Penetrating Powers of Ionizing Radiation Worksheet

Radiation is energy that can come from unstable (radioactive) atoms or be produced by machines. Radiation travels from its source in the form of energy waves or energized particles. The major types of ionizing radiation include:

- Alpha particles: Relatively heavy, high-energy particles.
- Beta particles: Small, fast-moving particles that vary in energy and penetrating power.
- Gamma rays: High-energy electromagnetic radiation that can travel at the speed of light and can cover hundreds to thousands of meters in air before spending their energy.
- X-rays: High-energy electromagnetic radiation that is generally lower in energy and, therefore, less penetrating than gamma rays.

1. Hypothesize whether each has the ability to penetrate (pass through) your skin and body.

   Alpha particles: _____

   Beta particles: _____

   Gamma rays: _____

   X-rays: _____

2. Did the demonstration confirm your predications above? Explain.

3. How might people be exposed to ionizing radiation?

4. How can people prevent or reduce their exposure to ionizing radiation?

5. What is the difference between radiation exposure and radiation contamination?