

YEAR 9 SCIENCE SELF ASSESSMENT TEST



“Test yourself or your child at home, and reach out to us only if you need extra help. Otherwise, give yourself or your child a pat on the back and best of luck for the future!”

Instructions: Answer all questions. All questions are multiple-choice. Some questions require calculations. Calculators may be used where appropriate.

Multiple Choice Questions (15)

1. Which statement best explains why increasing atmospheric carbon dioxide leads to higher global average temperatures?

- A. CO₂ absorbs ultraviolet radiation and traps it near Earth's surface
 - B. CO₂ reflects infrared radiation back into space
 - C. CO₂ absorbs infrared radiation emitted by Earth and re-radiates it
 - D. CO₂ increases Earth's albedo, reducing heat loss
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2. A car accelerates uniformly from rest to 20 m/s in 5 seconds. What is the car's acceleration?

- A. 2 m/s²
 - B. 4 m/s²
 - C. 5 m/s²
 - D. 10 m/s²
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3. Which of the following best explains why isotopes of an element have similar chemical properties but different physical properties?

- A. They have the same number of electrons but different numbers of protons
 - B. They have different numbers of neutrons but the same electron arrangement
 - C. They have different numbers of electrons in the outer shell
 - D. They belong to different groups in the periodic table
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4. During photosynthesis, the oxygen released into the atmosphere comes directly from:

- A. Carbon dioxide
 - B. Glucose
 - C. Water
 - D. Chlorophyll
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5. Which particle model best explains why gases are easily compressed?

- A. Gas particles vibrate about fixed positions
 - B. Gas particles are tightly packed with strong forces between them
 - C. Gas particles have large spaces between them
 - D. Gas particles have no kinetic energy
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6. A metal spoon feels colder than a wooden spoon at the same room temperature because:

- A. Metal has a lower temperature than wood
 - B. Metal absorbs heat from your hand more slowly
 - C. Metal conducts heat away from your hand more quickly
 - D. Wood generates heat when touched
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7. Which change would most likely increase the rate of a chemical reaction?

- A. Decreasing the temperature of the reactants
- B. Using larger pieces of a solid reactant
- C. Increasing the surface area of a solid

reactant

D. Removing a catalyst from the reaction

8. In an electrical circuit, increasing resistance while keeping voltage constant will:

- A. Increase current
 - B. Decrease current
 - C. Have no effect on current
 - D. Cause voltage to increase
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9. Which adaptation would most help a plant survive in a dry (arid) environment?

- A. Large, thin leaves with many stomata
 - B. Shallow roots spread over a wide area
 - C. Thick, waxy cuticle on leaves
 - D. Soft stems with high water content
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10. The model of plate tectonics best explains:

- A. Daily weather changes
 - B. The distribution of earthquakes and volcanoes
 - C. Seasonal temperature variations
 - D. Ocean tides
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11. Which statement about energy transformations in a moving car is correct?

- A. Chemical energy → sound energy only
 - B. Chemical energy → kinetic energy → heat and sound
 - C. Electrical energy → chemical energy → kinetic energy
 - D. Kinetic energy → chemical energy → heat
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12. If a solution becomes more concentrated, this means:

- A. More solvent has been added
 - B. Less solute is dissolved in the solvent
 - C. The ratio of solute to solvent has increased
 - D. The solution has reached saturation
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13. Which factor most directly affects the gravitational force between two objects?

- A. Their colour and shape
 - B. Their mass and distance apart
 - C. Their speed and direction
 - D. Their temperature and volume
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14. Why are scientific models used in science?

- A. To replace experiments completely
 - B. To make scientific explanations more complicated
 - C. To represent systems that are too large, small, or complex to observe directly
 - D. To prove scientific theories are always correct
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15. Which statement best describes the role of mitosis in multicellular organisms?

- A. It produces gametes for sexual reproduction
- B. It increases genetic variation
- C. It allows growth and repair by producing identical cells
- D. It reduces chromosome number by half