



Earth's Revolution and Rotation – Grade Eight

**Ohio Standards
Connection:**

Earth and Space Sciences

Benchmark A

Describe how the positions and motions of the objects in the universe cause predictable and cyclic events.

Indicator 1

Describe how objects in the solar system are in regular and predictable motions that explain such phenomena as days, years, seasons, eclipses, tides and moon cycles.

Lesson Summary:

The purpose of this lesson is to help students learn about the regular motions of the sun, Earth and the moon and explain how these are related to days, years, seasons, eclipses, tides and moon cycles. Students participate in an exercise where they explore the similarities and differences of these predictable motions. As the first step, students complete a pre-assessment about sun-moon-Earth phenomena. The teacher then sets up an imaginary research institute with stations arranged in a matrix. Students in groups move among sections of the matrix and make observations of sun-moon-Earth models. Using notes from their observations, students explore how movements of the Earth and moon impact phenomena such as seasons, tides, and moon phases. The summative assessment asks students to describe these celestial phenomena.

Estimated Duration: *Three hours and 20 minutes*

Commentary:

Using planetary data to predict phenomena such as seasons, tides, and moon cycles is conceptually difficult. This lesson implements models to make these conceptually abstract phenomena tangible for students. The design of the lesson challenges students to discover how the motions of the moon and Earth produce predictable cyclic phenomena. As students move planets in the models, they observe the effects of these changes on the planets.

Pre-Assessment:

See Attachment A, *Motion of Earth and Space, Pre-assessment*, for student worksheet. The teacher version with answers is shown below.

Match each of the following situations with a result of the motion of Earth in space.