INTERMEDIATE LEVEL SCIENCE: ASTRONOMY	
Core Concepts	Suggested Activities
4.1a The **Sun** is a major source of energy for Earth. Other sources of energy include nuclear and geothermal.	NASA web site www.nasa.gov
1.1a Earth's Sun is an average-sized **star**. The Sun is more than a million times greater in volume than Earth.	H-R diagram in ESRT
1.1b Other stars are like the Sun but are so far away that they look like points of light. **Distances between stars** are vast compared to distances within our solar system.	Calculation of light-minutes from the Sun and light years from other stars.
1.1c The Sun and the **planets** that **revolve** around it are the major bodies in the solar system. Other members include **comets**, **moons**, and **asteroids**. Earth's **orbit** is **nearly circular**.	Model of eccentricity.
1.1d **Gravity** is the force that keeps planets in orbit around the Sun, and the Moon in orbit around the Earth.	Models for gravity and inertial effects producing eccentric orbits.
1.1e Most planets in the solar system have a regular and predictable motion. These motions explain such **phenomena** as a **day**, a **year**, **phase of the Moon**, **eclipses**, **tides**, **meteor showers**, and **comets**.	Solar System data in ESRT
1.1f The **latitude/longitude coordinate system** and our **system of time** are based on **celestial** observations.	Explain poles, equator, prime meridian, and other coordinate lines
1.1g Moons are seen by **reflected** light. Our Moon orbits Earth, while Earth orbits the Sun. The Moon's phases as observed from Earth are the result of seeing different portions of the lighted area of the Moon's surface. The phases repeat in a **cyclic pattern** in about one **month**.	Explanation of phases, with photographs. Information available on US Naval Observatory web site, www.usno.navy.mil
1.1h The **apparent motions** of the Sun, Moon, planets, and stars across the sky can be explained by Earth's rotation and revolution. Earth's rotation causes the **length of one day** to be approximately 24 hours. This rotation also causes the Sun and Moon to appear to rise along the eastern **horizon** and to set along the western horizon. Earth's revolution around the Sun defines the **length of the year** as 365-1/4 days.	Models of rotation and revolution.
1.1i The **tilt of Earth's axis of rotation** and the revolution of Earth around the Sun cause **seasons** on Earth. The **length of daylight** varies depending on latitude and season.	Diagrams of Earth's orbit. Comparison of daylengths at different seasons.
The **shape of Earth**, the other planets, and stars is **nearly spherical**.	Examine photos form the NASA web site