Nuclear Decay

WORKSHEET

1. What is nuclear decay?

2. Why does nuclear decay occur?

3. What is the result of nuclear decay?

4. What factors do NOT affect radioactive decay?

5. Give examples of elements that are naturally radioactive.

6. What are the different types of radioactive decay?

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Answers

1. What is nuclear decay?

   Nuclear decay is when an unstable atomic nucleus loses excessive energy by radiation.

2. Why does nuclear decay occur?

   The nucleus may be unstable based on the neutron-to-proton ratio. It spontaneously breaks down until it attains a more stable neutron-to-proton balance.

3. What is the result of nuclear decay?

   The decay process results in the release of energy and particles. A new element is also formed as the nucleus breaks down and changes composition.

4. What factors do NOT affect radioactive decay?

   Unlike chemical reactions, temperature, pressure, concentration, surface area, and catalysts do NOT affect the decay rate.

5. Give examples of elements that are naturally radioactive.

   All nuclei with 84 or more protons are naturally radioactive, including technetium (atomic number 43), polonium (atomic number 84), and promethium (atomic number 61).

6. What are the different types of radioactive decay?

   The different types of radioactive decay include:
   a. Alpha Decay (α)
   b. Beta Decay (β^-)
   c. Gamma Radiation (γ)
   d. Positron Decay (β^+)

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