

Elements and the Periodic Table ▪ *Guided Reading and Study*

Metals

This section describes the properties of metals and the characteristics of the different groups of metals.

Use Target Reading Skills

Before you read, write what you know about the metals in the top box. As you read, write what you learn in the bottom box.

What You Know
1. Metals are shiny.
2.
3.
4.
5.

What You Learned
1.
2.
3.
4.
5.

Properties of Metals

1. Chemists classify an element as a metal, based on its physical and chemical _____.

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Metals *(continued)*

2. Circle the letter of the property that is NOT a physical property of metals.
- | | |
|----------------|-----------------|
| a. shininess | b. malleability |
| c. brittleness | d. conductivity |

Match the term with its definition.

Term	Definition
_____ 3. malleable	a. The ease with which an element combines with other elements and compounds.
_____ 4. ductile	b. The ability of an object to transfer heat or electricity to another object.
_____ 5. conductivity	c. A term used to describe a material that can be pulled out, or drawn, into a long wire.
_____ 6. reactivity	d. A term used to describe a material that can be hammered or rolled into flat sheets and other shapes.

7. Some metals are _____; they are attracted to magnets or can be made into magnets.
8. Is the following sentence true or false? Most metals are solids at room temperature. _____
9. The slow destruction of a metal through its reaction with oxygen in the air is called _____.

Metals in the Periodic Table

10. How does the reactivity of each group of metals change across the table from left to right?

11. Circle the letter of each sentence that is true about alkali metals.
- They are never found as uncombined elements.
 - They react with other elements by losing one electron.
 - They are often found as pure elements in sea water.
 - They are slightly reactive.

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12. What are the two most important alkali metals?

13. Circle the letter of each sentence that is true about alkaline earth metals.

- a. Each is a good conductor of electricity.
- b. They are never found uncombined in nature.
- c. They lose two electrons in chemical reactions.
- d. They are much less reactive than most metals.

14. What are the two most common alkaline earth metals?

15. Circle the letter of each element that is a transition metal.

- a. gold
- b. lithium
- c. copper
- d. iron

16. Is the following sentence true or false? The transition metals are less reactive than the metals in Groups 1 and 2. _____

17. Is the following sentence true or false? All of the elements in Groups 13 through 15 are metals. _____

18. Where are the lanthanides placed on the periodic table?

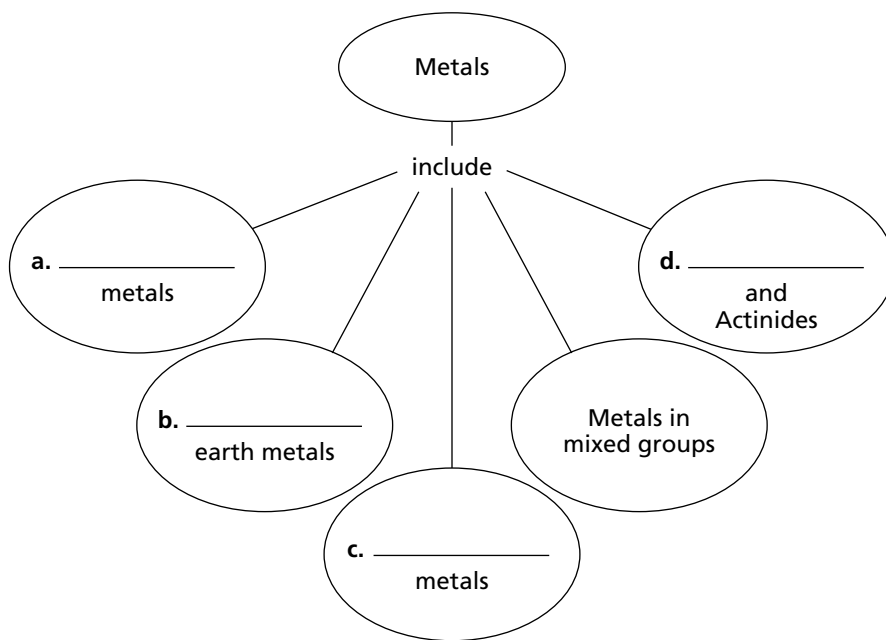
19. Where are the actinides found on the periodic table?

20. Which element is the heaviest actinide that occurs naturally on Earth?

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Metals *(continued)*

21. Complete the concept map about metals.



Synthetic Elements

22. Uranium has an atomic number of 92. How were all the elements with atomic numbers higher than 92 created?

23. What was the first synthetic element to be made by colliding nuclei in a particle accelerator?

24. Is the following sentence true or false? It is easier to synthesize new elements with very large atomic numbers. _____