Mineral Identification Lab

Purpose:

Being able to identify minerals is important, because mineral identification is necessary to identify rocks and can be used to understand both the landscape and the geologic history of the area. For example identifying pyrite in a rock tells the geologist that volcanoes were once present, and that conditions are favorable to finding the ores of silver and gold. You will use a dichotomous key for identification. Dichotomous keys are used for identification in a wide variety of subjects. You will need to use a different dichotomous key to identify minerals on the lab portion of the regents exam in June.

Materials: hematite, sulfur, biotite mica, calcite, galena, graphite, pyrite, quartz, 1 M HCl, streak plate, glass plate, index card, Ziploc baggies

Procedure:

1) The teacher will model how to use the dichotomous key.
2) Identify the mineral at your station.
3) Move on the next station when the teacher tells you.
4) Repeat steps 2 and 3 until all the minerals are identified.

Observations:

Write the name of the mineral next to the number of its station:

1) _____

2) _____

3) _____

4) _____

5) _____

6) _____

7) _____

8) _____

Conclusion:

1) Why is mineral identification important?

2) Which minerals did you use today? How did you use them?

Dichotomous Key for Minerals

Write in the property tested at each number. Test each mineral by starting at #1, and following the directions of each number reached.

1) _____
   a) scratches glass go to 2
   b) does not scratch glass go to 3

2) _____
   a) It has a metallic luster. The mineral is pyrite
   b) It has a nonmetallic luster. The mineral is quartz

3) _____
   a) It has a metallic luster. Go to 4
   b) It has a nonmetallic luster. Go to 5

4) _____
   a) Has a greasy feel. The mineral is graphite
   b) It is very dense. The mineral is galena

5) _____
   a) It shows cleavage. Go to 6
   b) It shows fracture. Go to 7

6) _____
   a) It bubbles in acid. The mineral is calcite.
   b) It does not bubble in acid. The mineral is biotite mica.

7) _____
   a) It leaves a yellow streak. The mineral is sulfur.
   b) It leaves a red-brown streak. The mineral is hematite.

Teacher notes.

Prior to the lab, put the minerals with an identifying index card in separate baggies.

1) Galena
2) Pyrite
3) Biotite mica
4) Graphite
5) Sulfur
6) Calcite
7) Hematite
8) quartz