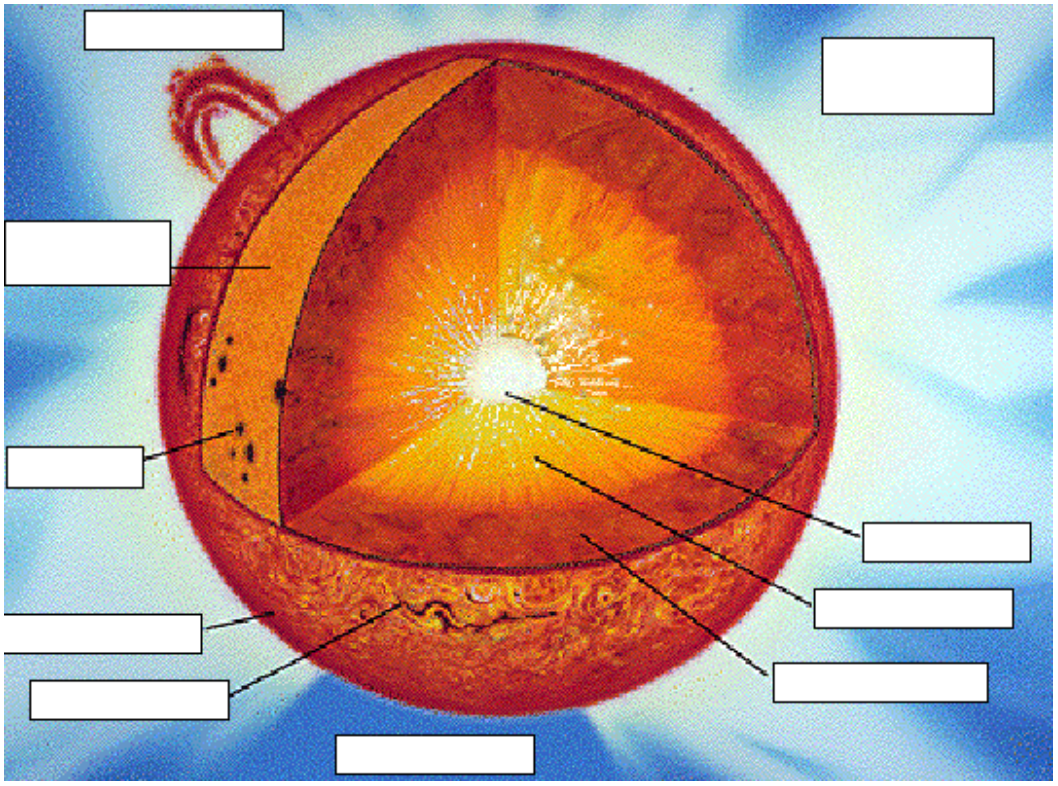
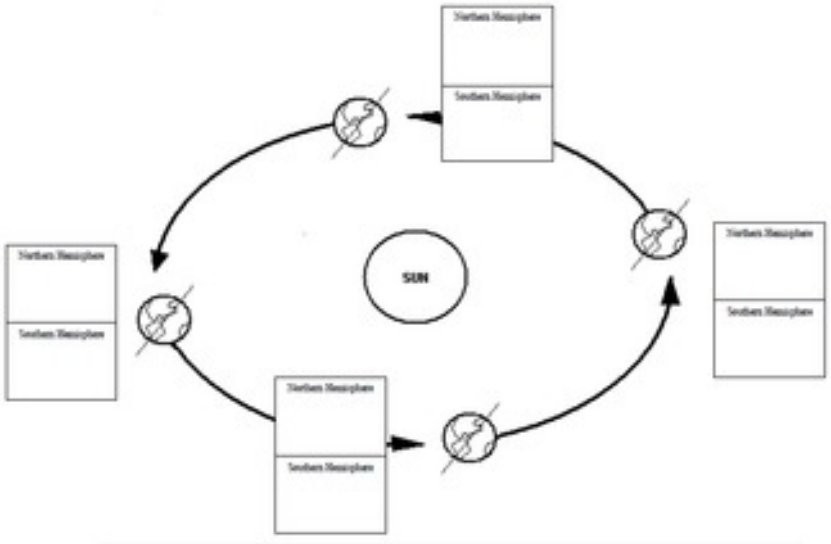
Topic: Our Solar System	Driving questions: ● What models, theories, and tools have scientists used to understand our solar system and its formation? ● How have forces played a role in the development of our solar system, and how do they allow us to represent and predict planetary motion? ● What are the properties of the objects in our solar system, and how do those properties help us understand the age and formation of objects in the solar system? ● How do Earth, the sun, and the moon interact to form a system that creates observable phenomena?
8.01 Formation of Our Solar System	# Objectives ## How have ideas about our solar system changed over time? **At the end of this lesson, you will be able to:** ● **explain the formation of the planetary system in our solar system** ● **explain how the work of scientists has shaped our views of the solar system** ● **compare models of our solar system over time** ● **identify different methods of measuring astronomical distances and apply them in various scenarios**
Define: Solar System Planet Dwarf Planet Astronomical Unit Interstellar Space Heliosphere Nebular Hypothesis Nebula Nuclear Fusion Model Geocentric Model Heliocentric Model Orbit Satellite Revolution Rate Axis Rotation Rate	
Summarize Kepler's 3 Laws of Planetary Motion	1. Law of Ellipses

