____ Height _____</p>
<p style="text-align: center;">Mare the Diameter of...</p> <p>Earth Name <u>Caspian Sea</u> Length <u>1199 km</u></p> <p>Moon Name _____ Height _____</p>	<p style="text-align: center;">Describe the Quakes</p> <p>Earthquakes _____ _____</p> <p>Moonquakes _____ _____</p>

<div><div><div>Describe the Crust (composition, thickness, solid/liquid)</div><div>Earth <hr/><hr/></div><div>Moon <hr/><hr/></div></div></div>	<div><div><div>Describe the Mantle (composition, thickness, solid/liquid)</div><div>Earth <hr/><hr/></div><div>Moon <hr/><hr/></div></div></div>
<div><div><div>Describe the Atmosphere (composition)</div><div>Earth <hr/><hr/></div><div>Moon <hr/><hr/></div></div></div>	<div><div><div>Describe the Core (composition, thickness, solid/liquid)</div><div>Earth <hr/><hr/></div><div>Moon <hr/><hr/></div></div></div>

Student Task Cards – Answer Key

<p style="text-align: center;">Tallest Mountain</p> <p>Earth Name <u>Mt. Everest</u> Height <u>4.6 km</u></p> <p>Moon Name <u>Mons Huygens</u> Height <u>5.5 km</u></p>	<p style="text-align: center;">Lowest Point</p> <p>Earth Name <u>Challenger Deep</u> Depth <u>10.9 km</u></p> <p>Moon Name <u>Antoniadi Crater</u> Depth <u>9 km</u></p>
<p style="text-align: center;">Largest Crater</p> <p>Earth Name <u>Vredefort Dome, South Africa</u> Length <u>300 km</u></p> <p>Moon Name <u>South Pole - Aitken Basin</u> Length <u>2,500 km</u></p>	<p style="text-align: center;">Crater the Size of...</p> <p>Earth Name <u>Okefenokee Swamp</u> Length <u>64 km</u></p> <p>Moon Name <u>Stadius Crater</u> Height <u>68 km</u></p>
<p style="text-align: center;">Crater the Size of...</p> <p>Earth Name <u>Atlanta (inside the perimeter)</u> Length <u>147 km</u></p> <p>Moon Name <u>Longomontanus Crater</u> Height <u>146 km</u></p>	<p style="text-align: center;">Crater the Size of...</p> <p>Earth Name <u>Tennessee (width)</u> Length <u>195 km</u></p> <p>Moon Name <u>Humboldt Crater</u> Height <u>199 km</u></p>
<p style="text-align: center;">Mare the Diameter of...</p> <p>Earth Name <u>Caspian Sea</u> Length <u>1199 km</u></p> <p>Moon Name <u>Mare Imbrium</u> Length <u>1,123 km</u></p>	<p style="text-align: center;">Quakes</p> <p>Earthquakes <u>Caused by tectonic activity</u></p> <p>Moonquakes <u>Longer than earthquakes, caused by gravitational pull during phases</u></p>

<p style="text-align: center;">Crust (composition, thickness, solid/liquid)</p> <p>Earth <u>Oxygen, silicon, and aluminum, 5-32 km thick, solid</u></p> <p>Moon <u>Oxygen, silicon, magnesium, iron, calcium, and aluminum, 50-70 km thick, solid</u></p>	<p style="text-align: center;">Mantle (composition, thickness, solid/liquid)</p> <p>Earth <u>Magnesium, oxygen, and silicon, 2,900 km, semi-solid</u></p> <p>Moon <u>Olivine, orthopyroxene, and clinopyroxene, 1,000 km, solid</u></p>
<p style="text-align: center;">Atmosphere (composition)</p> <p>Earth <u>Thick, 78% nitrogen, 21% oxygen, 1% other (0.93% argon, 0.04% CO₂, etc)</u></p> <p>Moon <u>No atmosphere because it doesn't have enough gravity to keep one</u></p>	<p style="text-align: center;">Core (composition, thickness, solid/liquid)</p> <p>Earth <u>Iron and nickel, inner + outer = 3,500 km, liquid inner, solid outer</u></p> <p>Moon <u>Iron, 700 km, solid</u></p>