



Environmental Education Field Study

Basic Compass Skills Grades 2-3

Description: Orienteering

Students are introduced to the compass rose and learn how to use a magnetic compass after learning about the Earth's magnetic field. Fun, hands-on orienteering activities require the practice of their new skills.

Linked to Arizona Academic Standards: Mathematics 2M-E1, 3M-P1. Science SC04 S2C1, S3C1, S5C1, SC 4-8 S6C2, SC5-8 S2C1, S3C1. Health 2PA-P5, Social Studies, PO1, PO2, PO6; 3SS-F2, PO2; 3SS-E1, PO2, PO3; 3SS-E3, PO2; 3SS-E4, PO3; 3SS-D1, PO5; 6SC-E3.

Duration: 2 hours

Objectives:

- Learn to read a compass rose
- Learn the theory of why Earth has a magnetic field
- Identify the importance of the Earth's magnetic field to wildlife
- Learn the parts of a magnetic compass and how to use it to find direction
- Demonstrate skills by completing compass practice activities

Conceptual Framework:

- Opportunities to experience nature through orienteering can contribute to human physical, mental and emotional health.

Vocabulary:

Base plate, bezel, convection current, crust, degree, direction of travel, inner core, pace magnetic field, magnetism, mantle, needle, outer core, compass rose

Materials:

Case of magnetic compasses (30 compasses per case)

Dry erase board, markers

Teaching compasses (oversized, non-working compasses demonstration)

5 clipboards/25 students

Pencils

Worksheet

Description of activity:

- Students learn the accepted theory of how the Earth's magnetic field is formed due to the movement of molten iron in the Earth's outer core and mantle. The use of this magnetic field by wildlife such as birds, insects, whales, sea turtles and sharks is discussed, as well as how humans use the magnetic field to navigate.
- Students learn the history of the development of a magnetic compass and the compass' contribution to exploration and discovery during human history.
- The parts of a magnetic compass are discussed which leads to the actual use of the compass to find one's direction.
- After learning to use the compass correctly, students are challenged to demonstrate skills through interactive activities.

Late Arrivals: To save time, have students complete as much of the worksheet as possible. Spend less time on explaining how Earth's magnetic field is created.