

HIGH SCHOOL SCIENCE CHECKLIST

Astronomy, Goal 12

Illinois Learning Standard F

Assessment Frameworks

PSAE test questions are derived from this list.

ASTRONOMY

- _____ Understand that it was Edwin Hubble's scientific contribution that proved that other galaxies existed far beyond the reaches of the Milky Way galaxy.
- _____ Understand the Doppler effect with respect to light (red and blue shifts) and sound (e.g., the sound of an approaching train's whistle vs. the sound of the whistle moving away). Understand that astronomers use the Doppler shift to estimate the distance of objects millions and billions of light-years away.
- _____ Know the theory that over 10 billion years ago the universe began in a huge explosion called the Big Bang. Understand that in this explosion, all matter, energy, space, and time were created as the explosion moved outward from a single point. Understand that one piece of evidence for this theory is the 3K background radiation.
- _____ Analyze the life cycles of stars, and compare stars of different masses.
- _____ Understand and describe the physical characteristics of galaxies and the objects within galaxies (e.g., stars, pulsars, black holes, planets, comets, asteroids). Describe physical characteristics of the sun (e.g., corona, prominences, sunspots, solar flares), and know that solar events can cause phenomena such as auroras.
- _____ Understand the effects of gravity within the solar system. Understand that the tides are caused by the gravitational attraction among the earth, moon, and sun.