

# Big Bang

## How It Happened

- The Big Bang theory is used to explain the creation of the universe and all the planets, galaxies, and stars within it.
- Around 15 billion years ago all matter and energy was concentrated into a very small area called a **singularity**.
- The dense and extremely hot singularity began expanding at a very fast rate expelling high-energy matter in all directions.
- Electrons, protons, and neutrons began to form immediately after the explosion.

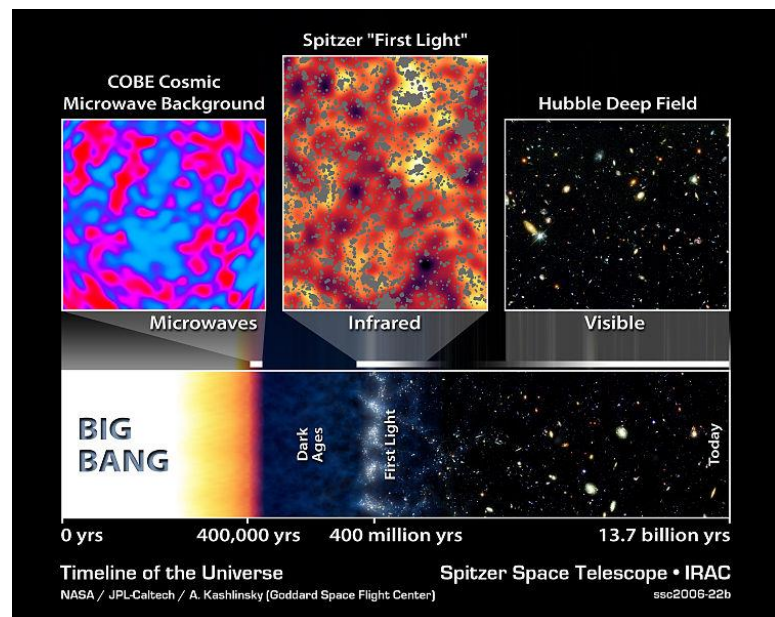
### Study Tip

After discovering that the universe was expanding, scientists concluded that the universe must have started out as a smaller point.

## Evidence for the Big Bang

- If the universe were static, then the space between objects should not have any heat. In 1964, however, scientists discovered there was in fact a temperature associated with the space between objects.

- Light from distant galaxies, captured in a prism from a telescope, displays a trend where light tends to approach the red spectrum. The Doppler effect explains how the shifting towards red indicates that the universe is expanding.



*This is a timeline of the universe's history. Microwave light captured by the Wilkinson Anisotropy Microwave Probe also that gives proof that the universe started with a blast.*

## Concept Check

- What is the Big Bang theory?
- How do scientists use evidence to support this theory?