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Crash Course Physics #45: Nuclear Physics

Name: _____ Date: _____

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1. The equation _____ expresses the equivalence between mass and energy.
2. The atomic _____ is the number of protons in a nucleus.
3. A _____ consists of protons and neutrons.
4. Two nuclei with the same atomic number but different mass numbers are called _____.
5. The unit used to express atomic mass is the _____ atomic mass unit.
6. The difference in mass between a nucleus and its components is called the _____ energy.
7. The _____ nuclear force holds protons and neutrons together in the nucleus.
8. Large atoms require additional _____ to overcome the repulsive electric force.
9. The breakdown of an unstable nucleus is known as _____.
10. In _____ decay, a nucleus emits two protons and two neutrons.
11. A _____ nucleus is the product of a decay process.
12. The process of an atom changing from one element to another is called _____.
13. In beta decay, a _____ transforms into a proton and emits an electron.
14. The weak nuclear force acts on _____, which make up protons and neutrons.
15. In _____ decay, a nucleus emits a high-energy photon without changing elements.

Crash Course Physics #45: Nuclear Physics KEY

1. The equation $E = mc^2$ expresses the equivalence between mass and energy.
2. The atomic **number** is the number of protons in a nucleus.
3. A **nucleus** consists of protons and neutrons.
4. Two nuclei with the same atomic number but different mass numbers are called **isotopes**.
5. The unit used to express atomic mass is the **unified atomic mass unit**.
6. The difference in mass between a nucleus and its components is called the **binding** energy.
7. The **strong** nuclear force holds protons and neutrons together in the nucleus.
8. Large atoms require additional **neutrons** to overcome the repulsive electric force.
9. The breakdown of an unstable nucleus is known as **radioactivity**.
10. In **alpha** decay, a nucleus emits two protons and two neutrons.
11. A **daughter** nucleus is the product of a decay process.
12. The process of an atom changing from one element to another is called **transmutation**.
13. In beta decay, a **neutron** transforms into a proton and emits an electron.
14. The weak nuclear force acts on **quarks**, which make up protons and neutrons.
15. In **gamma** decay, a nucleus emits a high-energy photon without changing elements.

15 Questions

Answer Key Included

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