

High School Chemistry Quiz

From the periodic table to chemical reactions, test your knowledge of core chemistry concepts wit...

Name / Team:

Score:

1 What subatomic particle has a positive charge?

- A. Electron
- B. Neutron
- C. Proton
- D. Photon

2 What does the atomic number of an element represent?

- A. Total number of particles in the nucleus
- B. Number of neutrons
- C. Number of protons
- D. Atomic mass

3 What type of bond involves the sharing of electrons between atoms?

- A. Ionic bond
- B. Metallic bond
- C. Covalent bond
- D. Hydrogen bond

4 What is the pH of a neutral solution at room temperature?

- A. 0
- B. 1
- C. 7
- D. 14

5 Which element has the chemical symbol 'Fe'?

- A. Fluorine
- B. Francium
- C. Iron
- D. Fermium

6 In a balanced chemical equation, what must be equal on both sides?

- A. The volume of reactants and products
- B. The temperature
- C. The number of atoms of each element
- D. The number of molecules

7 What is the term for a substance that speeds up a chemical reaction without being consumed?

- A. Reactant
- B. Solvent
- C. Catalyst
- D. Inhibitor

8 Which state of matter has a definite volume but no definite shape?

- A. Solid
- B. Plasma
- C. Liquid
- D. Gas

9 What is the most abundant gas in Earth's atmosphere?

- A. Oxygen
- B. Carbon dioxide
- C. Nitrogen
- D. Argon

10 What happens to atoms during a chemical reaction?

- A. They are destroyed and new ones are created
- B. They change into different elements
- C. They rearrange to form new substances
- D. They split into subatomic particles

11 Which group on the periodic table contains the noble gases?

- A. Group 1
- B. Group 7
- C. Group 18
- D. Group 2

12 What is an isotope?

- A. An atom with a different number of protons
- B. An atom with a different charge
- C. An atom with a different number of neutrons
- D. An atom in a different state of matter

High School Chemistry Quiz

(continued)

13 Which type of reaction combines two or more substances into a single product?

- A. Decomposition
- B. Single replacement
- C. Synthesis
- D. Combustion

14 What property of metals allows them to be hammered into thin sheets?

- A. Conductivity
- B. Luster
- C. Malleability
- D. Reactivity

15 How many valence electrons does carbon have?

- A. 2
- B. 6
- C. 4
- D. 8

High School Chemistry Quiz — Answer Key

1. C Proton

Protons carry a positive charge and are found in the nucleus of an atom along with neutrons.

2. C Number of protons

The atomic number equals the number of protons in the nucleus and defines what element it is.

3. C Covalent bond

In a covalent bond, atoms share one or more pairs of electrons. This commonly occurs between nonmetal atoms.

4. C 7

A pH of 7 is neutral. Values below 7 are acidic and values above 7 are basic (alkaline).

5. C Iron

Fe comes from the Latin word 'ferrum.' Iron is element 26 on the periodic table and is essential for making steel.

6. C The number of atoms of each element

The law of conservation of mass requires that atoms are neither created nor destroyed, so both sides must have the same count of each element.

7. C Catalyst

A catalyst lowers the activation energy of a reaction, making it proceed faster without being used up in the process.

8. C Liquid

Liquids have a fixed volume but take the shape of their container. Their particles are close together but can slide past each other.

9. C Nitrogen

Nitrogen makes up about 78% of Earth's atmosphere. Oxygen is second at about 21%.

10. C They rearrange to form new substances

In a chemical reaction, the bonds between atoms break and reform in new arrangements, creating different substances from the same atoms.

11. C Group 18

Group 18 (the far right column) contains helium, neon, argon, krypton, xenon, and radon. They are stable and rarely react with other elements.

12. C An atom with a different number of neutrons

Isotopes are atoms of the same element (same protons) but with different numbers of neutrons, giving them different atomic masses.

13. C Synthesis

A synthesis (or combination) reaction has the general form $A + B \rightarrow AB$. Two or more reactants combine to form one product.

14. C Malleability

Malleability means a metal can be hammered or pressed into shapes without breaking. This is due to the way metal atoms are arranged.

15. C 4

Carbon is in Group 14 and has 4 valence electrons, allowing it to form four covalent bonds and create an enormous variety of organic compounds.