

# LESSON | What are the properties 15 | of metals?

Scientists divide all elements into two types—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? The properties of metals are:

- 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-bul]. This means that you can hammer or press a piece of metal into a different shape without the metal breaking.

Metals have many uses because of their properties. 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 figures and six captions. Each caption matches one of the figures. Choose the caption that best describes each figure. 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.

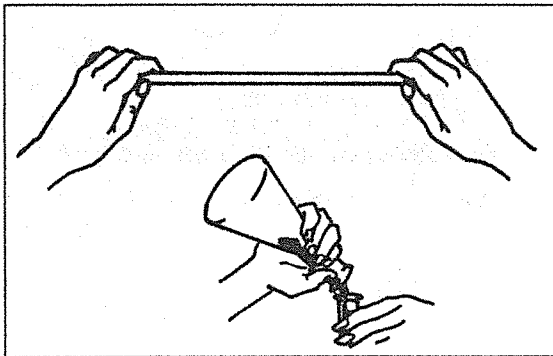


Figure A

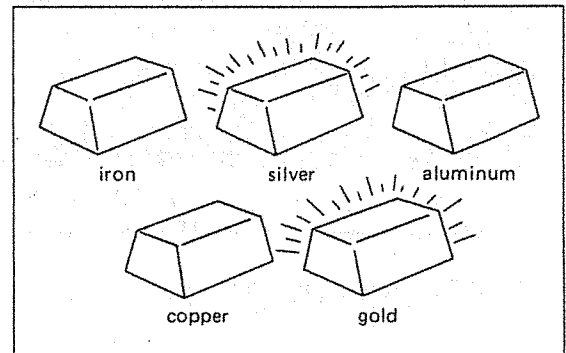


Figure B

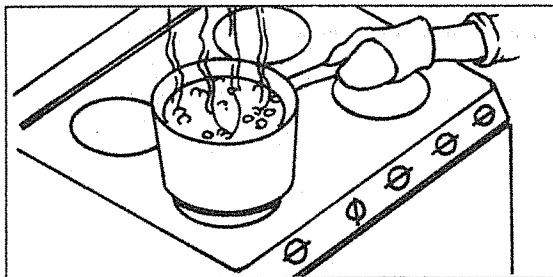


Figure C

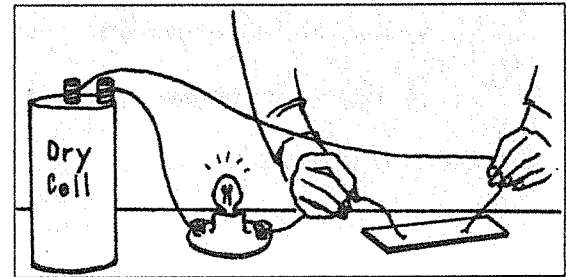


Figure D

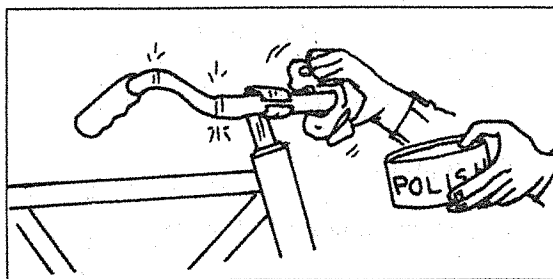


Figure E

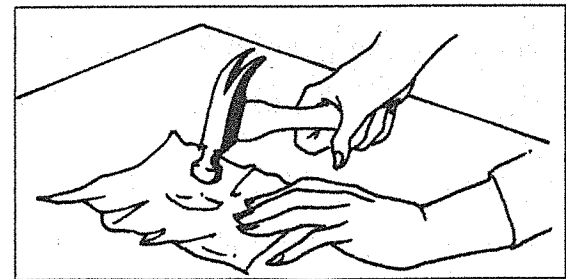


Figure F

## FILL IN THE BLANK

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Complete each statement using a term or terms from the list below. Write your answers in the spaces provided.

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. Most metals let some \_\_\_\_\_ and \_\_\_\_\_ pass through them.
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

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Match each term in Column A with its description in Column B. Write the correct letter in the space provided.

