

Name _____

Noble Gases: The Quiet Heroes of the Periodic Table

Short Answer Key

1. Noble gases are considered chemically inert because they have full valence electron shells, making them highly stable. They do not readily react with other elements because they have no strong tendency to gain, lose, or share electrons.
2. Noble gases satisfy the octet rule by already having a complete set of eight electrons in their outermost energy level. This makes them less reactive because they do not need to gain, lose, or share electrons to achieve stability.
3. One practical application of noble gases is in neon signs, where neon gas emits colorful light when an electric current passes through it. Neon is chosen for this application because of its ability to produce bright and vibrant colors.
4. Noble gases are chemically inert and have full valence electron shells. Halogens in Group 17 are highly reactive nonmetals that readily form compounds with metals. They have one electron short of a full valence electron shell, which drives their reactivity.
5. I would describe noble gases as elements that do not react with other elements because they have full outer electron shells. This makes them safe to use in helium-filled balloons because they do not catch fire or explode.

