

AURORA OVALS

Lesson Summary:

Students learn that aurora ovals surround Earth's open magnetic field lines and that aurora ovals can expand after a storm on the sun.

Objectives:

The student will:

- discover that the aurora oval stretches around Earth's open magnetic field lines and that the oval forms a boundary between Earth's open and closed magnetic field lines;
- determine that the aurora oval expands when a storm on the sun causes solar particles to bombard Earth's magnetic field. Earth reacts by creating more open magnetic field lines and the aurora oval stretches out to enclose these new open magnetic field lines;
- label open and closed magnetic field lines on a diagram;
- draw aurora ovals in the correct location on a diagram of Earth; and
- explain that Alaskans see the aurora when Earth rotates so that Alaska is under the aurora oval.

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.
- [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.

Search Terms:

- aurora oval
- Earth
- magnetic field lines
- solar storm
- solar particles
- aurora
- Northern Lights
- geomagnetic poles