

Grade 3 - Unit 3 - Sun, Moon, Earth

Content Area: **Science**
Course(s): **Science 5, Generic Course**
Time Period: **Marking Period 3**
Length: **6 - 8 weeks**
Status: **Published**

Established Goals/Standards

SCI.3-4.5.1.4.A.2	Use outcomes of investigations to build and refine questions, models, and explanations.
SCI.3-4.5.1.4.A.3	Use scientific facts, measurements, observations, and patterns in nature to build and critique scientific arguments.
SCI.3-4.5.1.4.B.3	Formulate explanations from evidence.
SCI.3-4.5.1.4.B.a	Building and refining models and explanations requires generation and evaluation of evidence.
SCI.3-4.5.1.4.B.c	Evidence is used to construct and defend arguments.
SCI.3-4.5.1.4.B.d	Reasoning is used to support scientific conclusions.
SCI.3-4.5.1.4.D.1	Actively participate in discussions about student data, questions, and understandings.
SCI.3-4.5.1.4.D.2	Work collaboratively to pose, refine, and evaluate questions, investigations, models, and theories.
SCI.3-4.5.1.4.D.a	Science has unique norms for participation. These include adopting a critical stance, demonstrating a willingness to ask questions and seek help, and developing a sense of trust and skepticism.
SCI.3-4.5.1.4.D.b	In order to determine which arguments and explanations are most persuasive, communities of learners work collaboratively to pose, refine, and evaluate questions, investigations, models, and theories (e.g., scientific argumentation and representation).
SCI.3-4.5.4.4.A.1	Formulate a general description of the daily motion of the Sun across the sky based on shadow observations. Explain how shadows could be used to tell the time of day.
SCI.3-4.5.4.4.A.2	Identify patterns of the Moon's appearance and make predictions about its future appearance based on observational data.
SCI.3-4.5.4.4.A.3	Generate a model with explanatory value that explains both why objects roll down ramps as well as why the Moon orbits Earth.
SCI.3-4.5.4.4.A.4	Analyze and evaluate evidence in the form of data tables and photographs to categorize and relate solar system objects (e.g., planets, dwarf planets, moons, asteroids, and comets).
SCI.3-4.5.4.4.A.a	Objects in the sky have patterns of movement. The Sun and Moon appear to move across the sky on a daily basis. The shadows of an object on Earth change over the course of a day, indicating the changing position of the Sun during the day.
SCI.3-4.5.4.4.A.b	The observable shape of the Moon changes from day to day in a cycle that lasts 29.5 days.
SCI.3-4.5.4.4.A.c	Earth is approximately spherical in shape. Objects fall towards the center of the Earth because of the pull of the force of gravity.
SCI.3-4.5.4.4.A.d	Earth is the third planet from the Sun in our solar system, which includes seven other planets.

Essential Questions

- How does Earth move each day?
- How does Earth move throughout the year?
- How does the moon move?
- What are Eclipses?
- What causes seasons?
- What is being on the moon like?
- What is the moon like?
- What is the sun like?

Enduring Understanding

- A solar eclipse occurs when the Moon moves between the Sun and Earth and blocks the Sun from view; a lunar eclipses occurs when the Moon moves into Earth's shadow.
- Astronauts who visit the airless Moon must bring along life-support equipment and adapt to lunar gravity that is about one-sixth of Earth's
- Earth rotates eastward on its axis once every 24 hours, making objects in the sky appear to move from east to west and appear to circle the North Star at night.
- Earth, one of the eight known planets in our solar system, revolves around the Sun once a year; the positions in the sky of the Sun and constellations seem to change as Earth moves on its orbit.
- Seasons occur because, as Earth revolves around the Sun, the tilt of Earth's axis causes different amounts of sunlight to strike particular parts of Earth's curved surface at different times of the year.
- The moon is a faraway, airless, cratered ball of rock with a diameter about one-fourth of Earth's
- The Moon revolves around Earth and rotates on its axis about once a month, causing the same side of the Moon to remain facing Earth, and causing the Moon's phases as different portions of the Moon's sunlit half becomes visible from Earth.
- The Sun is a star-a ball of gases much larger than Earth and much farther away than the Moon-that gives off heat and light essential to life on Earth

Content

The students will be able to:

- describe the surface of the moon
- define crater
- define meteorite
- describe the importance of the atmosphere
- explain some of the tools astronomers use to gather information about objects in space
- define gravity
- compare the force of gravity on the Moon and on Earth

- describe the characteristics of the Sun and its importance to life on Earth
- explain the signs of solar storms and the effects of solar storms on Earth
- define axis
- define rotation
- define north star
- describe the effect of Earth's rotation
- explain how a person can use the Sun to tell time
- describe the effect of Earth's yearly rotation
- name and identify the stages of the moon
- explain why the phases of the moon are produced
- describe the effect the Moon has on Earth's tides
- explain how Earth's axis tilt determines the seasons
- research how the first calendars were designed to measure time and how they relate to Earth's motions
- describe how Earth's tilt affects life near the equator and the poles
- explain what causes solar and lunar eclipses

Assessment

Resources

- Discovery Works textbook
- ActivBoard flipcharts
- Labs:
 - Making Moon Craters
 - Lunar Olympics
 - A Moon Outing
 - Moon Phaser
 - Lined-Paper Sunlight
 - Homemade Eclipses
- Informational Posters
- Moon Phasing diagrams

- Unitedstreaming video clips