

Unit 5: Earth and the Universe
6th Grade Science
10 Class Meetings

Created July 2020

Essential Questions

- What is the relationship between the sun, earth, and moon?
- What is the difference between a natural and man-made satellite?
- Why is the tilt of the Earth important to the seasons?
- What are the positions of the sun and moon during a solar and lunar eclipses?
- How do the positions of the sun and moon impact tides on Earth?

Enduring Understandings with Unit Goals

EU 1: Examine how moon impacts Earth. **CHANGE TO A STATEMENT**

- Examine how the moons force plays a role in earths water movement.
- Compare the Earths interaction with the moon.
- Compare roles of natural and man-made satellites

EU 2: How does the Earths movement, positioning in the solar system, and pattern of movement impact our planet. **CHANGE TO A STATEMENT**

- Analyze the tilt of the Earth and its impact on earth's environment.
- Examine the role gravity plays on Earth and our solar system.

Standards

Next Generation Science Standards:

- **MS-ESS1-1:** Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons.
- **MS-ESS1-2:** Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.
- **MS-ESS1-3:** Analyze and interpret data to determine scale properties of objects in the solar system.
- **RST.6-8.:** Cite specific textual evidence to support analysis of science and technical texts.
- **RST.6-8.9:** Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

Common Core State Standards:

- **6.NS.C.5:** Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.

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ISAAC Vision of the Graduate Competencies

Competency 1: Write effectively for a variety of purposes.

Competency 2: Speak to diverse audiences in an accountable manner.

Competency 3: Develop the behaviors needed to interact and contribute with others on a team.

Competency 4: Analyze and solve problems independently and collaboratively.

Competency 5: Be responsible, creative, and empathetic members of the community.

Unit Content Overview

1. The Moon

- Outline the phases of the moon
- Define how an eclipse takes place.
- Examine how the moon is a satellite for Earth. Examining its role and impact on Earth.

2. Earth and its many movements

- Explain why the Earth's tilt is a major reason for the season.
- Illustrate Earth's movement in our solar system.
- Examine how the Earth's movement changes our planet.

3. Earth's place in the solar system

- Analyze the role of gravity in our solar system and planet.
- Evaluate the sun's relationship with Earth.

Interdisciplinary Connection:

- Language Arts – Writing/nonfiction text
- Math– Computation/Word Problems
- Art – Illustration of systems/creating maps/models

Daily Learning Objectives with *Do Now Activities*

Students will be able to...

- Diagram and label the phases of the moon *
 - *Develop a model which acutely details the phases of the moon and their identification markers including duration of time and visual recognition.*
- Create a model of the sun, earth, and moon to show the relationship in terms of size and position**
 - *Examine how the solar system consists of the sun and a collection of objects, including planets, their moons, and asteroids that are held in orbit around the sun by its gravitational pull on them.*
 - *Prepare a model of the solar system can explain eclipses of the sun and the moon.*
- Compare and contrast both natural and man-made satellites*
 - *Compare and contrast man made vs. natural satellites and the roles they play within Earth's orbit.*
- Interpret the seasons on a map based on the position of the sun*
 - *Outline how the seasons are a result of that tilt and are caused by the differential intensity of sunlight on different areas of Earth across the year.*
- Draw a diagram of the Earth, sun, and moon showing where high and low tides are occurring. **
 - *Illustrate and create a detailed representation of the impact of the sun, moon, and Earth on occurring tides.*
- Examine the parts of an eclipse*
 - *Prepare a model of the solar system to explain eclipses of the sun and the moon.*

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Instructional Strategies/Differentiated Instruction

- Power Point Lecture with notetaking
- Guided notetaking
- Warm up activities
- Flexible grouping
- Independent reading
- Lab activities
- Exit slips
- Graphic Organizers
- Creating authentic connections for students
- Vocabulary word bank
- Rephrasing and restatement of information and concepts
- Tiered instruction
- Alternative test settings
- Reading and accountable talk discussions of texts
- Student-led instruction
- Homework assignments
- Hands-on activities
- SIOP strategies- Teachers implement SIOP strategies to introduce academic vocabulary and use multiple modes of representation including gestural, oral, pictorial, graphic and textural.

Assessments

FORMATIVE ASSESSMENTS:

- Guided notes
- Homework
- Daily Think-Write-Pair-Share (TWPS) Activities
- Accountable Talk Discussions
- Oral questioning
- Exit slips
- Warm Up activities
- Close reading and interpretation of text
- Performance Task – Blast Off!
 - Future Rubrics Assessment in 2021-2022 school year

SUMMATIVE ASSESSMENTS:

- Quiz - EU 1
- Quiz – EU 2
- Performance Task - Blast Off!
- Unit 5 Test

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Unit Task

Unit Task Name: Blast Off! **

Description:

Students will create a diagram (illustration or power point) that shows the Earth and moon and their proximity to the sun in our solar system (EU1). Students will explain their findings of the moon and its relationship to Earth as if they were working for NASA and just found new information of the important role the moon plays in the workings of our magnetic fields. These NASA scientists will then elaborate on the Earth's movement in our solar system and how its movement, rotation, and tilt impact our planets daily, monthly, and yearly changes (EU2)!

Evaluation: Summative Assessment and Future Rubric in 2021-2022 school year

Unit Resources

- Non-Fiction Text
- Internet databases
- Large format poster printer
- Microsoft Power Point or Prezi
- Laptops
- NOAA website
- Lab materials