Astronomy

Content Area: **Science**
Course(s): **Science 6**
Time Period: **September**
Length: **5 weeks**
Status: **Published**

Astronomy Overview

Over a 5 week period, this unit will be broken down into three sub-ideas: the universe and its stars, Earth and the solar system, and the history of planet Earth. Students examine the Earth's place in relation to the solar system, the Milky Way galaxy, and the universe. There is a strong emphasis on a systems approach and using models of the solar system to explain the cyclical patterns of eclipses, tides, and seasons. There is also a strong connection to engineering through the instruments and technologies that have allowed us to explore the objects in our solar system and obtain the data that support the theories explaining the formation and evolution of the universe. The unit should be assessed during the first week of October.

Astronomy Priority Standards

SCI.MS-ESS1-3	Analyze and interpret data to determine scale properties of objects in the solar system.
SCI.MS-ESS1-2	Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.
SCI.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.

Astronomy Learning Goals

- Students will be able to analyze and interpret data to determine scale properties of objects in the solar system.

- Students will be able to develop and use a model to describe the cyclic patterns of eclipses of the sun and moon.

- Students will be able to develop and use a model to describe the cyclic patterns of lunar phases.

- Students will be able to develop and use a model to describe the cyclic patterns of seasons.

- Students will be able to develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.

Astronomy Learning Targets

- Students will be able to determine the effect of the position of the Earth (axis) on the seasons.

- Students will be able to distinguish between lunar and solar eclipses.

- Students will be able to identify patterns in data relating to astronomy.

- Students will be able to identify the eight lunar phases.

- Students will be able to recognize and explain how a table "relative to…" is organized.

- Students will be able to recognize or recall specific vocabulary, including: oribt, gravity, velocity, proportional.

- Students will be able to summarize gravity's role in orbits.

- Students will recognize or recall specific vocabulary, including: cyclic patterns, lunar phases, eclipses, axis, rotation, revolution, waxing, waning, gibbous, crescent.

- Students will recognize or recall specific vocabulary, including: scale, relative to, astronomical unit (AU), crust, surface, atmosphere.

Essential Questions

- How big are objects in our solar systems compared to everday objects?

- How do the Earth, Sun, and Moon affect each other?

- How does gravity affect all objects in galaxies and solar systems?

21st Century Themes

CRP.K-12.CRP2	Apply appropriate academic and technical skills.
CRP.K-12.CRP4	Communicate clearly and effectively and with reason.
CRP.K-12.CRP5	Consider the environmental, social and economic impacts of decisions.
CRP.K-12.CRP6	Demonstrate creativity and innovation.
CRP.K-12.CRP7	Employ valid and reliable research strategies.
CRP.K-12.CRP8	Utilize critical thinking to make sense of problems and persevere in solving them.
CRP.K-12.CRP11	Use technology to enhance productivity.
CRP.K-12.CRP12	Work productively in teams while using cultural global competence.

Differentiated Instruction

- Have individual students explain content understanding in their own words

- Use a variety of visual aids to help student understanding

- Use different teaching styles to introduce, explain, and reinforce content understanidng

- Use small groups to check for understanding.

Assessments

- Do Now Activities

- MS-ESS1-1 Learning Scale

- MS-ESS1-2 Learning Scale

- MS-ESS1-3 Learning Scale

- Teacher-created quizzes

- Teacher-created worksheets
- Unit Benchmark Assessment

Learning Plan

	Standard/Learning Goal/Target
	Standard:
	Develop and use a model of the Earth-sun-moon system to describe the c patterns of lunar phases, eclipses of the sun and moon, and seasons.
es (Warm up)	
	Learning Goals:
oint slides from online information	*Students will be able to develop a model the Earth-Sun-Moon system t how the 3 objects affect each other.
v positions of sun, moon, earth as they and seasons.	*Students will be able to use a model of the Earth-Sun-Moon system to how the 3 objects affect each other.
n You Tube of solar and lunar eclipses :	**Learning Target:**
m/watch?v=_201ttTSG30	*Students will be able to develop a physical, graphical, or conceptual m to demonstrate the relationship between the Earth, Sun, and Moon
m/watch?v=49O2MsT1txU	
m/watch?v=9ybKF_qEpu8	*Students will be able to use a physical, graphical, or conceptual model demonstrates the relationship between the Earth, Sun, and the Moon
orksheets.	
es (Warm up)	**Standard:**
	Develop and use a to describe the role of gravity in the motion within ga Solar System.
oint slides from online information	
	Learning Goals:
v gravity affects objects in the Solar	*Students will be able to develop a model to explain the role of gravity galaxies/Solar system *Students will be able to use a model to explain th gravity within galaxies and Solar System.
eading passages on gravity.	

1 You Tube on gravity:

m/watch?v=xICEt51A-Ac

orksheets.

es (Warm up)

oint slides from online information

f statistical information on objects in
together.

e statistical information chart.

monstrating scale properties of objects
em.

orksheets.

es (Warm up)

f review topics in preparation for unit

Learning Target:

*Students will be able to develop a physical or conceptual model to expl
of gravity in the motions within galaxies and solar system.

*Students will be able to use a physical or conceptual model to explain t
gravity in the motions within galaxies and solar system.

Standard:

Analyze and interpret data to determine scale properties of objects in the
System.

Learning Goal:

*Students will be able to analyze data to determine scale properties of ol
Solar System.

*Students will be able to interpret data to determine scale properties of c
the Solar System.

Learning Target:

*Students will be able to analyze statistical information such as the obje
surface features,

and orbital radius to determine scale properties.

*Students will be able to interpret statistical information such as the obje
surface features,

and orbital radius through drawings, photographs, and models to determ
properties.

Standards:

All unit standards listed above in weeks 1-4.

Learning Goals:

Students will review and complete multiple assignments in order to be a

n-note quiz.

lards review worksheet.

learning scale on.

lards-based assessment.

a standards-basesd assessment.

Learning Target:

Students will complete all assignments during the review period and wor
collaboratively with the teacher to prepare themselves to pass a standard
based assessment.

Materials & Resources

- Scientific hands-on materials
- Teacher choice of You Tube videos on the content
- Teacher-created Google Documents
- Teacher-created Google Slides