

SOLAR ROTATION

Lesson Summary:

Students view actual images of sunspots on the sun's surface to learn about solar rotation. Students perform mathematical calculations to compare how fast the sun rotates with how fast Earth rotates.

Objectives:

The student will:

- determine the sun's rate of rotation by studying sunspots;
- conclude the sun rotates about every 27 days;
- identify the direction of solar rotation;
- calculate the rate of rotation of sunspots on the sun using mathematical equations;
- calculate the rate of rotation of Earth using mathematical equations; and
- compare the rate of solar rotation to the rate of Earth's rotation.

GLEs Addressed:

Science

- [5-8] SA1.1 The student demonstrates an understanding of the processes of science by asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring, and communicating.
- [8] SD4.1 The student demonstrates an understanding of the theories regarding the origin and evolution of the universe by creating models of the solar system illustrating size, location/position, composition, moons/rings, and conditions.
- [9] SD3.2 The student demonstrates an understanding of cycles influenced by energy from the sun and by Earth's position and motion in our solar system by explaining the phenomena of the aurora.

Math

- [6] F&R-3 The student demonstrates conceptual understanding of functions, patterns, or sequences by identifying or applying multiplication or division patterns to find missing values in a function (M4.2.2).
- [7] F&R-6 The student demonstrates algebraic thinking by solving or identifying solutions to one-step linear equations of the form $x \pm a = b$ or $ax = b$, where a and b are whole numbers; translating a story problem into an equation of similar form; or translating a story problem into an equation of similar form and solving it (M4.3.5).
- [6] G-2 The student demonstrates an understanding of geometric relationships by identifying, comparing, or describing attributes and properties of circles (radius and diameter) (M5.2.2).
- [7] G-7 The student solves problems (including real-world situations) by determining the circumference of a circle (M5.3.4).
- [7] PS-5 The student demonstrates the ability to apply mathematical skills and processes across the content strands by using real-world contexts such as science, humanities, peers, and community (M10.3.1 & M10.3.2).
- [8] PS-5 The student demonstrates the ability to apply mathematical skills and processes across the content strands by using real-world contexts such as science, humanities, peers, community, and careers (M10.3.1 & M10.4.2).

Search Terms:

- sunspots
- solar rotation
- mathematics
- Galileo
- aurora
- Northern Lights