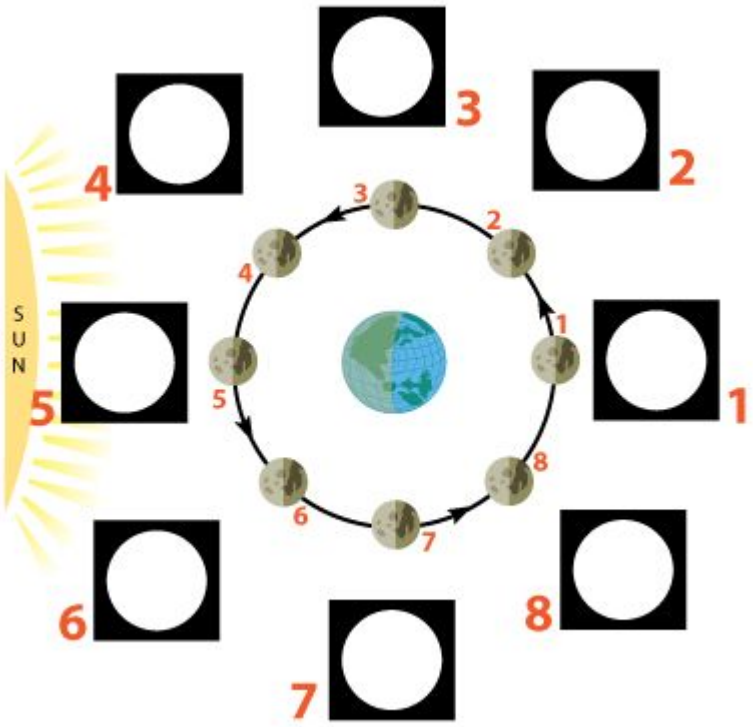
	2. Law of Equal Area 3. Law of Periods
Draw examples of the Geocentric and Heliocentric Models	
Review	**In this lesson you:** ● learned about the formation of our solar system ● explored how scientists' work has shaped our views of the solar system ● compared how models of our solar system have changed over time ● investigated different methods of measuring astronomical distances and applied them in various scenarios
8.02 Forces in Our Solar System	# Objectives ## How do forces impact our solar system? **At the end of this lesson, you will be able to:** ● define the role of gravitational forces in our solar system

	● identify electromagnetic forces and their effects in our solar system
Define:	
Microgravity Air Resistance Freefall Acceleration Inertia Space Time Continuum Weight Radiation Visible Light Magnetosphere Ionized Van Allen Radiation Belt Aurora	
Newton's Laws of Motion	1. 2. 3.
REVIEW	**At the end of this lesson, you should be able to:** ● examined the role of gravitational forces in our solar system ● investigated electromagnetic forces and their effects in our solar system ● describe the effect Earth's gravitational forces have on objects of different masses ● describe how to investigate the gravitational force
8.03 Physical Properties of Our Sun	# Objectives ## How can we compare our sun to other stars and their characteristics? **At the end of this lesson, you will be able to:** ● describe and explain the physical features of the sun ● compare and contrast types of nuclear reactions ● discuss the sun's dynamic nature and connection to conditions and events on Earth and its impacts on human-made technology systems

Define: Space Weather Heliophysics Nuclear Fusion Nuclear Fission Magnetosphere Solar Wind Solar Cycle/Min/Max Aurora	
Layers of the Sun	
Solar Activity	CME Solar Prominence Sunspot Solar Flare
REVIEW	**In this lesson you:** ● examined the role of gravitational forces in our solar system ● investigated electromagnetic forces and their effects in our solar system
8.04 Objects in our Solar System	Objectives What can objects in our solar system tell us about its formation and future? **At the end of this lesson, you will be able to:** ● compare characteristics of inner and outer planets

	• define the role of “other” solar system objects in our solar system • discuss how knowledge of our own solar system can be applied to future planetary discoveries
Name the Inner Planets and describe their composition	
Name the Outer Planets and describe their composition	
Asteroids (Composition and Location)	
Meteor / Meteoroid . Meteorite	
Comet	
HONORS: Ecliptic Plane Celestial Sphere Coordinate Systems	
Review	In this lesson, you: • examined the similarities and differences of the inner and outer planets • explored the other objects that exist in the solar system, including asteroids, comets, meteoroids, dwarf planets, and the Kuiper belt • learned how to locate objects in the solar system using a coordinate system (HONORS) • investigated differences between apparent and actual motions of stars and planets (HONORS)
8.05 The Earth in Space	Objectives How does the Earth-Sun-Moon system impact our seasons? **At the end of this lesson, you will be able to:**

	• discuss how the relative positions of Earth, the moon, and the sun create different seasons • identify how Earth's rotation and revolution create seasons
Define: Rotation Revolution Ecliptic Plane Aphelion Perihelion Apogee Perigee	
Seasons	
REVIEW	**In this lesson you:** • examined the orbital positions of Earth, the sun, and the moon • explored the surface features of the moon • determined how seasons are a function of Earth's axial tilt • investigated time as it relates to the Earth-Sun-Moon system
8.06 Earth Sun Moon System	# Objectives ## How does the Earth-Sun-Moon system impact our daily life? **At the end of this lesson, you will be able to:**

	• discuss how the positioning of the sun, moon, and Earth causes eclipses • define the positioning of the sun, moon, and Earth with each moon phase • use a model to demonstrate the phases of the moon
Draw and label the phases of the moon. Also indicate the position of the moon during a solar and lunar eclipse. Remember to indicate whether a phase is waxing or waning	
REVIEW	**At the end of this lesson, you should be able to:** • describe how lunar phases result from different portions of the moon's illuminated half being visible as the moon orbits Earth • describe the movement of the Earth-Sun-Moon system • use a model to demonstrate the phases of the moon