

Name: _____ Date: _____

Blast Throughout the Deep Field: A 10th Grade Cosmology Quest

Analyze the spectral shifts and galactic signatures used by astronomers to map the vast expansion of our observable universe.

1. Which of the following galaxy types is characterized by a high concentration of old stars and very little active star formation?

- A. Barred Spiral
- B. Lenticular
- C. Elliptical
- D. Irregular

2. Edwin Hubble's observations of the Andromeda Galaxy proved that it was located outside of the Milky Way.

- A. True
- B. False

3. What specifically does a 'Redshift' in the light spectrum of a distant galaxy indicate to an astrophysicist?

- A. The galaxy is burning more helium
- B. The galaxy is moving away from the observer
- C. The galaxy is collapsing into a black hole
- D. The galaxy is rotating at extreme speeds

4. The Sombrero Galaxy is a famous example of a _____ galaxy viewed nearly edge-on from Earth.

- A. Spiral
- B. Elliptical
- C. Irregular
- D. Radio

5. The Cosmic Microwave Background (CMB) radiation is the oldest light detectable in the universe.

- A. True
- B. False

6. Which force is primarily responsible for the formation of the large-scale 'Cosmic Web' structure?

- A. Electromagnetism
- B. Nuclear Fusion
- C. Gravity
- D. Centrifugal Force

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7. Scientists believe that _____ makes up the majority of the mass within a galaxy, even though it cannot be seen.

- A. Cosmic Dust
- B. Dark Matter
- C. Nebula Gas
- D. Supernovae

8. The 'Local Group' refers to which specific cosmic structure?

- A. The planets in our solar system
- B. The collection of stars near the Sun
- C. The small cluster of galaxies including the Milky Way
- D. The atmosphere surrounding the Earth

9. Quasars are extremely bright objects found at the centers of distant galaxies, powered by black holes.

- A. True
- B. False

10. The discovery that the universe's expansion is accelerating led to the theory of _____ energy.

- A. Solar
- B. Kinetic
- C. Dark
- D. Thermal