Earth and Sun Unit Study Guide- Test on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

You should be able to answer the questions below based on what you have learned over the course of this unit. Below each questions are supporting concepts to be understood in order to understand the full concept.

Please use other resources to study the content such as the Foss textbook which can also be found on [www.fossweb.com](http://www.fossweb.com), the games and tutorials on [www.fossweb.com](http://www.fossweb.com), and the “Investigation Check” packet that we completed and reviewed in class.

**THE SUN:**

* What causes shadows? How and why do they change over the course of the day?
	+ Sun’s position in the sky. Shadows will point in the opposite direction of the sun.
* What causes day and night on Earth?
	+ Earth’s rotation
* Why does the sun appear to move across the sky?
	+ The sun rises in the east sets in the west. We are moving, other objects are stationary.

**PLANETARY SYSTEMS:**

* How can you explain why we see some natural objects only in the night sky, some only in the day sky and some at both times?
	+ Different amounts of light are traveling from these objects, some make their own light (stars), others reflect light from the sun (moons, planets).
* How does the shape of the moon change over a 4 week lunar cycle?
	+ Moon phases, lunar cycle
* How do the parts of the solar system interact?
	+ Objects in the solar system, planets, moons, asteroids etc. Gravity keeps objects in orbit around the sun. The Earth orbits around the sun every 365.25 days.
* Why do stars appear to move across the night sky?
	+ Earth’s rotation
	+ We see different constellations at different times in the year due to Earth’s orbit and it’s changing position in the galaxy.

**EARTH’S ATMOSPHERE:**

* What is air?
	+ Mixture of gases (mainly nitrogen and oxygen) held together by gravity, air has mass, takes up space and is compressible.
* What is Earth’s atmosphere?
	+ Layers of the atmosphere, specifically the troposphere where most of Earth's air is located. .
* What is weather?
	+ Weather variables, troposphere
* How do meteorologists measure and record weather variables?
	+ Weather instruments, units used for measuring different variables.

**HEATING EARTH:**

* What happens to Earth materials when they are exposed to sunlight?
	+ Uneven heating
* Describe the three ways that heat energy can transfer?
	+ Radiation, conduction, convection
* What is a convection current and what is the source of energy that powers it?
	+ Air density
	+ The sun
* What is the best design for a solar water heater?
	+ Solar energy, absorption

**WATER PLANET:**

* What causes condensation to form?
* How does water vapor get into the air?
	+ Evaporation- temperature increase causes rate of evaporation to increase.
* What is the water cycle?
	+ Stages of the water cycle. Be able to draw and label a simple diagram.
* What is the distribution of water on Earth?
	+ How much total water? Salt water? Fresh water? Where can water be found on Earth?
* What is the difference between weather and climate?

**EARTH’S SURFACE:** (Not included in FOSS, these concepts are additional for this year)

* What are the tests geologists use to identify minerals?
	+ (1) color, (2) luster, (3) density, (4) streak, and (5) hardness.
* What is the difference between weathering and erosion?
	+ Weathering is a slow breakdown of Earth’s surface and is caused by wind, rain, and ice.
	+ Erosion is the movement of the broken down rock. It can happen slowly or quickly by wind, running water, ice, humans, gravity or natural disasters.
* What is soil made of?
	+ Organic materials that come from living or once living materials like leaves, dead plants and animals, microbes etc. These materials provide nutrients for the soil.
	+ Inorganic materials that come from weathered rocks and minerals.
	+ Fertile soil has a good balance of organic and inorganic material.