

Name _____

Unraveling the Age of the Universe: How Do We Know its Age?

Short Answer Key

1. Edwin Hubble's observations of galaxies moving away from us provided evidence for the expansion of the universe, which, when reversed, helped estimate the universe's age.
2. The cosmic microwave background radiation (CMBR) is a faint glow of radiation from the early universe. It is essential in determining the universe's age because it serves as a remnant of the early, hot universe, allowing scientists to trace the cosmic history.
3. A cosmic calendar condenses the entire history of the universe into a single year, making it easier to comprehend the vast timescales involved. For example, the Big Bang corresponds to January 1st, and each second represents around 440 years of cosmic history.
4. Additional methods include the abundance of light elements, the rate of the universe's expansion, and the ages of the oldest known stars and globular clusters, all of which support the estimated age of the universe.
5. Scientists continue to refine their methods for determining the age of the universe to improve accuracy and gain deeper insights into cosmic history, possibly uncovering new phenomena or refining existing theories.

