

Exploring the Nanoworld: High School Nanotechnology Basics

Science & Technology · Answer Key · 4 Questions

1. What is the typical size range for structures classified as 'nanoscale'?

- A) 1-10 nanometres
- B) 1-100 nanometres**
- C) 100-1000 nanometres
- D) 1-10 micrometres

2. Which instrument is commonly used to visualize and manipulate individual atoms and molecules on surfaces, playing a crucial role in nanotechnology research?

- A) Optical Microscope
- B) Electron Microscope
- C) Scanning Tunneling Microscope (STM)**
- D) X-ray Diffractometer

3. Why do materials often exhibit different or enhanced properties (e.g., strength, reactivity, electrical conductivity) when reduced to the nanoscale?

- A) Increased gravitational pull
- B) Decreased surface area to volume ratio
- C) Quantum mechanical effects and increased surface area to volume ratio**
- D) Changes in nuclear composition

4. Which allotrope of carbon consists of a single layer of carbon atoms arranged in a two-dimensional hexagonal lattice and has exceptional electrical and mechanical properties?

- A) Diamond
- B) Fullerene
- C) Graphene**
- D) Graphite