

AIM | What are the properties 8 | of metals?

Scientists divide all elements into two groups—*metals* and *nonmetals*. They do this because most metals have certain properties that are the same. Most nonmetals share other properties that are the same.

You probably know many metals—tin, iron, silver, gold, copper, nickel. You would probably know if something is not a metal. But how would you explain what a metal is?

What are the properties of metals?

- Metals are solid at room temperature. Think about iron, gold, copper, aluminum. They are all solids. Only one metal is not a solid at room temperature. That is mercury—a liquid.

- Metals are silver-gray. That is the color of all metal elements except two—gold and copper. Gold and copper are not silver-gray.

- Metals are good conductors of heat and electricity. That means that heat and electricity travel well through a metal.

- Metals have a certain shiny look. That shine is called *metallic luster*.

- Most metals are *malleable* [MAL ee uh bel]. This means that you can hammer or roll out a thick piece into a thin piece. Because it is malleable, it won't break.

Because of their properties, metals have many uses. For example, bridges, automobiles, ships, pots and pans, food cans, appliances, and jewelry are all made mostly of metal. How many other uses of metals can you think of?

CHOOSE THE RIGHT CAPTION

Below are six pictures and six captions. Each caption matches one of the pictures. Choose the caption that best describes each of the pictures. Write the correct caption on the line provided.

Choose from these captions:

Metals are malleable.

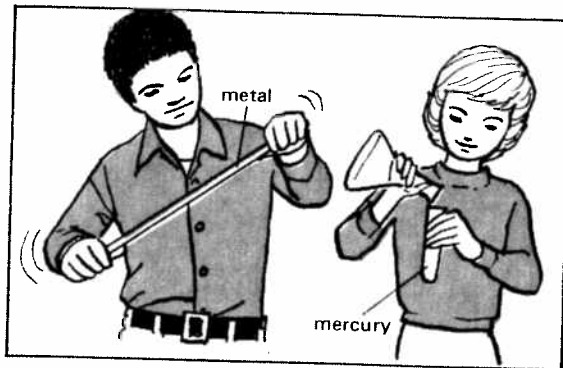
Metals are solid except for mercury.

Metals are good conductors of heat.

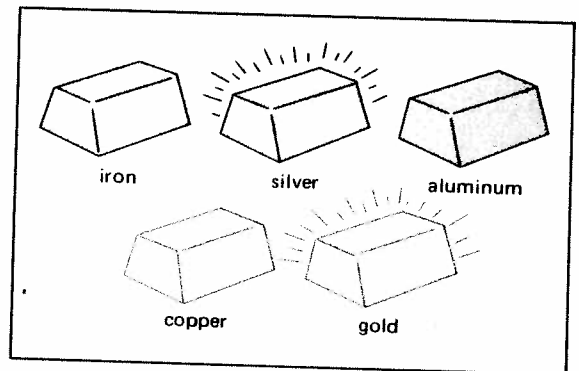
Metals have a shiny metallic luster.

Metals are good conductors of electricity.

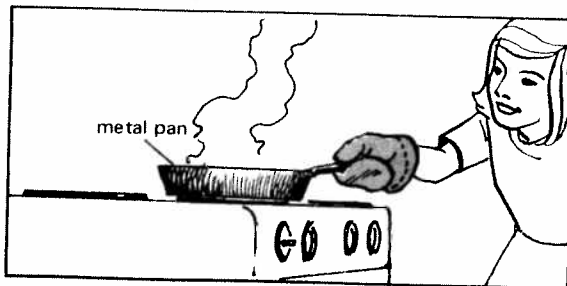
Metals are silver-gray—except gold and copper.



