Each Mineral has characteristic properties, including a characteristic internal structure. Most minerals are solids at ordinary temperatures. Several examples of minerals are listed in the table below. Study each mineral name and its chemical formula. In the appropriate column, write the names of the elements present in each mineral.

|  |  |
| --- | --- |
| Minerals | Elements |
| Quartz SiO2 |  |
| Pyrite FeS |  |
| Feldspar KAlSi3O8 |  |
| Marcasite FeS2 |  |
| Halite NaCl |  |
| Beryl Be3Al2(SiO6)18 |  |
| Hematite Fe2O3 |  |
| Fluorite CaF2 |  |
| Mica K(MgFe)3AlSi3O10(OH)2 |  |
| Calcite CaCO3 |  |
| Cinnabar HgS |  |
| Gold Au |  |

1. Which mineral is a carbonate, a compound that contains carbon and oxygen?
2. Which element occurs most frequently in the table?
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? Explain your answer.

What is a mineral?

1. A mineral must occur \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the Earth’s crust. It cannot be manufacture or manmade.
2. A mineral must be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ rather than organic. Organic materials are formed from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_things. Minerals must be made from materials that were never living things.
3. A mineral is always a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Minerals cannot be liquids or gases.
4. A mineral has a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Minerals may be made of a single element. Some minerals are formed by compounds, or combination of two or more elements.
5. A mineral’s atoms are arranged in a definite \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. This repeating pattern is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Circle the items below that meet all five characteristics of a mineral.

Halite (salt)

Steel

Gold

Cement

Oxygen

Diamond

Coal

Graphite

Wood

Sulfur

Ice

Sugar

Silver

Copper

Glass