

Students will answer all vocabulary, study guide questions and additional study problems as outlined below. *Supplemental and Reading Material provide additional information to help master concepts.*

Essential Standards:	Students Will Be Able To:
1.1.1 Explain Earth's motion through space 1.1.2 Explain Earth's movement around the Sun 1.1.3 Explain how the Sun's energy is produced and transferred to Earth 1.1.4 Explain how incoming solar energy makes life possible	<ul style="list-style-type: none"> • Explain the origin of the Earth, solar system and universe. • Explain the organization of the universe including galaxies, solar systems, stars and planets. • Explain planetary orbits. • Explain the motions of the Sun, Moon and Earth system. • Explain and differentiate between precession, nutation and barycenter. • Explain the shape of the Earth, and reason for it. • Explain the process of nuclear fusion as related to the Sun. • Summarize the flow of the sun's energy through space.

Vocabulary—Define, know, and be able to apply the following terms:

- | | | |
|-----------------------|------------------------------|-----------------|
| 1. Revolution* | 8. Luminosity | 14. Apogee* |
| 2. Ellipse* | 9. Electromagnetic Spectrum* | 15. Barycenter* |
| 3. Rotation* | 10. Fission | 16. Aphelion* |
| 4. Absolute Magnitude | 11. Nebular Theory* | 17. Precession* |
| 5. Heliocentric* | 12. Radiation* | 18. Perigee* |
| 6. Fusion* | 13. Nutation* | 19. Orbit |
| 7. Geocentric | | 20. Perihelion* |

Academic students complete vocabulary with asterisks *only. Honors students complete all 20 words.

Study Guide—Answer, know, and understand the following concepts:

1. Explain the Big Bang Theory in relation to the origin and motion of the universe.
2. Describe evidence for an expanding universe.
3. Explain the planetary orbits using Kepler's Laws.
4. Explain the motions and placement of the Earth in our solar system.
5. Explain the placement of our solar system in the Milky Way Galaxy.
6. Identify the forms of energy produced by the Sun.
7. Explain the reasons for the seasons we experience on Earth.
8. Explain the gravitational interaction between the Earth and moon.
9. Explain the process of nuclear fusion.
10. Identify various ways in which the Earth is protected from solar radiation.
11. Create a diagram tracing the Earth's motion around the sun include the following terms in your drawing: rotation, revolution, nutation, precession, barycenter, 23.5°, Northern and Southern Hemisphere Seasons (based on tilt), apogee, perigee, aphelion, perihelion.

Supplemental--Do practice the following activities as you work through the unit:

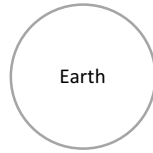
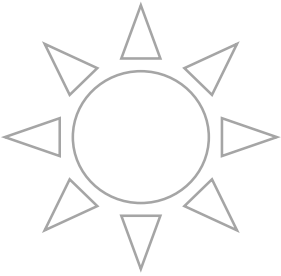
1. Practice problems related to Kepler's Laws.
2. Create a diagram explaining the shape of the Earth.

Unit Reading Material:

- Textbook: Chapter 22-25
- Digital Textbook: Ch. 3
- Class Notes
- Handout

Additional Problems:

1. Draw and label the 8 phases of the moon around Earth, given the location of the sun:



2. Differentiate between nutation and precession. Draw an image that represents each.
3. Draw the arrangement of the Earth, sun and moon for both a SPRING tide and a NEAP tide. Explain the difference between the two as it relates to the tides on Earth's surface.
4. Differentiate between meteors, meteoroids, and meteorites.

5. Draw the life cycle of a star and label each type within each sequence.

6. What is the difference between a blue giant and a white dwarf star based on the H-R diagram?

7. Name the planets in order and identify their type as terrestrial or Jovian.

8. Explain what a comet is and how it is different from an asteroid.

9. Draw a solar eclipse and a lunar eclipse. Which one is more likely to occur?