

Independence School District Curriculum Unit Guide

Grade Level	7	Unit of Study	Universe	Time Frame	August-September
Priority Standards/ Supporting Standards	<p>1. Classify celestial bodies in the solar system into categories: Sun, moon, planets, and other small bodies (i.e., asteroids, comets, meteors) based on physical properties. (Astronomy 3.1 pg. 76-66, 3.3 pg. 84-91, 3.4 pg. 94-101, 3.5 pg. 104-107) 6.1.A.a</p> <ul style="list-style-type: none"> • <i>Compare and contrast the size, composition, atmosphere, and surface of the planets (inner vs. outer) in our solar system and Earth's moon.</i> <p>2. Describe the relative proximity of common celestial bodies (i.e., Sun, Moon, planets, smaller celestial bodies such as comets and meteors and other stars) in the sky to the Earth. (Astronomy 3.1 pg. 76-77, 3.3 pg. 85, 3.4 pg. 95, 4.2 pg. 130-131, 4.4 pg. 145-147) 6.1.A.c</p> <ul style="list-style-type: none"> • <i>Describe how the Earth's placement in the solar system is favorable to sustain life (i.e., distance from the Sun, temperature, atmosphere).</i> • <i>Compare and contrast the characteristics of Earth that support life with the characteristics of other planets that are considered favorable or unfavorable to life (e.g., atmospheric gases, extremely high/low temperatures).</i> • <i>Explain that stars are separated from one another by vast and different distances, which causes stars to appear smaller than the Sun.</i> • <i>Relate the apparent east-to-west changes in the positions of the Sun, other stars, and planets in the sky over the course of a day to Earth's counterclockwise rotation about its axis.</i> • <i>Describe the pattern that can be observed in the changes in number of hours of visible sunlight, and the time and location of sunrise and sunset, throughout the year.</i> • <i>Describe how, in the Northern Hemisphere, the Sun appears lower in the sky during the winter and higher in the sky during the summer.</i> • <i>Describe how, in winter, the Sun appears to rise in the Southeast and set in the Southwest, accounting for a relatively short day length, and, in summer, the Sun appears to rise in the Northeast and set in the Northwest, accounting for a relatively long day length.</i> • <i>Describe how the Sun is never directly overhead when observed from North America.</i> • <i>Observe the change in time and location of Moon rise, Moon set, and the Moon's appearance relative to time of day and month over several months, and note the pattern in this change.</i> • <i>Describe how the Moon rises later each day due to its revolution around the Earth in a counterclockwise direction.</i> • <i>Describe how the Moon is in the sky for roughly 12 hours in a 24-hour period.</i> • <i>Describe how that one half of the Moon is always facing the Sun and, therefore, one half of the Moon is always lit.</i> • <i>Relate the apparent change in the Moon's position in the sky as it appears to move east-to-west over the course of a day to Earth's counterclockwise rotation about its axis.</i> <p>3. Describe how the appearance of the Moon that can be seen from Earth changes approximately every 28 days in an observable pattern (moon phases).6.2.B.f</p> <ul style="list-style-type: none"> • <i>Illustrate and explain a day as the time it takes a planet to make a full rotation about its axis.</i> • <i>Diagram the path (orbital ellipse) the Earth travels as it revolves around the Sun.</i> • <i>Illustrate and explain a year as the time it takes a planet to revolve around the Sun.</i> 				

- Explain the relationships between a planet's length of year (period of revolution) and its position in the solar system.
 - Recognize and explain the phases of the moon are due to the relative positions of the Moon with respect to the Earth and Sun.
- 4. Relate the axial tilt and orbital position of the Earth as it revolves around the Sun to the intensity of sunlight falling on different parts of the Earth during different seasons. (Astronomy 1.1 pg. 6-13, Skills Lab pg. 14-15) 6.2.C.f**
- 5. Describe how the planets' gravitational pull keeps satellites and moons in orbit around them. (Astronomy 1.2 pg. 16-19, Motion, Forces and Energy 1.5, pg. 65-66) 6.2.D.b**
- Describe how the Sun's gravitational pull holds the Earth and other planets in their orbits.

Student Proficiency Statements

- I can classify celestial bodies into categories (Sun, moon, planets, asteroids, comets, meteors) based on physical properties.
- I can describe relative proximity of celestial bodies in the sky to the Earth.
- I can describe how the appearance of the Moon changes every 28 days in a pattern.
- I can relate the tilt of the Earth as it revolves around the Sun to Earth's different seasons.
- I can describe how the Earth's gravity pulls any object toward it, keeping satellites and moons in orbit around it.

Resources

Astronomy textbook
 Motion, Forces and Energy textbook

[The Seasons and Earth's Orbit \(#4\)](#)

[Motion of our Star the Sun \(#1\)](#)

[Planets and Their Rotation \(#2\)](#)

[Rotation and Revolution \(#1-4\)](#)

[How Does Gravity Work? \(#5,6\)](#)

[Gnome Puts Gravity to the Test \(#6\)](#)

[Our Solar System \(#7,8\)](#)

