

Write your notes
about what you are
reading in this space.

Science Shorts -6

Metals, Nonmetals and Metalloids

Scientists classify all the known elements into the Periodic Table of Elements. The table lists 118 elements, written as symbols and listed by their atomic numbers. Today's classification system has 18 columns, called groups or families, and seven rows, called periods. Let's take another look at the table and see what other information we can learn.

Most of the known elements are classified as metals. Metals have certain characteristics or properties in common. Most metals have a shiny luster and they are good conductors of heat and electricity. They can also be hammered into many different shapes, so scientists say they are malleable.

Metals are found on the left side of the periodic table. All of the metals are naturally found in their solid state at room temperature, except mercury, which is a liquid at room temperature.

Elements can also be classified as nonmetals. They also have certain characteristics in common. While metals are usually shiny, nonmetals are usually dull. Metals are good conductors of heat and electricity but nonmetals are poor conductors. Metals are malleable, meaning they can change shape, but nonmetals are brittle, meaning they do not change shape well.

Nonmetals are found on the right side of the Periodic Table, except for hydrogen, which is listed at the top of the left side. At room temperature, 10 nonmetals are solids, one is a liquid and 11 are gases.

Finally, elements may have some characteristics of both metals and nonmetals. These elements are known as metalloids. Some metalloids are shiny and many of them are conductors; however, they are poor conductors compared to metals.

Metalloids are found along the stair step line that separates metals from the nonmetals in the table. The eight metalloids are boron, silicon, germanium, arsenic, antimony, tellurium, polonium and astatine. One metalloid, silicon, is very important in making computer chips.

Two rows of the Periodic Table are separated from the rest of the table. They are placed at the bottom of the table. These rows are removed so the table can be shorter and more easily read. The elements that are numbered from 57 to 71 are often known as the Rare Earth Elements and the elements from 89 to 103 are known as the Radioactive Rare Earth Elements.

1. What are three characteristics of metals?

- A. Shiny luster, do not conduct electricity but conduct heat
- B. Dull luster, conduct heat and electricity and are malleable
- C. Malleable, shiny luster, conduct heat and electricity
- D. Brittle, dull luster and not good conductors of heat and electricity

2. Mercury is the only metal _____

- A. Found on the left side of the periodic table.
- B. That is magnetic.
- C. That is a solid.
- D. That is a liquid at room temperature.

3. What are three characteristics of nonmetals?

- A. Shiny luster, do not conduct electricity but conduct heat
- B. Dull luster, conduct heat and electricity and are malleable
- C. Malleable, shiny luster, conduct heat and electricity
- D. Brittle, dull luster and not good conductors of heat and electricity

4. On which side of the table are nonmetals found? _____

5. Which of the following is NOT true about a metalloid?

- A. Have characteristics of both metals and nonmetals
- B. All are shiny and conductors of electricity
- C. There are eight of them on the periodic table
- D. Some are shiny

6. Where are metalloids found on the Periodic Table? _____

7. Are most elements metals, nonmetals or metalloids? _____

8. Why are two rows of the Periodic Table separated from the rest of the chart?
