

Astronomy Objectives

Correctly define: asteroid, celestial object, comet, constellation, Doppler effect, eccentricity, eclipse, ellipse, focus, Foucault Pendulum, galaxy, geocentric model, heliocentric model, local time, luminosity, meteor, revolution, rotation, solar system, tides, universe

THE UNIVERSE:

- State that the universe is approximately 10-20 billion years old.
- Explain the Big Bang Theory and give two pieces of evidence which support it.
- Explain the significance of the blue and red shifts.
- Correctly arrange by increasing/decreasing size: universe, galaxies, and solar system.

STARS:

- Identify the main classifications of stars.
- Use the Luminosity & Temperature of Stars diagram on the ESRTs to identify the characteristics of specific stars in relation to Earth's sun.
- Explain the process by which stars generate their energy.

THE SOLAR SYSTEM:

- Differentiate between asteroids, comets, and meteors.
- Identify the key characteristics of each of the planets by the use of the Solar System Data Table on the ESRTs
- Classify the planets as jovian or terrestrial and how those classifications compare with regard to average density, average size, and length of year.
- Calculate the eccentricity of an ellipse and identify the planets with the most and least circular orbits.
- Explain the difference between a heliocentric and geocentric model of the solar system.

EARTH'S MOTIONS:

- Explain and demonstrate the difference between rotation and revolution.
- Be able to calculate the rate of rotation and the movement of celestial objects through the sky.
- Be able to explain the motion of Polaris in the sky as well as the motion of constellations.
- Provide evidence for the Earth's rotation---Foucault Pendulum and Coriolis Effect specifically.
- Provide evidence for Earth's revolution---different constellations through the year, specifically

MOON:

- Draw the eight phases of the moon.
- Explain that the phases of the moon are caused by the moon's revolution around the Earth.
- Explain that the tides are caused by the gravitational attraction of the moon and the sun.
- Explain the difference between neap and spring tides and during which phases of the moon each occurs.
- Explain the difference between lunar and solar eclipses and during which phases of the moon each can occur.
- Explain why the moon rises 50 minutes later each day.