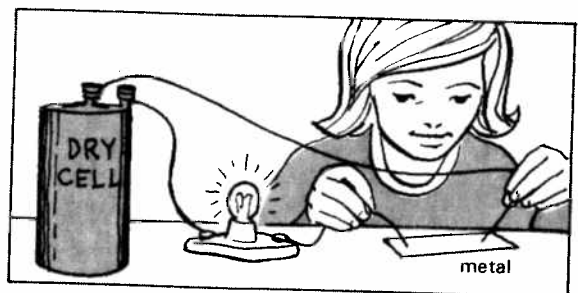
A. _____



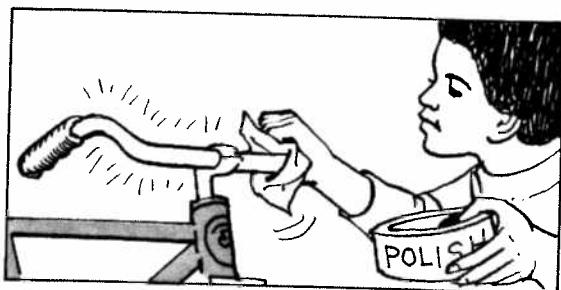
B. _____



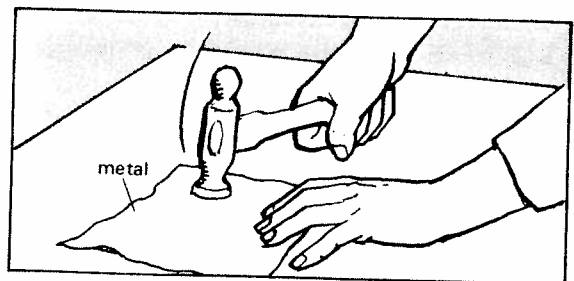
C. _____



D. _____



E. _____



F. _____

COMPLETING SENTENCES Complete the sentences with the choices below.

element
heat
metal
silver-gray
copper

electricity
mercury
atoms
solid

metallic luster
malleable
nonmetal
gold

1. Matter is made up of tiny parts called _____.
2. Matter that has only one kind of atom is called an _____.
3. An element is identified as solid, liquid, or gas. An element is also identified as a _____ or _____.
4. All metals except one are in the _____ state.
5. The only metal that is a liquid at room temperature is _____.
6. The shine of a metal is called _____.
7. Every metal lets _____ and _____ pass through it easily.
8. Matter that can be hammered without breaking is said to be _____.
9. All but two metals have a _____ color.
10. Only the metals _____ and _____ are not silver-gray.

MATCHING Match the two lists. Write the correct letter on the line next to each number.

- | | |
|--------------------------|-------------------------------------|
| 1. _____ metallic luster | a) can be hammered without breaking |
| 2. _____ malleable | b) a liquid metal |
| 3. _____ silver-gray | c) has only one kind of atom |
| 4. _____ mercury | d) shine |
| 5. _____ element | e) color of most metals |

TRUE OR FALSE Write T on the line next to the number if the sentence is true.
Write F if the sentence is false.

-
1. _____ An element has only one kind of atom.
 2. _____ A metal is a kind of matter.
 3. _____ All metals are solid.
 4. _____ All metals conduct heat.
 5. _____ All metals conduct electricity.
 6. _____ Mercury is a metal.
 7. _____ Mercury takes the shape of its container.
 8. _____ Iron takes the shape of its container.
 9. _____ The color of copper is silver-gray.
 10. _____ Matter that is malleable breaks apart easily.

WHICH PROPERTY? Each of the following objects can be made because of a special property of metal. Which property makes it possible to make each of the objects? Write the name of the property in the space next to the object. Choose from the list on page 44.

-
1. aluminum foil _____
 2. electrical wire _____
 3. pots and pans used for cooking _____
 4. automobile trim _____

WORD SCRAMBLE Unscramble each of the following to form a word or term that you have read in this Aim.

-
1. RUSTEL _____
 2. BLAMELEAL _____
 3. CRUMYER _____
 4. PROPEC _____
 5. LETAM _____

ABOUT SOME METALS



A. Metals are used where great strength is needed.



B. Aluminum is a light-weight metal. Most airplane bodies are made of aluminum.



C. Metals, like gold and silver, are used as jewelry.



D. Most electrical wires are made of the metal copper.

REACHING OUT

Gold is a metal. So is aluminum. Why is gold so expensive and aluminum so cheap?
