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# Rogue Valley Rocks

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**Purpose:** Students will apply their knowledge of the difference between sedimentary, igneous, and metamorphic rocks to classify various rocks of the Rogue Valley.

## Objectives:

Students will:

- In small groups, students will sort rocks provided in the SEEC Geology kit, by placing the rocks in 2 or more groups, and use words or pictures to describe the group types.
- After instruction on using a rock key, students will correctly identify at least 6 out of the 8 rocks in the SEEC Geology kit using the Picture Key to Rock Types OR the Key to Rock Types in the “Geology of Jackson County, Oregon” booklets.

## Materials:

Included:

- 6 Picture Key to Rock Types handouts AND/OR “Geology of Jackson County, Oregon” booklets
- 6 Hand Lenses
- 8 rocks provided in student kits (1 kit per group)
- Rock type labels of the 3 rock types (**see template- make 6 copies, cut labels**)
- Rock Types Coloring Page (**see template- make one copy per student**)
- Answer key (see bottom of this lesson)

Not included:

- Paper and pencils, 1 per group
- Crayons, colored pencils, or markers (yellow, red, and black/gray) for coloring page
- Container halfway full of water
- Vinegar (optional—for identifying limestone and marble)

**Time Required:** 1 hour

**Appropriate grades:** 4<sup>th</sup>-5<sup>th</sup>

**NGSS and Common Core Standards:**

5-PS1-3: Make observations and measurements to identify materials based on their properties.

CCSS.ELA-LITERACY.SL.4-5.1: Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade appropriate topics and texts, building on others' ideas and expressing their own clearly.

## Activity:



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<b>Introduction</b>	<ol style="list-style-type: none"> <li>1. Break up students into 6 groups. Pass out a hand lens to each group, and give each group a “Geology of the Rogue Valley Student Kit” containing 8 rocks.</li> <li>2. Inform students that they are going to be working as a team, using their senses (sight, touch, sound), to sort the 8 rocks in the box into 2 or more categories. Using paper and a pencil, the group must write down a word or draw a picture that describes each category.</li> </ol>
<b>Body</b>	<ol style="list-style-type: none"> <li>3. After about 10 minutes or when students have sorted their rocks, have some groups share the rock categories they developed and the specimens they included. Numbers on the rocks can be used to discuss which rocks were placed in which category.</li> <li>4. Pass out one Picture Key to Rock Types handout per table and/or one “Geology of Jackson County, Oregon” booklet to each group. Key out one of the rocks with the students so that they can see how to use the key you have given them.</li> <li>5. Encourage students to use the hand lens when they are viewing their rocks. Near the classroom sink, have a container with water available, and allow groups turns to experiment putting rocks in the water. Circle the room to check that groups are using the key correctly. Then, pass out 3 rock type labels (Sedimentary, Igneous, &amp; Metamorphic) to each group so they can sort the rocks with the labels.</li> <li>6. After 15 minutes or when students have sorted all rocks, take 5 more minutes to have groups share where they placed rocks 1-8 in the rock types provided. Have groups raise their hands if they got at least 6 of the rocks identified in the correct rock type, the answers can be written on the board (see end of lesson for answer key).</li> </ol>
<b>Closure</b>	<ol style="list-style-type: none"> <li>7. Have a class discussion about their findings. <ol style="list-style-type: none"> <li>a. What are the three types of rock formations we learned about (sedimentary, igneous, and metamorphic)?</li> <li>b. How do geologists sort rocks?</li> <li>c. Is this method of sorting rocks different than how your groups sorted them? How were they similar?</li> </ol> </li> <li>8. Explain that geologists are scientists who study rocks. Ask students how they think geologists sort rocks and what are the categories they use (sedimentary, igneous, and metamorphic). Allow time for questions and discussion.</li> <li>9. Pass out one Rock Types Coloring Page per student. Ask students how they think the three types of rock formations (sedimentary, igneous, and</li> </ol>



	<p>metamorphic) are formed, looking at the coloring page. Have students color the diagram as the discussion continues. Use yellow, black, and red to match the pattern.</p> <ul style="list-style-type: none"> <li>• <u>Sedimentary (Layered Rocks)</u>: Found near water, sometimes in deserts. Formed by layers and small pieces sticking together.</li> <li>• <u>Igneous (Volcanic Rocks)</u>: From rocks that melted deep beneath the earth, magma or molten rock. As magma flows up or erupts in a volcano, it then cools and solidifies.</li> <li>• <u>Metamorphic (Changed Rocks)</u>: Sedimentary and igneous rocks that change due to high heat and pressure under the earth's crust. Rocks do not melt, but changes them into dense, compact rocks.</li> </ul> <p>Optional Extension: Have students read the story of each type of rock they identified in the "Geology of Jackson County, Oregon" booklet and discuss how each rock was formed.</p>
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**Answer Key** for Rocks in Student Kits:

1. Pumice – Igneous
2. Granite - Igneous
3. Quartzite – Metamorphic
4. Limestone – Sedimentary
5. Basalt – Igneous
6. Conglomerate – Sedimentary
7. Sandstone- Sedimentary
8. Serpentinite – Metamorphic

**Modifications:**

- **Lower Elementary:**
  - Use the picture key to identify each rock.
- **Middle School:**
  - Ask students to bring in rocks from home, or around their school. Have students use the keys to identify the rocks that they found.  
*Note: The Picture Key to Rock Types was developed to key out rocks in the student kits and may not be suitable for other rock samples. It is advised that the "Geology of Jackson County, Oregon" booklet be used in this case.*
- **High School:**
  - Have students research where these rock types can be found locally, and do a presentation for the class.

