**Key Vocabulary: ES 3 – The Solar System & Sun-Earth-Moon Relationships**

Orbit / Revolution – a circular path as in a planet going around the sun or a moon going around a planet. One revolution is one “year.” Orbits are not perfect circles but are oval shaped.

Natural Satellite – a natural object that revolves around something else. The moon is a natural satellite to Earth

Orbital Plane – an imaginary flat plane that the sun and planets sit on. Most planets sit on the same plane except Pluto and comets.

Rotate – to spin on an axis. One rotation is one “day.”

Axis – an imaginary line running through a planet from pole to pole

Terrestrial / Inner Planets - Mercury, Venus, Earth, & Mars. They are relatively small, & made of rock. Each planet has its own unique atmosphere, but Mercury has no atmosphere.

Gaseous / Outer Planets – Jupiter, Saturn, Uranus, & Neptune. They are relatively large, especially Jupiter. They are made of thick gasses (mostly hydrogen) and may have rock cores.

Earth’s Position – Earth is the 3rd planet from the sun and is considered to be in the perfect position for life, mostly because the temperature is right for liquid water.

Asteroid Belt – A ring of rocks orbiting the sun between Mars & Jupiter. These rocks would have made another terrestrial planet but Jupiter’s gravity threw them in different directions.

Pluto – A dwarf planet made of solid ice and rock, part of the Kuiper Belt

Kuiper Belt – a collection of ice and rock orbiting the sun beyond Neptune

Oort Cloud – a very far away, loose collection of icy objects; it is likely where comets come from

Comet – a ball of frozen ice and gases in a very elliptical (stretched-out oval shape) orbit around the sun. It starts to melt & forms tails facing away from the sun when its orbit takes it close to the sun.

Meteoroid – a piece of comet or asteroid debris outside of Earth’s atmosphere

Meteor – asteroid or comet debris that is falling through Earth’s atmosphere. People call them “shooting stars”

Meteorite – a piece of asteroid or comet debris that hit Earth’s surface.

Lunar Phases – The 29.5 day cycle of the moon’s change from new moon to full moon and back. Half of the Moon is always illuminated (lit up) by the sun, but how much of that side we see depends on the moons location around the Earth.

New Moon – When the illuminated side of the moon is not visible from Earth. The moon is high at Noon but is not visible. Order in a line is Sun-Moon-Earth.

Full Moon – When all of the illuminated side of the moon is visible from Earth. The moon is high at midnight. Order in a line is Sun-Earth-Moon.

Solar Eclipse – When the moon blocks the sun, casting a shadow on Earth. Only New Moons can do this and only twice a year.

Lunar Eclipse – When Earth blocks the sun, casting a shadow on the Moon. Only happens to full moons and only twice a year.

Total Solar Eclipse – when the entire surface of the sun is blocked. Only the corona (atmosphere) of sun is visible

Total Lunar Eclipse – When all of the moon is in Earth’s shadow.

Partial Eclipse – When only part of the sun or moon is blocked

Umbra – the totally dark shadow of a total eclipse.

Penumbra – the partially dark shadow of a partial eclipse. The penumbra surrounds the umbra.

Neap Tide – a “weak” set of tides where the high tide is not very high and the low tide is not very low. This happens during 1st and 3rd quarter moon phases because the sun’s gravity is competing with the moon’s gravity.

Spring Tide – a “strong” set of tides where the high tide is very high and the low tide is very low. This happens during full and new moons because the sun and moon work together to pull on high tides.