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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.

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

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.

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

Table 2 Typical Minerals			
Minerals	Chemical Equation	Elements	Mineral Class
Gold	Au		
Halite	NaCl		
Pyrite	FeS		
Cinnabar	HgS		
Marcasite	FeS₂		
Quartz	SiO₂		
Hematite	Fe₂O₃		
Fluorite	CaF₂		
Calcite	CaCO₃		
Feldspar	KAlSi₃O₈		
Beryl	Be₃Al₂(SiO₆)₁₈		
Mica	K(Mg, Fe)₃AlSi₃O₁₀(OH)₂		

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?