

Earth, Moon, & Sun: Study Guide

Earth in Space

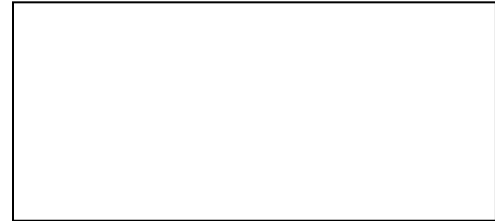
- The Earth rotates about its own axis every 24 hours
- The Earth revolves around the sun every 365 1/4 days

Days and Years

- Day and night fall upon the earth as it rotates about its axis
- One complete revolution of the earth around the sun is called a year

Seasons

- Earth has seasons because its axis is tilted at 23°
- Draw a picture of the earth's position relative to the Sun when it is summer in California



Solstice and equinox

- A solstice occurs only 2 days a year in December and June. These days mark the longest and shortest day (sunlight hours) (respectively).
- The spring and fall equinoxes mark when the earth is neither tilted towards or away from the sun and equal lengths of daytime and nighttime.

Phases of the Moon...

- The moon revolves around the earth every 27.3 days
- The moon also rotates on its axis every 27.3 days
- "Moonlight" is actually reflected from the sun
- The different shapes of the moon are called "phases"

Name 8 different Phases of the moon

New moon waxing crescent

Full moon waning crescent

Waxing gibbous waning gibbous

1st quarter 3rd quarter

- What causes the moon's Phases? Moons revolution around the earth
- The phase of the moon you see depends on how much of the "near" side of the moon faces the Earth.....

Eclipses

- The moon's revolution around the earth is tilted with respect to the earth's orbit...if it wasn't, we would have an eclipse every month!
- A solar eclipse occurs when the moon passes between the earth and the sun, preventing light from reaching the earth.
- A lunar eclipse occurs when the earth is directly between the Sun and the moon
- Unlike solar eclipses, lunar eclipses can be seen from everywhere.

The Tides

- High and low tides result from the moon's gravitational pull on the Earth's waters.
- As Earth spins, the moon's gravity pulls oceans toward the point on Earth's surface facing towards and away from the moon.
- Every day, every location on earth experiences 2 high tides and 2 low tides as the Earth rotates.

Spring and Neap Tides

- When the moon and Sun are in a line (during a new or full moon), their gravitational pull is amplified resulting in a spring Tide.
- When Spring tides occur, high tides and low tides are extremely pronounced.
- When the moon is at a 90° angle to the sun, the gravitational forces are opposed, and a neap tide results.
- This arrangement results in the smallest distance between high and low tides.
- Draw a picture of the earth, moon, and Sun During Spring and Neap tides (respectively)

