

Name _____

Cosmic Echoes: Exploring the Cosmic Microwave Background Radiation

Short Answer Key

1. The discovery of the cosmic microwave background radiation supported the Big Bang Theory by providing evidence of a uniform, faint glow of microwave radiation throughout the universe, consistent with the prediction that the universe originated from a hot, dense state.
2. The uniform temperature of the CMBR is significant because it suggests that the early universe was also incredibly uniform, providing insights into its early conditions and structure.
3. The tiny hot and cold spots in the CMBR indicate fluctuations in temperature and density in the early universe, revealing the seeds of structure that eventually led to the formation of galaxies and galaxy clusters.
4. Advanced observatories and satellites like the Planck satellite have provided more precise measurements of the CMBR's temperature variations, enabling scientists to gain deeper insights into the universe's early moments.
5. The CMBR is often referred to as a "time capsule" from the early universe because it provides a snapshot of the universe's conditions at a specific moment in its history, about 380,000 years after the Big Bang.

