Nanotechnology in the UK: A Teenager's Guide

Nanotechnology · Answer Key · 20 Questions

1. What is the approximate size range of nanoparticles, often measured in nanometres (nm)?

A) 1 to 1000 nm
B) 1000 to 1 million nm
C) 1 to 10 nm
D) 1000 to 100,000 nm

2. Which UK university is renowned for its Centre for Advanced Materials and Nanotechnology research?

A) University of Cambridge
B) University of Oxford
C) Imperial College London
D) University of Manchester

3. In the UK, what is a common application of nanotechnology in everyday products like sunscreens?

A) To create a transparent protective layer
B) To make the product brightly coloured
C) To increase its weight
D) To add a strong scent

4. The UK government has invested in nanotechnology research through initiatives like the _____ National Nanotechnology Initiative.

A) UK
B) EU
C) Global
D) US

5. What UK-developed nanotechnology is being used to create self-cleaning surfaces for buildings and windows?

A) Titanium dioxide coatings
B) Graphene films
C) Silver nanoparticles
D) Carbon nanotubes

6. Which of these is NOT a typical area where nanotechnology is applied in the UK?

A) Medicine
B) Food production
C) Large-scale traditional manufacturing
D) Electronics

7. The University of _____ in the UK is a leading institution for graphene research, a Nobel Prize-winning nanotechnology.

A) Manchester
B) Bristol
C) Edinburgh
D) Leeds

8. Nanotechnology allows for the development of new materials that can be stronger and lighter. What is this often called in the UK context?

A) Advanced materials
B) Heavy materials
C) Standard materials
D) Brittle materials

9. What is a potential medical application of nanotechnology being explored in the UK, such as for targeted drug delivery?

A) Nanoparticles carrying drugs directly to cancer cells
B) Making patients temporarily invisible
C) Shrinking patients to a smaller size
D) Creating artificial organs instantly

10. The _____ Institute in the UK is a key player in developing nanotechnology for a range of applications.

A) National Physical Laboratory (NPL)
B) Royal Society
C) British Museum
D) National Trust

11. In the UK, nanotechnology is being used to improve the efficiency of _____ in renewable energy technologies.

A) Solar cells
B) Coal power plants
C) Wind turbines
D) Nuclear reactors

12. What is the primary challenge in handling and manufacturing with nanoparticles in the UK and globally?

A) Controlling their behaviour and potential health impacts
B) Making them visible to the naked eye
C) Finding enough of them
D) Making them heavier

13. Which of the following is a UK-based research council that funds nanotechnology projects?

A) UK Research and Innovation (UKRI)
B) BBC
C) National Lottery
D) Channel 4

14. In the UK, nanotechnology is being explored to create more durable and efficient _____.

A) Coatings for everyday objects
B) Paper products
C) Wooden furniture
D) Cotton fabrics

15. What type of device, often made using nanotechnology, is used to detect extremely small amounts of substances in the UK for security or medical testing?

A) Biosensor
B) Microscope
C) Telescope
D) Barometer

16. The development of new _____ using nanotechnology in the UK could lead to faster and smaller electronic devices.

A) Semiconductors
B) Light bulbs
C) Batteries
D) Speakers

17. Which UK city is home to a significant cluster of nanotechnology companies and research institutions, particularly in the field of advanced materials?

A) Manchester
B) London
C) Birmingham
D) Liverpool

18. What is a key characteristic of nanomaterials that makes them useful for new technologies in the UK, such as catalysts?

A) High surface area to volume ratio
B) Low density
C) Large size
D) Poor conductivity

19. In the UK, nanotechnology is being researched for its potential to improve _____ for more sustainable water purification.

A) Filters
B) Pipes
C) Taps
D) Drains

20. What field of science specifically studies the behaviour and properties of matter at the nanoscale, with significant UK contributions?

A) Nanomaterials science
B) Geology
C) Astronomy
D) Paleontology