Name _____

# Elements and Isotopes Answer Key

1. The atomic mass represents the average mass of an element's isotopes, taking into account their relative abundances.

2. Isotopes are atoms of the same element with different numbers of neutrons, resulting in different atomic masses.

3. Elements within a period are arranged in order of increasing atomic number from left to right.

4. The alkali metals are located in Group 1 of the periodic table, and the alkaline earth metals are located in Group 2. They are highly reactive metals.

5. Transition metals are located in the d-block of the periodic table, while representative elements are located in the s and p-blocks. Transition metals often exhibit multiple oxidation states and have distinct properties.

6. Nonmetals are generally poor conductors of heat and electricity, have lower melting and boiling points compared to metals, and tend to gain electrons in chemical reactions.

7. Atomic size generally increases as you move down a group due to the addition of new energy levels.

8. Valence shells are the outermost energy levels of an atom that contain valence electrons.

9. Noble gases have a full complement of valence electrons, making them highly stable and unreactive with other elements.

10. Synthetic elements are elements that do not occur naturally on Earth and are synthesized through nuclear reactions. Examples include elements with atomic numbers higher than 92 (e.g., plutonium, americium).