

Name:

Class 11. Quiz

Give three examples of new phenomena or properties of nanoparticles. For each, explain why they only occur in the nanoscale.

What does Langdon Winner mean by "technology as forms of life"?

Give an example of a form of life that may emerge from nanotechnology.

How is a quantum dot nanocrystal like an atom?

How is a quantum dot nanocrystal NOT like an atom?

In a semiconductor crystal, the *bandgap* is the energy separation between the valence bands and the conduction bands.

Explain what the valence bands and conduction bands are in simple terms.

What can excite electrons from the valence band to the conduction band?

What happens when the excited electron "falls" back into the valence band hole it left behind?

As the radius of a semiconductor nanocrystal is decreased does the bandgap decrease or increase? Explain.

What does Marx's argument imply about present day discussions of the societal benefits of nanotechnology?