

## Mineral Matters Worksheet #1

Everything in nature is composed of matter. The basic building blocks of matter are atoms. Atoms of elements combine in various ways to form compounds. Elements and compounds are the raw materials of the minerals of the earth.

Rocks are mixtures of various minerals, and minerals are made of chemical elements. Some chemical elements you may be familiar with are oxygen, silicon, calcium, sulfur, carbon, gold, and silver. There are 90 naturally occurring elements. Table 1 gives the names and symbols of some chemical elements that make up rocks and minerals.

<b><i>Table 1: Common Elements and Their Symbols</i></b>			
<b>Element</b>	<b>Symbol</b>	<b>Element</b>	<b>Symbol</b>
<b><i>Aluminum</i></b>	<b>Al</b>	<b><i>Magnesium</i></b>	<b>Mg</b>
<b><i>Barium</i></b>	<b>Ba</b>	<b><i>Manganese</i></b>	<b>Mn</b>
<b><i>Beryllium</i></b>	<b>Be</b>	<b><i>Mercury</i></b>	<b>Hg</b>
<b><i>Boron</i></b>	<b>B</b>	<b><i>Oxygen</i></b>	<b>O</b>
<b><i>Bromine</i></b>	<b>Br</b>	<b><i>Potassium</i></b>	<b>K</b>
<b><i>Calcium</i></b>	<b>Ca</b>	<b><i>Silicon</i></b>	<b>Si</b>
<b><i>Carbon</i></b>	<b>C</b>	<b><i>Silver</i></b>	<b>Ag</b>
<b><i>Chlorine</i></b>	<b>Cl</b>	<b><i>Sodium</i></b>	<b>Na</b>
<b><i>Copper</i></b>	<b>Cu</b>	<b><i>Sulfur</i></b>	<b>S</b>
<b><i>Fluorine</i></b>	<b>F</b>	<b><i>Tin</i></b>	<b>Sn</b>
<b><i>Gold</i></b>	<b>Au</b>	<b><i>Uranium</i></b>	<b>U</b>
<b><i>Hydrogen</i></b>	<b>H</b>	<b><i>Vanadium</i></b>	<b>V</b>
<b><i>Iron</i></b>	<b>Fe</b>	<b><i>Zinc</i></b>	<b>Zn</b>
<b><i>Lead</i></b>	<b>Pb</b>	<b><i>Zirconium</i></b>	<b>Zr</b>

Each mineral has characteristic properties, including a characteristic internal structure. Most minerals are solids at ordinary temperatures. Several examples of minerals are listed in Table 2 on the back side. Study each mineral name and its chemical formula.

NAME:

DATE:

CLASS Pd:

In the appropriate column, write the names of the elements present in each mineral.

<b>Table 2 Typical Minerals</b>			
<b>Minerals</b>	<b>Chemical Equation</b>	<b>Elements</b>	<b>Mineral Class</b>
<b>Gold</b>	<b>Au</b>		
<b>Halite</b>	<b>NaCl</b>		
<b>Pyrite</b>	<b>FeS</b>		
<b>Cinnabar</b>	<b>HgS</b>		
<b>Marcasite</b>	<b>FeS<sub>2</sub></b>		
<b>Quartz</b>	<b>SiO<sub>2</sub></b>		
<b>Hematite</b>	<b>Fe<sub>2</sub>O<sub>3</sub></b>		
<b>Fluorite</b>	<b>CaF<sub>2</sub></b>		
<b>Calcite</b>	<b>CaCO<sub>3</sub></b>		
<b>Feldspar</b>	<b>KAlSi<sub>3</sub>O<sub>8</sub></b>		
<b>Beryl</b>	<b>Be<sub>3</sub>Al<sub>2</sub>(SiO<sub>6</sub>)<sub>18</sub></b>		
<b>Mica</b>	<b>K(Mg, Fe)<sub>3</sub>AlSi<sub>3</sub>O<sub>10</sub>(OH)<sub>2</sub></b>		

1. Which mineral is a carbonate, a compound that contains carbon and oxygen?
2. Which element occurs most frequently in the above Table 2.
3. Which two minerals contain the same elements but different numbers of atoms of each element?
4. Which mineral provides the liquid element mercury?
5. In what way are feldspar and mica chemically alike?
6. Can pyrite be classified as a carbonate? YES NO
7. Explain your answer from the above question?