Lesson Title	Mineral Lab
Length of Lesson	One (50 minute) class period
Created By	Rob Thornton, Will McBryde
Subject	Earth Science
Grade Level	8th grade
State Standards	8th: 1a, b, c, d (Inquiry); 4 (Earth Science)
DOK Level	DOK 3
DOK Application	Hypothesize, Investigate, Compare, Draw Conclusions and Cite Evidence
National Standards	5-8: A (Inquiry); D (Earth/Space)
Graduate Research Element	Mineral identification is an important building block of geology

Student Learning Goal:

MS 8th Grade:

1(a)(d) Form explanations and analyze conclusions from an investigation (b) make inferences based on observations (c) examine minerals through use of hand lenses, strike plates, glass plates, pennies, magnets and nails.

National Science Education Standards of Content 5-8:

A: Inquiry: Abilities necessary to do scientific inquiry; Understandings about scientific inquiry; Students will use tools to examine different minerals

D: Earth and Space Science: Structure of the earth system: Students will understand the basic building blocks of rocks, i.e. minerals

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

PowerPoint file (INSPIRE_Thornton_08.12.10_PP); laptop; projector; mineral kits (includes a variety of minerals ~10 or whatever is available; the minerals can be numbered 1-10 and this will serve as their ID #); Also included in the kit are hand lenses, strike plates, glass plates, pennies, magnets and nails; mineral identification sheet (INSPIRE_Thornton_08.12.10_ID)

Lesson Performance Task/Assessment:

Students should understand the scientific method, ie. experiment, analyze, conclude and communicate the results of findings. Students should understand the testing methods used to identify minerals. These tasks will be assessed through observation of the mineral identification sheets students will fill out and their participation. The instructor will lecture, 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 demonstrate mineral properties such as luster, hardness, breakage, color, streak and density. Each of these properties will be covered in the PowerPoint lecture and the students will follow along filling-in their mineral identification sheets. This is a foundational lesson that leads into potential lessons on rock identification. Elements make up minerals and minerals make up rocks.

Anticipatory Set/Capture Interest:
Show images of practical applications of minerals at beginning of class via PowerPoint. This will demonstrate how minerals are used in everyday life.

Guided Practice:
Give students a mineral identification sheet (see INSPIRE_Thornton_08.12.10_ID); Direct students to get into groups (# groups dependent upon mineral box materials) to do mineral identification lab; Lecture presentation based on PowerPoint which will deliver the basics about mineral properties (see Lesson Relevance to Performance Task and Students); Students will follow along on mineral identification sheet. As each mineral property is covered during the PowerPoint lecture, students will be directed to look at all minerals in the mineral kit and make observations regarding the specific property. Once all groups have finished examining their minerals with respect to a specific property, the instructor will proceed to the next property and direct students to examine the minerals for this property. This will be done until all properties have been covered. At the end of the lecture, slides will be shown which identify the mineral names, properties, and actual ID# of the individual minerals.

Independent Practice:
Students will observe PowerPoint, fill out mineral identification table and identify various properties of minerals.

Remediation and/or Enrichment:
Remediation – Individual IEP; Make PowerPoint presentation, mineral identification sheet and mineral kit available to resource teacher.

Enrichment- Students that finish early can list examples of how minerals are used

Check(s) for Understanding:
Observation of students during lab; Review students' mineral identification sheets and ask them questions.

Closure:
Ask students questions.

Question 1: What are your favorite minerals?

Question 2: What are examples of how minerals are used?

Possible Alternate Subject Integrations:
Math, Chemistry, Physical Science

Teacher Notes:
This lesson serves as an introduction to the building blocks of rocks. Lessons on the three rock types could follow. A more detailed lesson on minerals could be given. Also, give opportunities for students to ask questions.

http://www.windows2universe.org/earth/geology/min_types.html

http://geology.utah.gov/surveynotes/gladasked/gladminused.htm