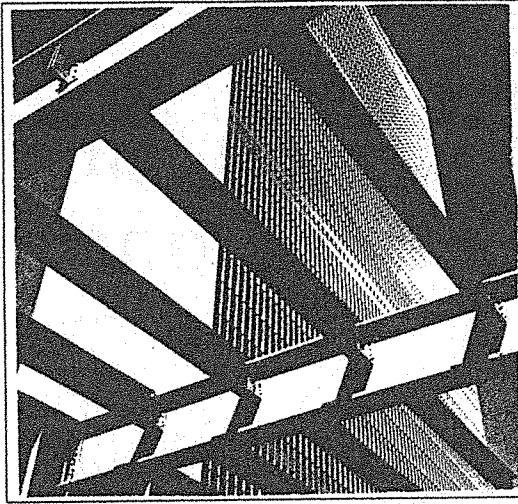
### Column A

- \_\_\_\_\_ 1. metallic luster  
\_\_\_\_\_ 2. malleable  
\_\_\_\_\_ 3. silver-gray  
\_\_\_\_\_ 4. mercury  
\_\_\_\_\_ 5. element

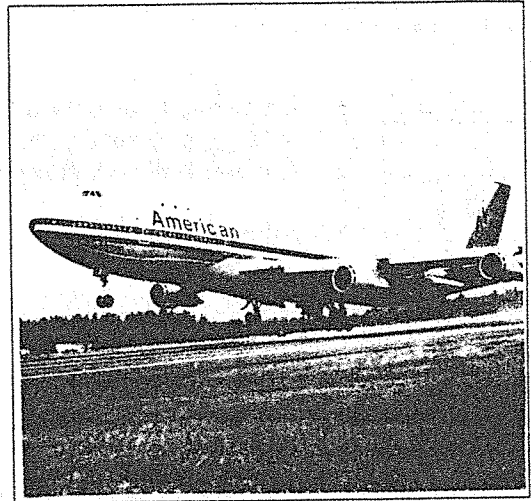
### Column B

- a) can be hammered without breaking  
b) a liquid metal  
c) has only one kind of atom  
d) shine  
e) color of most metals

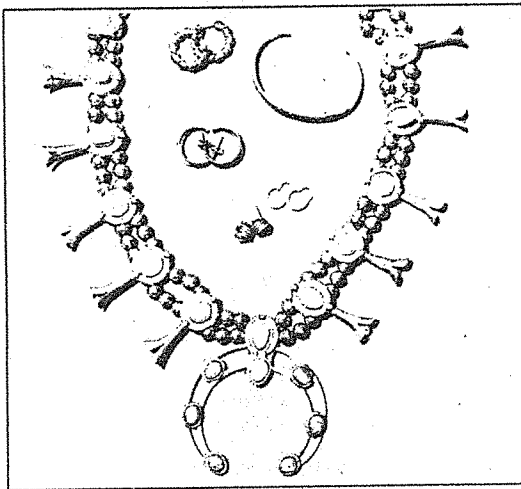
## ABOUT SOME METALS



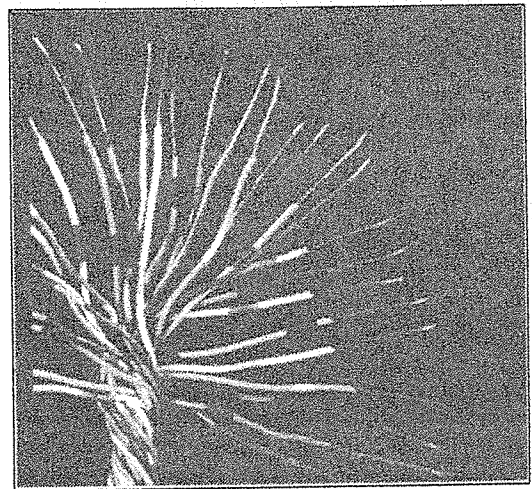
**Figure G** Metals are used where great strength is needed.



**Figure H** Aluminum is a light-weight metal. Most airplane bodies are made of aluminum.



**Figure I** Metals, like gold and silver, are used as jewelry.



**Figure J** Most electrical wires are made of the metal copper.

### 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.

1. aluminum foil \_\_\_\_\_
2. electrical wire \_\_\_\_\_
3. pots and pans used for cooking \_\_\_\_\_
4. automobile trim \_\_\_\_\_
5. mercury thermometer \_\_\_\_\_

## TRUE OR FALSE

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*In the space provided, write "true" if the sentence is true. Write "false" 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. Metals conduct heat well.
- \_\_\_\_\_ 5. Metals conduct electricity well.
- \_\_\_\_\_ 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.

## WORD SCRAMBLE

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*Below are several scrambled words you have used in this Lesson. Unscramble the words and write your answers in the spaces provided.*

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

## REACHING OUT

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

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