

Name _____

The Cosmic Puzzle

Short Answer Key

1. The cosmic web is a vast network of interconnected cosmic filaments and voids, with galaxies and galaxy clusters located along these filaments. It's significant because it reveals the large-scale structure of the universe, showing how galaxies are distributed and interconnected on a cosmic scale.
2. The Doppler Effect is a phenomenon where the observed wavelength of light or sound changes when the source of the waves is moving relative to the observer. In astronomy, it causes the light from galaxies to shift toward the red end of the spectrum as galaxies move away from us. By measuring this redshift, astronomers can determine the speed and direction of a galaxy's motion.
3. The cosmic microwave background (CMB) radiation is ancient light from the Big Bang that fills the universe. It provides insights into the early universe by revealing its temperature, uniformity, and density fluctuations. Studying the CMB helps scientists understand the conditions shortly after the Big Bang.
4. Large-scale surveys catalog millions of galaxies, providing data on their positions and characteristics. These surveys help astronomers create cosmic maps, identify galaxy clusters, and study the distribution of matter on a large scale. They contribute to our understanding of how galaxies are distributed across the cosmos.
5. Dark energy is mysterious because its nature and origin are not well understood. It's crucial in the study of the universe's large-scale structure because it is responsible for the accelerated expansion of the universe. Understanding dark energy is essential for comprehending the long-term fate and evolution of the cosmos.

