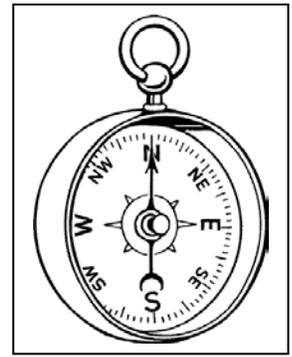

Geology Journey



Objectives:

Students will:

- Define igneous rock
- Compare samples of igneous rock
- Examine crystal size to determine speed of cooling
- Identify different parts of a compass
- Use a compass to find points on a map

Materials:

- 12 compasses
- 1 large diagram compass
- 12 journey cards
- 12 maps
- 12 rulers
- 12 samples of each of types of rock
- 6 sets of activity cards

Duration:

- 2 hours
- Can be broken into 2 one hour lessons.

Alignment to Oregon State Standards:

6.1P.1, 6.1E.1 7.2.E.4

Overview The geology of Cascade Siskiyou National Monument contains a variety of different forms of igneous rocks. This activity will examine four types of igneous rock found in the Monument and teach students how each was formed. Students will handle and compare each rock variety to see features in the rock that give clues to whether it was formed by lava flows, ash clouds, debris flow, or slow cooling under the earth's surface. In addition to geology, this activity will introduce basic map and compass skills in order to take students on a journey through a map of the monument.

Background Information: This activity uses compasses to navigate a map but ignores declination. Magnetic declination is the angle between magnetic north (the direction the north end of a compass needle points) and true north. For this activity it is irrelevant but for precise traveling by map and compass declination must be addressed.

Setup:

Place each of 6 journey cards and corresponding rock samples on a table or desk.

Make copies of the data sheets.

Break students into groups of 2-3.

Give each group 1 compass, 1 ruler, 1 instruction card, 1 map, 1 data sheet, 2 pieces of tape.

Activity:

1. Each **Journey Card** contains all the information and instructions needed for the students to complete the journey. Guide students as necessary through the following steps.
2. Using the diagram on the journey card and the large plastic compass show students each part of the compass.



3. Aid students in orienting their maps to north. Make sure all maps are taped down in the proper direction before proceeding.
4. Find the first practice bearing as a class. Help the students with the next bearing or let students continue finding the next two bearings based on their skill levels. Compass skills take time and repetition before proficiency can be achieved. These skills may take some time to develop. This can be the end of the first lesson and students can complete the journey on a separate day.
5. Start the Journey. Students will use the bearings given on their Journey Card to find six points on the map. Each time they find a point on the map students will retrieve the corresponding activity card and rock from the table and fill in the appropriate responses on their data sheets.

Assessment:

The completed data sheet will act as an assessment tool for the activity.

Enrichment:

Take students outside and use the compasses to find north, south, east, and west. They can also use the compasses to practice taking bearings on other objects.

Practice reading the maps by finding places in the monument students have visited.

Variations:

Depending on the age and compass skills of the students the journey may be done as an all class activity rather than an independent partner activity. In this variation every student could have a data sheet but still work with partners to navigate the map and compass.

