

Solar System Unit Study Guide Answers

1) Understand the **vocabulary** - It is about **usage** of this word in relationship to our Solar System. You should understand these terms. You do not have to memorize definitions word for word.

- Asteroids- **large chunks of rock and metal that orbit the sun between Mars and Jupiter**
- Axis - **an imaginary line through the center of an object; an object rotates (spins) around this line. Earth's axis goes from the North Pole to the South Pole.**
- Comet- **chunks of ice mixed with bits of rock and dust with a long vaporous tail (2 tails actually)**
- Constellation - **pattern of bright stars that appears grouped in the sky.**
- Equator -**imaginary line that splits our planet into 2 equal hemispheres – Northern and Southern**
- Gravity -**unexplainable force that cause attraction between objects. This is the force that keeps our planets and moons in orbit. This is the force that keeps us on the ground on Earth.**
- Meteor- **a piece of an asteroid that has entered Earth's atmosphere and burns up...looking like a shooting star**
- Moon- **a satellite of Earth; it does not make its own light**
- Orbit -**act of traveling around a celestial body; or the path followed by an object moving around a celestial body (revolves)**
- Planet -**object that orbits a star. Our planets are satellites of the sun.**
- Revolve - **the act of an object going around another object; Our moon revolves around our Earth. Our Earth revolves around the Sun.**
- Rotate / Rotation - **To turn around in a circle; to spin; Earth rotates on its axis**
- Satellite - **a celestial body orbiting a planet or the sun. (The moon is a satellite of the earth.)**
- Seasons -**caused by Earth's tilt: spring, summer, fall, and winter**
- Solar System - **all the objects that orbit a sun and the sun itself**
- Star -**a hot, glowing sphere of gasses that gives off light, heat, and energy**
- Sun -**star at the center of our solar system, the *only* star in our solar system**
- Telescope -**instrument to look at objects very far away**
- Crater- **large hole caused by the impact of an object. The moon has many craters due to meteors!**

- 2) What are the characteristics of our sun? **The sun is the center of our solar system, with all the planets revolving around it. It is a yellow dwarf star. It is the source of all heat, energy, and light for our solar system. It is the only star in our solar system. Without the sun we could not survive, nor see anything. We see all things in our solar system because it reflects the sun's light.**
- a) How does it move in our solar system? - **The sun is the center of our solar system and does **not** move.**
- b) How does it influence Earth's Night and Day? – **As the Earth **rotates**, the part that faces the sun experiences day, while the part that faces away experiencing night.**
- c) How does it influence the seasons on Earth? – **Our Earth is **tilted on its axis**. Because it is tilted, one half (Northern or Southern hemisphere) of Earth gets sunlight more directly than the other half depending on where the Earth is in our orbit. The part that gets sunlight more directly is experiencing summer, the part that gets it less directly is experiencing winter. So we experience seasons because Earth is **tilted on its axis** as we **revolve** around our sun.**
- 3) How does Earth move in our Solar System? - **Earth revolves around our sun and rotates (spins) on its axis too. How does Earth's movement cause the days & years? We define our days by how long it takes for Earth to rotate once on its axis – about 24 hours. Our year is defined by how long it takes for Earth to revolve around the sun once – about 365 days.**
- 4) What are the planets in our solar system? (name them in order from the sun)

My Very Excellent Mother Just Served Us Nachos!

Mercury → Venus → Earth → Mars → Jupiter → Saturn → Uranus → Neptune

Mercury is the smallest planet. Jupiter is the largest planet.

