

Motions of the Earth, the Moon, and Planets

Earth's Rotation (p. 320)

Copy Figure 1 from your notes.

The apparent motion of the Sun in the sky is caused by the _____ of the Earth on its axis. Earth makes _____ complete rotations in a west-to-east direction each day.

During the rotation, that portion of the Earth that faces the sun experiences _____ and the portion of the Earth that faces away from the Sun experiences _____.

While the Earth spins on its axis it also revolves or travels around the Sun. Earth's orbit, like other planets, is _____.

Define **orbital radius**:

Why is it important?

The _____ and _____ of a planet's orbit affects the time a planet takes to make a revolution around the sun. The further a planet is from the Sun, the _____ it takes to complete its orbit.

Example: Mars takes _____ days to orbit the Sun while Mercury takes _____ days.

Earth's Rotation: The Earth spinning on its axis, takes 24 hours to complete one rotation.

Earth's Revolution: Earth moving around the sun, takes 365.25 days to complete one revolution.

Motions of the Moon (p. 321)

The moon also rotates on its axis. As it rotates, the Moon also revolves around the Earth. Because the Moon takes approximately the same time to rotate as the Earth, the same side of the moon faces the same side of the _____ at all times.

The Forces of Gravity (p. 321)

Define **gravitational force**:

The greater the mass of an objects the _____ the gravitational force.

Sketch Figure 3 from page 321.

Earth's Tilt (p. 322)

Earth's rotational axis is tilted _____ from the vertical. This tilt affects the average daytime temperature experienced by Earth's hemispheres.

Many people believe mistakenly that the Earth's seasons are caused by the Earth's distance from the Sun. The seasons are actually caused by the Earth's _____.

When the Earth is farthest from the Sun, the Northern hemisphere is tilted _____ the Sun and the sunlight spreads over a small area. This causes heating of the Earth's surface.

When the Earth is closest to the Sun, the northern hemisphere is tilted _____ from the Sun, and sunlight must spread over a much larger surface. This causes less heating of the atmosphere.

Sketch Figure 7a from page 323

The northern hemisphere receives more direct sunlight than the southern

Sketch Figure 7b from page 323

The reverse effect occurs when the Earth is tilted away from the Sun.

Define the term ***solstice***:

How often do solstices occur?

Describe the date and what is happening during each of Earth's solstices:

Define the term ***equinox***:

What is the date of Earth's equinoxes?

Phases of the Moon(p. 324)

The moon is illuminated by the _____. However, the illuminated side does not always face Earth, which means the amount of lit Moon that we see can vary. Over a period of about _____, the amount of illuminated surface of the Moon we see follows a predictable pattern. This is called the _____.

During the first half of the lunar cycle the illuminated portion of the Moon _____ (increases in size).

During the second half of the lunar cycle the illuminated portion of the Moon _____ (decreases in size).

				Sketch Figure 11 a) New Moon b) Waxing crescent c) First quarter d) Waxing gibbous e) Full moon f) Waning gibbous g) Third quarter h) Waning crescent

Eclipses (p. 325)

Define **eclipse**:

Solar eclipse: When the moon is aligned between _____ and the _____, it blocks the Sun from being observed from Earth. A solar eclipse is only possible during a _____. During a solar eclipse the _____ remains visible

Copy Figure 13 from page 326 into your notes.

Lunar eclipse: When the Earth is positioned between the _____ and the _____. They can either be partial or full.

Copy Figure 15 from page 326 into your notes.

Tides (p. 327)

Define tides:

What causes 'high tide'?

How many high and low tides are in a day?