

MAGNETIC MAPPING

Lesson Summary:

The electric energy in the aurora creates a magnetic field that can affect navigational compasses. Students use a compass to identify magnetic fields in the classroom.

Objectives:

The student will:

- determine which classroom objects have a magnetic field and which objects do not have a magnetic field;
- understand that navigational compasses usually point to Earth's geomagnetic north pole;
- understand that magnetic fields from objects on Earth such as electrical equipment and appliances can affect navigational compasses; and
- understand that the magnetic field created by the aurora can affect navigational compasses.

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.
- [7] SB4.2 The student demonstrates an understanding of motions, forces, their characteristics, relationships, and effects by recognizing that electric currents and magnets can exert a force on each other.
- [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

- [7] MEA-1 The student demonstrates understanding of measurable attributes by estimating length to the nearest sixteenth of an inch or millimeter, volume to the nearest cubic centimeter or milliliter, or angle to the nearest 30 degrees (L) (M2.3.1).
- [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:

- electricity
- magnetic field
- compass
- global needle
- magnets
- geomagnetic North Pole
- navigation
- mapping
- aurora
- Northern Lights