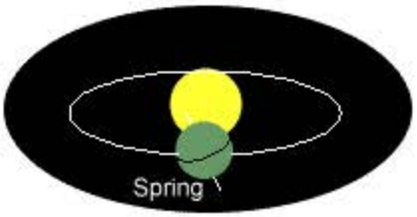
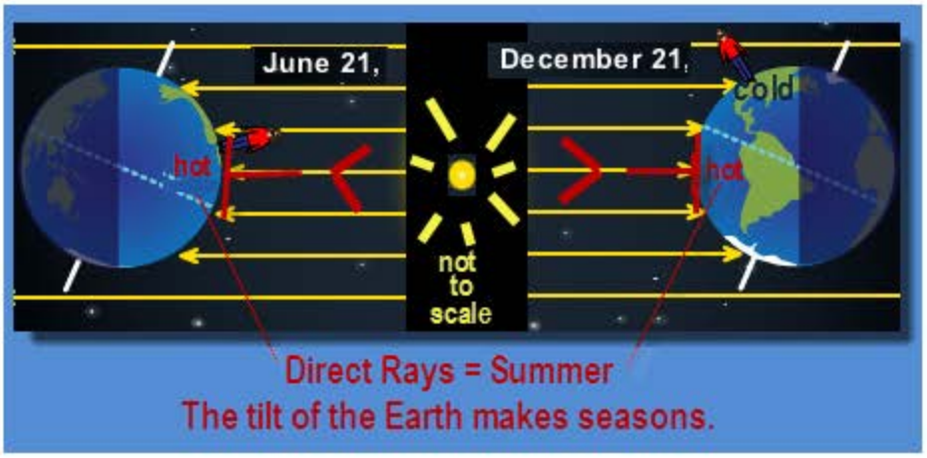
Key concepts include:

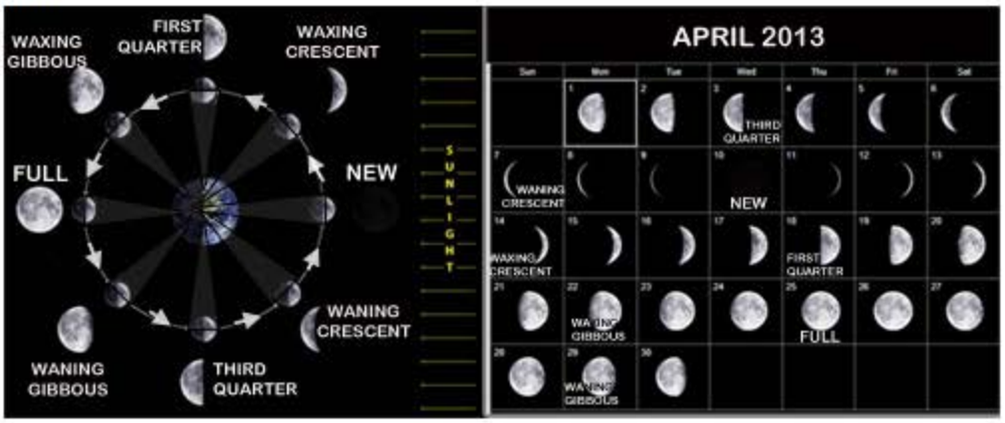
a. the motions of Earth, the moon, and the sun;
b. the causes for Earth's seasons;
c. the causes for the phases of the moon;
d. the relative size, position, age, and makeup of Earth, the moon, and the sun; and
e. historical contributions in understanding the Earth-moon-sun system.




## ROTATION, REVOLUTION, TILT

- Earth completes one **revolution** around the sun every **365 ¼ days**.
- The **moon revolves** around Earth about once every **month**.
- Due to its **axial tilt**, Earth experiences **seasons** during its revolution around the sun.
- The **phases** of the moon are caused by its position relative to Earth and the sun. The phases of the moon include the **new, waxing crescent, first quarter, waxing gibbous, full, waning gibbous, last (third) quarter, and waning crescent.**




## SUN, MOON, EARTH -- SIZE & MAKEUP

- The **sun** is an average-sized yellow star, about **110 times the diameter** of Earth. The sun is approximately **4.6 billion** years old.
- Our **moon** is a small rocky satellite, having about **one-quarter the diameter** of Earth and one-eightieth its mass. It has extremes of temperature, virtually **no atmosphere or life**, and very **little water**.
- **Earth** is one of eight planets that revolve around the sun and comprise the solar system. Earth, the **third** planet from the sun, is one of the four terrestrial inner planets. It is about **150 million kilometers** from the sun.
- Earth is a geologically active planet with a **surface** that is **constantly changing**. Unlike the other three inner planets (Mercury, Venus, and Mars), it has large amounts of **life-supporting water** and an oxygen-rich atmosphere. Earth's **protective atmosphere** blocks out most of the sun's damaging rays.

## HISTORICAL CONTRIBUTIONS

- Our understanding of the solar system has changed from an **Earth-centered** model of **Aristotle** and **Ptolemy** to the **sun-centered** model of **Copernicus** and **Galileo**.



Placed the sun at the center of the solar system


With his invention of the telescope, Galileo found more proof that the sun was the center of the solar system


- The NASA **Apollo missions** added greatly to our understanding of the moon.
- Our understanding of the sun, moon, and the solar system continues to change with new scientific discoveries.