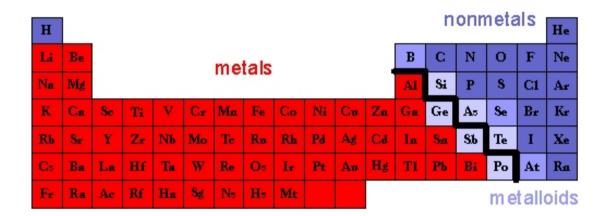
Science 9

Unit 2: Chemical Reactions Worksheet 9: Metals, Nonmetals and Metalloids



Metals, Nonmetals and Metalloids:

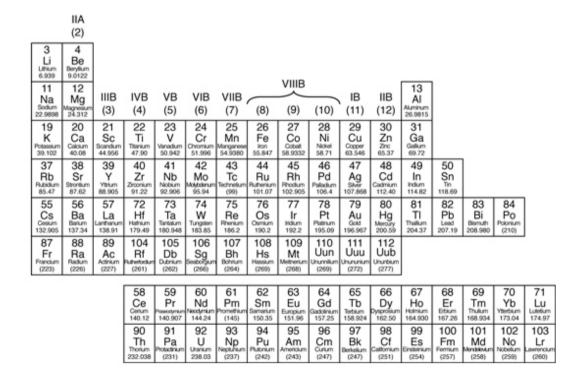
Most periodic table contain a staircase line which allows you to identify which elements are metals, nonmetals and metalloids



| Ce | P# | Nd | Pm | Sm | Eυ | Gđ | Тъ | Dу | Ho | Eæ | Tm | Υъ | Lu |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Th | Pa | U | Np | Pu | Am | Cm | Bk | Cf | Es | Fm | Md | No | Læ |

Metals:

- Metals are good conductors of heat and electricity.
- Metals have a metallic luster (shiny).
- Metals are ductile (can be stretched into thin wires).
- Metals are malleable (can be pounded into thin sheets).
- A chemical property of metal is its reaction with water which results in corrosion.



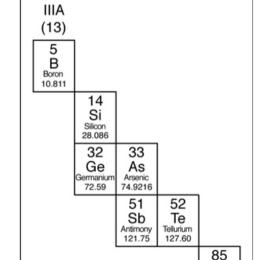
Nonmetals

- Non-metals are poor conductors of heat and electricity.
- Non-metals are not ductile or malleable.
- Solid non-metals are brittle and break easily.
- They are dull.
- Many non-metals are gases.

| | | | | | VIIIA (18) | |
|-------------------------------|------------------------------|----------------------------------|-------------------------------|--------------------------------|------------------------------|--|
| IA (1) | IVA (14) | VA (15) | VIA (16) | VIIA (17) | 2 He Helium 4.0026 | |
| H H Hydrogen 1.00797 | 6 C Carbon 12.01115 | 7 N Nitrogen 14.0067 | 8 O Oxygen 15.9994 | 9 F Flourine 18.9984 | 10 Ne Neon 20.183 | |
| | | 15 P Phosphorus 30.9738 | 16 S Sulfur 32.064 | 17 CI Chlorine 35.453 | 18 Ar Argon 39.948 | |
| | | | 34 Se Selenium 78.96 | 35 Br Bromine 79.904 | 36 Kr Krypton 83.80 | |
| | | | | 53 lodine 126.9044 | 54 Xe Xenon 131.30 | |
| | | | | | 86 Rn Radon (222) | |

Metalloids:

- These elements are found along the stair-step line that distinguishes metals from non-metals.
- Metalloids (metal-like) have properties of both metals and non-metals.
- They are solids that can be shiny or dull.
- They conduct heat and electricity better than non-metals but not as well as metals.
- They are ductile and malleable.



Αt

PART A: Multiple Choice

- 1. Which group contains the most elements?
 - (A) Transition elements
 - (B) Nonmetals
 - (C) Metalloids
 - (D) Metals
- 2. Most metals are NOT
 - (A) Ductile.
 - (B) Malleable.
 - (C) Liquid at room temperature.
 - (D) Good conductors of heat and electricity
- 3. The most useful property of metalloids is their
 - (A) Varying ability to conduct electric current.
 - (B) Softness and malleability.
 - (C) Tendency to be unreactive.
 - (D) Ability to be pulled out into long wires.
- 4. Which group of elements shares characteristics with both metals and nonmetals?
 - (A) Halogens
 - (B) Lanthanides
 - (C) Salts
 - (D) Metalloids

