Instructional Unit Title: Our Place in Space

Science 8th Grade

The teacher may illustrate the development of different solar system models from historically significant figures so the student can describe the evolution of these models due to the advancement of technology.

The teacher may differentiate between the different types of telescopes so that students can describe the uses, general structures, and method of magnification of each type. The teacher may provide resources showing the arrangement of the Earth, Moon, and Sun so that the student can comprehend the Earth's relative position within the system.

The teacher may model the physical characteristics and behaviors of the sun and other stars so that students can describe the Sun's effects on Earth.



The teacher may provide simulations, illustrations, or hands-on activities to demonstrate how the tilt of the Earth determines seasons so the student can synthesize why seasons occur and how they vary at different locations on Earth. The teacher may utilize digital resources as well as hands on activities illustrating gravity on other celestial objects so the student can connect that the mass of an object will determine its gravity.

The teacher may brainstorm with the class to review Newton's Laws of Motion so that students can apply that knowledge to how the gravity of objects in space creates movement/interactions between those objects.

The teacher may provide simulations, videos, and models of the Earth's tides in relation to the lunar cycle so the student can understand how the Moon's gravity directly influences the tides on Earth. **PERFORMANCE ASSESSMENT:** The Voyager 1 space probe has located a spiral galaxy similar to ours. Within this galaxy, the probe has identified a solar system that includes a planet much like the Earth. You are a NASA astronomical analyst asked to interpret observable data recorded by Voyager 1. Using your knowledge of the motion of objects within a solar system, make inferences about the solar system/planetary conditions and possible seasonal changes on this new planet.

Observations that have been recorded include: Massive tidal surges that cover large amounts of land The planet's day/night cycle is 36 hours Tilt of the planet is 90 degrees The length of the year is 200 days

This unit was authored by a team of Colorado educators. The unit is intended to support teachers, schools, and districts as they make their own local decisions around the best instructional plans and practices for all students. To see the entire instructional unit sample with possible learning experiences, resources, differentiation, and assessments visit <u>http://www.cde.state.co.us/standardsandinstruction/instructionalunitsamples</u>.