

INSPIRE GK12 Lesson Plan



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| Lesson Title | Rock Identification Lab |
| Length of Lesson | One (50 minute) class period |
| Created By | Will McBryde, Rob Thornton |
| Subject | Earth Science |
| Grade Level | 8 th grade |
| State Standards | 8 th : 1b, c, d (Inquiry); 4 (Earth Science) |
| DOK Level | DOK 3 |
| DOK Application | Investigate, Differentiate, Draw Conclusions |
| National Standards | 5-8: A (Inquiry); D (Earth/Space); E (Technology) |
| Graduate Research Element | Rock identification is necessary to distinguish between metamorphic, igneous, and sedimentary rocks. This is important when collecting data and conducting data analysis. |

Student Learning Goal:

MS 8th Grade:

1(b) Distinguish between qualitative and quantitative observations and make inferences based on observations (c) Summarize data to show the cause and effect relationship between qualitative and quantitative observations using tools such as proscop (if available) and hand lens (d) Analyze evidence that is used to form explanations and draw conclusions.

4 Describe the Earth's System in terms of its structure, composition, and climate.

National Science Education Standards of Content 5-8:

A: Inquiry: Abilities necessary to do scientific inquiry; Understandings about scientific inquiry; Students will be able to relate "jar activity" to the three different types of rocks and the various grain sizes.

D: Earth/Space: Structure of the earth system: Students will recognize the three different types of rocks.

Materials Needed (supplies, hand-outs, resources):

PowerPoint file (INSPIRE_McBryde_08.12.10_PP); Handout file (INSPIRE_McBryde_08.12.10_Handout); laptop; projector; Rock box samples of Metamorphic, Igneous, and Sedimentary Rocks; hand lenses; proscop (if available)

Lesson Performance Task/Assessment:

Students should be able to recognize the differences between the three rock types and the various properties associated with each (i.e. sedimentary rocks- grain sizes and shapes; igneous rocks- composition mafic (dark) and felsic (light); metamorphic- grade of metamorphism based on lineation of minerals. These tasks will be assessed through observation of student data collection tables and student participation. The instructor will observe, ask, and answer questions in regards to the lesson.



Lesson Relevance to Performance Task and Students:

The lessons and performance tasks are relevant to determine a rocks classification (i.e. igneous, metamorphic, and sedimentary). The lesson serves as a baseline lesson to introduce students to the three rock types.

Anticipatory Set/Capture Interest:

The instructor will ask the students, what are some practical applications of rocks: Buildings? Roads? Houses? Jewelry? Energy?

Guided Practice:

Students will design their own data collection table. The instructor will show an example table on the PowerPoint slideshow to ensure that all students design their table correctly. The instructor will go over a brief PowerPoint slideshow that introduces various rock characteristics that the students should observe and note during lab. Students will have a handout (INSPIRE_McBryde_8.12.10_Handout). The handout describes to the students how to differentiate between the various rock types.

Independent Practice:

Students will answer questions in regards to the anticipatory set. Students will get into groups (size of groups depends on amount of rock boxes). Students will design their own data collection table after the anticipatory set. Students will create a data table with two columns (rock type, observations). The amount of rows created on the data table depends on the amount of samples in the rock box. After the students have observed the PowerPoint slideshow they can then open the rock boxes and use the handout to identify the rocks in their box. Students will observe the rock boxes that are available to them and fill in the information needed to complete the table. Students will be hands on with the rock samples (hand lens will be available for student use).

Remediation and/or Enrichment:

Remediation: Individual IEP; Make PowerPoint presentation and handout sheet available to resource teacher

Enrichment: Students that finish earlier can list locations where they may find the various rocks (i.e. buildings, tables, floors, driveways)

Demonstrate grain size lesson with gravel, pebbles, sand, and dirt. Pour gravel into a jar (ask students if the jar is full); pour pebbles into the same jar (ask students if the jar is full); repeat for sand and dirt.

The use of proscopes to look at scale and finite details.

Check(s) for Understanding:

Observation of student activity; check for completion of note taking sheet



Closure:

Ask students the following questions.

Question 1: Why are rocks important?

Question 2: Where might you find rocks in use by humans today?

Possible Alternate Subject Integrations:

History, Geology

Teacher Notes:

This class lesson will serve as a single lesson that will follow a lesson on mineral identification. This lesson could be expanded upon in greater detail to better describe igneous, sedimentary, and metamorphic rock types and how the various rock types form. The instructor can break the students up into various group sizes that will be dependent on the amount of rock boxes available.

Give an opportunity for students to ask questions

<http://www.rocksforkids.com/RFK/uses.html>

<http://jersey.uoregon.edu/~mstrick/AskGeoMan/geoQuerry13.html>