

Rock Identification Lab

Summary

Students are provided with a set of 8-10 rocks to classify and identify based on observations of the rocks' characteristics. After identification, students will infer the environment of formation for at least 3 of the rock samples.

Time Frame

2 class periods of 45 minutes each

Group Size

Small Groups

Life Skills

Aesthetics, Thinking & Reasoning, Social & Civic Responsibility

Materials

1. Rock Kits for each student group containing 8-10 rock samples, a rock identification chart, and a hand lens. 2. 10% dilute hydrochloric acid in a dropper bottle monitored by the teacher. 3. Large samples of igneous, metamorphic, and sedimentary rocks. (Optional, can be used in a pre-lab discussion of the characteristics of the different rock types.) 4. Student lab sheet or lab notebook

Background for Teachers

Safety Precautions: Use a small amount of dilute hydrochloric acid, 1-2 drops should suffice, to test carbonate content of rocks. Monitor use and disposal of HCl carefully. You may require students to explain why they think a rock sample contains carbonate before testing. **Geoscience Methods Employed:** Observation, comparison of ancient settings to modern analogs, data collection, and analysis

Student Prior Knowledge

Students should know the three major rock types; igneous, metamorphic, and sedimentary. Students should know the basic formation processes for each type of rock.

Intended Learning Outcomes

1. Students will classify rocks as igneous, metamorphic, or sedimentary based on their characteristics. 2. Students will identify rocks samples. 3. Students will infer the environment of formation of rock samples.

Instructional Procedures

1. Either provide students with a description of the properties of each rock type (igneous, metamorphic, sedimentary) or guide students in a discussion of the properties of each rock type and have them create their own descriptions. 2. Provide student groups of 3-4 with rock kits. 3. Allow students time to make observations of rock samples and identify the type and name of each sample. Informal assessment can be conducted during this time by listening in on, or popping into student discussions. 4. Assign or allow students to choose 3 or more rock samples and infer and describe their environment of formation. 5. Provide students with information on the environments of formation for different rocks or resources for researching the environments of formation.

Strategies for Diverse Learners

Assign students within each group a role. Possible roles include Artist (draws/describes rock properties), Historian (determines and describes the environment of formation for assigned rocks), Journalist (records much of the written information), Researcher (identifies rock type and name based on properties). You may require each student to complete their own lab write up or you may require one lab write up per group that shows input from each group member.

Extensions

1. Provide students with a topographical map of the United States and have them determine locations in which their rock samples may have been collected. 2. Have students write a creative story about how one or more of their rock samples formed.

Assessment Plan

Teachers may design their own rubric or separate post-assessment. The following four criteria are suggested elements of a rubric. 1. Lab completion - The lab group works together to complete the activity in a timely manner. 2. Observations - Drawings and descriptions accurately portray the physical features of rocks. 3. Conclusions - Selected rock types and names are supported by evidence collected by students. 4. Inferences - Descriptions of environments of formation are accurate and supported by physical features of rocks.

Bibliography

www.geology.com

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