

Section 1 Days and Seasons on Earth

The Earth revolves around the Sun in **365.25 days**. This is one **revolution** around the Sun and is also known as a **year**. The amount of daylight hours and the Earth's yearly seasons are caused by Earth's **tilt (23.5 degrees)** and Earth's revolution. The Earth rotates on its axis every **23 hours and 56 minutes** and is one **day**. It is the Earth's **rotation** that causes day and night.

During an **equinox**, the Sun is directly over the equator and everywhere on Earth gets equal amounts of daylight and nighttime hours. **Solstices** occur whenever the Sun is farthest north or farthest south of the equator. Because of various latitudes, not all places on Earth experience the same seasonal differences. The equator experiences the least amount of seasonal differences and the poles experience the greatest seasonal differences.

- 1) *What causes day and night on Earth?* _____
- 2) *The number of daylight hours is caused by the _____.*
- 3) *The amount of seasonal change in an area is determined by the location's _____.*
- 4) *What region on Earth does not experience seasonal change?* _____

Section 2 Lunar Cycles

Changes in the Moon's appearance are called the **phases of the moon**. The moon rotates and revolves around the Earth at the same rate and we therefore only see one side of the moon. During this revolution around the Earth, our view, of the lit portion of the moon, changes. As the sunlit portion of the Moon increases it is called **waxing** and as the lit portion of the moon decreases it is called **waning**. The **new moon** is always between the Sun and the Earth and the Earth is always between the **full moon** and the Sun. The new moon is followed, in order by the **waxing crescent, 1st quarter, waxing gibbous, full moon, waning gibbous, last quarter, waning crescent** and then finally the new moon again.

Chapter 10 Test Notes

The moon has a tilted orbit and therefore rarely is involved in a solar or lunar eclipse. During a **solar eclipse**, the moon is aligned between the Earth and the Sun. This causes the moon's shadow to fall on the Earth and block out the Sun. The Moon's shadow is smaller than the Earth so that the solar eclipse is not visible everywhere. Solar eclipses only occur during New Moon phases.

During a **lunar eclipse**, the Earth is aligned between the Sun and the moon and the Earth's shadow is cast over the moon which partially or completely blocks sunlight from reaching moon. A lunar eclipse only occurs during a full moon phase.

- 1) An _____ happens when a celestial body casts a shadow on another celestial body.
- 2) The varying appearances of the moon that are due to changes in the moon's position are called _____.
- 3) Earth's movement and the moon's orbit around the Earth causes the _____.
- 4) A _____ occurs when the shadow of the Earth falls on the moon.
- 5) A _____ occurs when the shadow of the moon falls on the Earth.
- 6) The moon is visible because sunlight is _____ off the side that faces the Earth.
- 7) What name do we give the sliver sunlit portion of the moon? _____
- 8) What name do we give the half sunlit portion of the moon? _____
- 9) What name do we give the mostly sunlit portion of the moon? _____
- 10) Draw and name the 8 moon phases. Start with the new moon phase which is located between the Earth and the Sun.

Section 3 Tides, the Sun, and the Moon

Tides are the daily changes that occur in the level of ocean water. Tides are influenced by the gravitational pull of mainly the moon, but also the gravitational pull of the Sun. Even though the Sun is much more massive and has much greater gravitational pull, it is very far away which decreases its effects. **High tides** occur on the side of the Earth that faces the moon and also on the opposite side of the Earth. Water collects and bulges in these locations and follow the moon in its orbit around Earth. Low tides occur in between these areas of high tide because the water has been drawn away. Typically there are 2 high tides and 2 low tides daily. The timing of the tides is influenced by the rotation of the Earth as well as the revolution of the moon. As an area experiences high and low tide, the difference in water level, between the tides is known as **tidal range**.

Chapter 10 Test Notes

Spring tides are times of extra high tides and extra low tides caused by the moon and Sun being aligned in a straight line with Earth during new and full moon phases. The sun and moon combine their gravitational forces, which results in a stronger pull on Earth's oceans and creates higher tides. In the areas where the ocean waters are pulled from, the resulting low tides are exceptionally lower as well. Spring tides cause increased tidal range.

Neap tides have the smallest tidal ranges and occur during the 1st and last quarters of the moon when and the Sun are perpendicular to the Earth.

- 1) Which tides have minimal tidal range? _____
- 2) Which tides have maximum tidal range? _____
- 3) Tides are caused by _____ forces.
- 4) Spring tides occur during the _____ and _____ moon phases.
- 5) Neap Tides occur during the _____ and _____ quarter moon phases.