1. Define mineral. (Give a comprehensive, scientific definition.)
Name the following properties, useful in identifying minerals:

2. This is the way a crystal of the mineral splits.
3. This is the way that light penetrates or reflects off a fresh surface of a mineral. It's metallic or non-metallic.
4. This property is tested by trying to scratch a known mineral with a sharp, fresh corner of the unknown mineral.
5. This test is used to find the color of the powder of the mineral. It is tested by rubbing the sample on a white porcelain plate.
6. Although this property is very easy to see, care must be taken because impurities can change this property greatly. Clear quartz, milky quartz, rose quartz, smoky quartz, amethyst, and agate are all forms of quartz that show variations in this property.

Identify each of the mineral crystals shown to the left. Enter the names in the chart below. (The first one has been done for you.)

<table>
<thead>
<tr>
<th>#</th>
<th>Name</th>
<th>Letter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Calcite</td>
<td>D</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
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</tr>
</tbody>
</table>

Next, pick one of the descriptions below and enter the proper letter next to each name. (Note the "D" next to the name Calcite.)

A. A mineral family with one perfect cleavage direction. (Splits into thin, flexible sheets.)
B. Crystals of this mineral are hexagonal but it splits unevenly. It's hardness is 7 on Mohs' scale.
C. This is an ore of lead with a very high specific gravity and a bright metallic luster.
D. Clear crystals of this mineral show a single dot as two dots through the mineral. Reacts with acid.
E. A compound consisting of equal numbers of sodium and chlorine atoms. Abundant in sea water.
F. A member of the most common family of minerals. Usually pink or white. It contains a lot of aluminum.

Return your mineral set to your teacher. Be sure the set is complete, or your group will lose points on the lab!

1. If there are thousands of minerals, why should you learn to identify only about a dozen?

2. What feature of a mineral determines the shape of its crystals?

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The following minerals are specifically named in the Earth science syllabus. It is important that you be able to use these characteristics of each of these five minerals. You should do this with the mineral sample in front of you, so you can directly observe the most important characteristics.

A. Quartz
   Color(s): Clear, White, or Pastel Shades
   Luster: __________________________
   Hardness: _____ Cleavage/Fracture/Streak: __________________________
   Other Distinguishing Properties: __________________________

B. Feldspar
   (Sodium/Calcium, or Potassium Feldspar)
   Color(s): __________________________
   Luster: __________________________
   Hardness: _____ Cleavage/Fracture/Streak: __________________________
   Other Distinguishing Properties: __________________________

C. Calcite
   Color(s): __________________________
   Luster: __________________________
   Hardness: _____ Cleavage/Fracture/Streak: __________________________
   Other Distinguishing Properties: __________________________

D. Mica
   (Muscovite or Biotite)
   Color(s): __________________________
   Luster: __________________________
   Hardness: _____ Cleavage/Fracture/Streak: __________________________
   Other Distinguishing Properties: __________________________

E. Magnetite
   Color(s): __________________________
   Luster: __________________________
   Hardness: _____ Cleavage/Fracture/Streak: __________________________
   Other Distinguishing Properties: __________________________

F. For A-E above, circle the property you feel is the most useful in identifying each of these five minerals.

Extra Credit: List the properties of any mineral that is not named in your science papers, and no other student has used before you (this year).

   Mineral Name __________________________
   Color(s): __________________________
   Luster: __________________________
   Hardness: _____ Cleavage/Fracture/Streak: __________________________
   Other Distinguishing Properties: __________________________