| | (A) (B) (C) | On the left-most side On the right side In the middle column of the periodic table |
|-----|-------------------|--|
| | (D) | In the bottom rows |
| 6. | As you | move from left to right across the periodic table, elements |
| | (A) | Become less metallic. |
| | (B) | Have a lower atomic weight. |
| | (C) | Have a lower atomic number. |
| | (D) | Become more metallic |
| 7. | The thi | ree main groups of elements are metals, nonmetals, and |
| | (A) | Noble gases. |
| | (B) | Isotopes. |
| | (C) | Alkali metals. |
| | (D) | Metalloids |
| 8. | Most e | lements are |
| | (A) | Metals. |
| | (B) | Metalloids. |
| | ` / | Nonmetals. |
| | (D) | Semiconductors. |
| 9. | Most n | onmetals are |
| | (A) | Brittle. |
| | (B) | Metalloids. |
| | (C) | Good conductors. |
| | (D) | Shiny. |
| 10. | Which | element is a metalloids.? |
| | (A) | Carbon |
| | (B) | Sodium |
| | (C) | Silicon |
| | (D) | Uranium |
| 11. | Metals | tend to be |
| | (A) | Gases. |
| | (B) | Dull. |
| | (C) | Good conductors of heat. |
| | (D) | Brittle |
| 12. | The ele | ements to the right of the zigzag line on the periodic table are called |
| | (A) | Metalloids. |
| | (B) | Conductors. |
| | (C) | Metals. |
| | (D) | Nonmetals. |
| 13. | Most n | netals are |
| | (A) | Solid at room temperature. |
| | (B) | Bad conductors of electric current. |
| | (C) | Dull. |
| | (D) | Not malleable. |

Carbon and other nonmetals are found in which area of the periodic table?

5.

| 14. | Sulfu | r is NO | T du | ctile, a | and N | OT n | nallea | ble. | Is sul | fur a | metal | , nor | nmeta | l, or r | netall | oid? | | |
|-----|---------------|----------------------|----------|----------|----------|---------|---------|--------|--------|--------|--------|--------|--------|----------|---------|--------|--------|-----------|
| | (A) | Meta | 1 | | | | | | | | | | | | | | | |
| | (B) | Meta | | | | | | | | | | | | | | | | |
| | (C) | Nonr | | | | | | | | | | | | | | | | |
| | (D) | None | | ie abo | ve are | e corr | rect | | | | | | | | | | | |
| 15. | Whic | h is tru | e abo | ut me | tals? | | | | | | | | | | | | | |
| | (A) | They | are d | luctile | ; | | | | | | | | | | | | | |
| | (B) | They | are n | nallea | ble | | | | | | | | | | | | | |
| | (C) | | | | ondu | ctors | of ele | ctrici | ty and | d heat | t | | | | | | | |
| | (D) | All o | f the | above | ; | | | | | | | | | | | | | |
| 16. | | on (#14) about si | | | ıct ele | ectric | ity soı | metin | nes, b | ut no | t oth | er tim | nes. I | t is N | OT m | nallea | ble. V | What is |
| | (A) | It is a | | | | | | | | | | | | | | | | |
| | (B) | It is a | | | | | | | | | | | | | | | | |
| | (C) | It is a | | | | | | | | | | | | | | | | |
| | (D) | It is n | ot fou | and ar | iywhe | ere on | earth | 1 | | | | | | | | | | |
| 17. | What | is O? | | | | | | | | | | | | | | | | |
| | (A) | Metal | | | | | | | | | | | | | | | | |
| | (B) | Metal | loid | | | | | | | | | | | | | | | |
| | (C) | Nonn | netal | | | | | | | | | | | | | | | |
| | (D) | None | of the | e abo | ve | | | | | | | | | | | | | |
| 18. | The o | nly met | al tha | ıt is a | liquid | l at ro | om te | empe | rature | is | · | | | | | | | |
| | (A) | Coppe | er | | | | | | | | | | | | | | | |
| | (B) | Silver | | | | | | | | | | | | | | | | |
| | (C) | Merci | - | | | | | | | | | | | | | | | |
| | (D) | Sodiu | m | | | | | | | | | | | | | | | |
| PAR | Γ B: W | RITTE | N RI | ESPO | NSE | | | | | | | | | | | | | |
| 1. | Most | of the e | lemei | nte the | at for | m a 7 | iozao | line i | n the | nerio | die te | hle h | elono | r to 01 | ne ma | ior or | oun | What is |
| 1. | | roup, ar | | | | | | | | | | | | ; to oi | ie ilia | Joi gi | oup. | vv mat is |
| | | | Peri | odic | Tal | ole o | of th | ie El | eme | ents | (To | p Se | ctio | n) | | | | |
| г | 1 | | | | | | | | | | | | | | | | 18 | |
| 1 | | 2 | | | | | | | | | | 13 | 14 | 15 | 16 | 17 | | |
| 2 | | | | | | | | | | | | | | | | | | |
| 3 | | ١, | | _ | , | _ | • | • | 4.0 | | 4.0 | | | <u> </u> | - | | | |
| ŀ | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | | | | | | |
| 4 | | | <u> </u> | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |

2. Write an "X" in the correct column to indicate whether the element is a metal, nonmetal or metalloid.

| | ELEMENT | METAL | NONMETAL | METALLOID |
|-----|-----------|-------|----------|-----------|
| (A) | aluminum | | | |
| (B) | calcium | | | |
| (C) | antimony | | | |
| (D) | cesium | | | |
| (E) | carbon | | | |
| (F) | manganese | | | |
| (G) | fluorine | | | |
| (H) | silicon | | | |