

# High School Physics Quiz

From Newton's laws to electromagnetic waves, test your understanding of fundamental physics conce...

Name / Team: .....

Score: .....

**1** What is Newton's first law of motion also known as?

- A. The law of acceleration
- B. The law of action and reaction
- C. The law of inertia
- D. The law of gravity

**2** What unit is used to measure force in the metric system?

- A. Joule
- B. Watt
- C. Newton
- D. Pascal

**3** What type of energy does a moving object possess?

- A. Potential energy
- B. Thermal energy
- C. Kinetic energy
- D. Chemical energy

**4** What happens to the speed of light when it passes from air into glass?

- A. It increases
- B. It stays the same
- C. It decreases
- D. It stops

**5** Which of Newton's laws explains why a rocket can move forward by expelling exhaust backward?

- A. First law
- B. Second law
- C. Third law
- D. Law of universal gravitation

**6** What is the SI unit of electrical resistance?

- A. Ampere
- B. Volt
- C. Ohm
- D. Watt

**7** What force keeps the planets in orbit around the Sun?

- A. Magnetic force
- B. Centrifugal force
- C. Gravitational force
- D. Nuclear force

**8** Sound waves cannot travel through which of the following?

- A. Water
- B. Steel
- C. A vacuum
- D. Air

**9** What is the term for the minimum amount of energy needed to start a nuclear chain reaction?

- A. Activation energy
- B. Threshold energy
- C. Critical mass
- D. Binding energy

**10** Which color of visible light has the longest wavelength?

- A. Blue
- B. Green
- C. Red
- D. Violet

**11** What does the slope of a distance-time graph represent?

- A. Acceleration
- B. Force
- C. Speed
- D. Mass

**12** In a simple electrical circuit, what device is used to measure current?

- A. Voltmeter
- B. Ohmmeter
- C. Ammeter
- D. Barometer

## High School Physics Quiz

(continued)

**13** What is the law of conservation of energy?

- A. Energy always decreases over time
- B. Energy can be created but not destroyed
- C. Energy cannot be created or destroyed, only tran...
- D. Energy is always conserved as heat

**14** What phenomenon causes a straw in a glass of water to appear bent?

- A. Reflection
- B. Diffraction
- C. Refraction
- D. Absorption

**15** Which scientist is credited with the equation  $E = mc^2$ ?

- A. Isaac Newton
- B. Niels Bohr
- C. Albert Einstein
- D. Max Planck

# High School Physics Quiz — Answer Key

**1. C The law of inertia**

Newton's first law states that an object at rest stays at rest and an object in motion stays in motion unless acted upon by an external force. This property is called inertia.

**2. C Newton**

The newton (N) is the SI unit of force, named after Sir Isaac Newton. One newton is the force needed to accelerate 1 kg by 1 m/s squared.

**3. C Kinetic energy**

Kinetic energy is the energy of motion. It depends on both the mass and the velocity of the object.

**4. C It decreases**

Light slows down when entering a denser medium like glass. This change in speed causes the light to bend, a phenomenon called refraction.

**5. C Third law**

Newton's third law states that for every action there is an equal and opposite reaction. The rocket pushes exhaust backward; the exhaust pushes the rocket forward.

**6. C Ohm**

The ohm measures electrical resistance. According to Ohm's law, resistance equals voltage divided by current.

**7. C Gravitational force**

Gravity is the attractive force between any two objects with mass. The Sun's gravitational pull keeps the planets in their orbits.

**8. C A vacuum**

Sound requires a medium (solid, liquid, or gas) to travel through. In a vacuum, there are no particles to transmit the vibrations.

**9. C Critical mass**

Critical mass is the minimum amount of fissile material needed to sustain a nuclear chain reaction.

**10. C Red**

Red light has the longest wavelength (around 700 nm) in the visible spectrum, while violet has the shortest (around 400 nm).

**11. C Speed**

On a distance-time graph, the slope equals distance divided by time, which is the definition of speed.

**12. C Ammeter**

An ammeter measures the flow of electric current in amperes. It is connected in series with the circuit.

**13. C Energy cannot be created or destroyed...**

The law of conservation of energy states that the total energy in a closed system remains constant. Energy can change forms but the total amount stays the same.

**14. C Refraction**

Refraction is the bending of light as it passes from one medium to another (air to water), making the straw appear bent at the water's surface.

**15. C Albert Einstein**

Albert Einstein published his mass-energy equivalence equation in 1905 as part of his theory of special relativity.