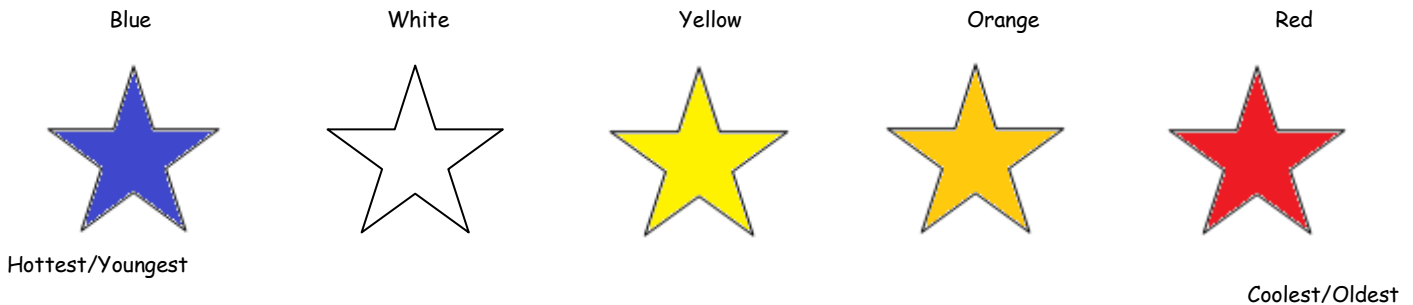
- a) Name the inner and outer planets? Be able to compare and contrast them.

<u>Inner Planets</u>	<u>Outer Planets</u>
Mercury, Venus, Earth, Mars	Jupiter, Saturn, Uranus, Neptune
Rocky, Denser, warmer temperatures	Gas planets, lighter, extremely cold
Smaller, little to no moons	Larger, lots of moons
Fairly short orbit around the sun	LONG orbit around the sun
Rotates more slowly than outer planets	Rotates very quickly compared to inner planets

*The asteroid belt is located between Mars and Jupiter. The asteroids revolve around the sun, just like the planets!

- b) Understand and be able to explain how the distance from the sun influences their orbit and temperature
Planets that are farther away from the sun are colder and take more time to orbit the sun... because they are farther away.

- 5) What are the characteristics of a constellation? **Constellations are the pattern the stars make.** People drew these patterns with the stars (like connect the dots) so they could recognize the stars. The constellations seem to move but in reality, **we are moving** – Earth is rotating and revolving. During the day, they seem to disappear, but they are still there. It is just that we cannot see them with the light from our sun.
- a) What is the relationship between a star's color and temperature? **A star's color can help tell us how hot or how much energy that star has; the hottest stars are blue; the coolest/oldest stars are red.**
- b) What kind of star is our Sun? – **yellow dwarf**
- c) What are the differences between stars and planets? **Stars give off energy - heat & light. They are the source of energy. We only see planets because light from the sun reflects on them.**



Why does the sun appear to be the largest and brightest star in our **solar system**? **It is the only star in our solar system.**

Why does the sun appear to be the largest and brightest star in the **universe** when it is merely a yellow dwarf? **It is the closest star to Earth; therefore it looks larger and brighter.**

6) How do scientist learn, look, and study outer space? **Scientist use many instruments... see below**

- a) What are the different types of telescopes and how are they used? **Telescopes – Optical telescopes use lenses that collect light to see things far off. These instruments make them seem closer and appear bigger so that scientist can study objects in space. Radio telescopes collects, measures, and analysis radio waves.**
- b) What other ways do scientist gain information about outer space? **Space probes have been sent into outer space to collect information and take pictures. Probes do not have people in them. Manned space missions have sent people into outer space to collect information.**

Ways We See Out into Space!!

	Definition	Pros	Cons
Optical Telescope	Distant images are seen by refracting and magnifying light	Affordable and plentiful, excellent for beginners as well as scientists	Gases and water vapor in Earth's atmosphere inhibit images' clarity (being clear)
Radio Telescopes	Gather radio waves from space and magnify them for us to "hear"	Able to detect many deep space unknowns	Need to be extremely large Only detect sources that give off radio waves
Probes	Unmanned space vehicles sent to study the universe	Can go where humans can't	If damaged, difficult to fix
Manned-missions	Space vehicles with human crews	Spark interest in space exploration	Potentially deadly, must also store supplies making the craft heavier

Be sure to review your study file.

Be sure to practice with Quizlet.

Have a parent test you with the Study Guide.