

Teacher Page: Science Focus- The Nanotechnology Revolution (p. 288)

Unit: Unit 7

Grade Level Indicator:

Description:

Time: 25 minutes

Materials: Book page 288

Procedure:

Warm-up:

Instructional Strategies:

Assessment: Grade question, student participation

Variations: Do questions orally with teacher led instruction,

Interdisciplinary Connection:

Sample Data/ Answers: The answer key follows the student page.

Science Focus: The Nanotechnology Revolution (p. 288)

1. What is nanotechnology? _____

2. What are some ways nanomaterials are used today? _____

3. What are two ways nanotechnologists envision the use of nanotechnology?

1. _____

2. _____

4. How could this technology help the environment? _____

5. How are nanoparticles harmful to humans? _____

6. What 2 steps must be taken before unleashing nanotechnology more broadly?

1. _____

2. _____

Critical Thinking: How might the development of nanotechnology affect the mining of gold? _____

Key

1. Use of science and engineering to manipulate and create materials out of atoms and molecules at the ultra-small scale of less than 100 nanometers.
2. Stain-resistant and wrinkle-free coatings, odor-eating socks, self-cleaning coatings on windows and windshields, and sunscreens.
3.
 1. Supercomputers the size of sugar cubes
 2. Biocomposite materials to make bones and tendons super strongOthers: Nanovessels filled with medicine, designer nanomolecules that can seek out and kill cancer
4. Nanoparticles can be used to remove industrial pollutants from air, soil, and water. Nanofilters can be used to purify and desalinate water at an affordable cost.
5. Move across placenta from mother to fetus and across the nasal passage to the brain. They can penetrate deeply into the lungs, be absorbed into the bloodstream and penetrate cell membranes.
6.
 1. Carefully investigate its potential ecological, economic, health, and societal risks
 2. Develop guidelines and regulations for controlling its growing applications until we know more about the potentially harmful effects of the technology

Critical Thinking: Answers will vary

