Name_____ Test Date_____ Period_____

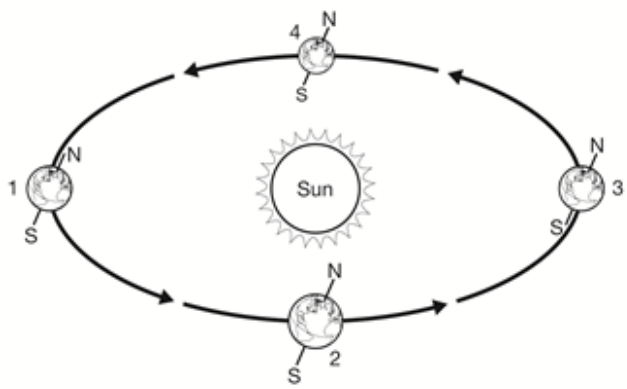
Earth, Sun & Moon Study Guide

Use the word bank to fill in the blanks. Yes, you will use some words twice, if listed twice 😉

28	Day	High	Night	Rotates	Sun
365 ¼	Direct	Large	Partial	Rotation	Total
5	East	Leap	Penumbra	Seasons	Umbra
50%	Equal	Longest	Positions	Shortest	Waning
90	Equal	Low	Reflects	Smallest	Waxing
Axis	Extreme	Lunar	Revolution	Solar	West
Closer	Gravity	Neap	Revolves	Spring	

1. Earth _____, or spins, on an invisible line called an _____. Day and night occur on different parts of the earth because half of Earth is always illuminated by the _____. The half facing toward the sun is experiencing daytime and the half facing away is _____ time. A day on Earth is about 24 hours. Because Earth rotates counterclockwise, the sun and other stars in the sky appear to move from _____ to _____. In fact, they are relatively still in the sky and Earth is spinning to create this illusion!
2. Earth _____, or travels, around the sun on a path called an orbit. It takes _____ days to make one complete revolution. Every 4 years we add a day to the end of February to adjust for the extra 6 hours each year. This is called a _____ year.
3. We have different _____ because Earth's axis is tilted 23.5 degrees. As Earth revolves around the sun, different parts of the planet receive different amounts of _____ sunlight. In the diagram below, notice how the tilted axis creates direct or indirect sunlight and different seasons. If Earth's axis were not tilted, we would not have seasonal changes because the amount of direct and indirect sunlight would not change as Earth revolves the sun. If Earth's axis were tilted more than 23.5 degrees, we would experience more _____ seasonal changes.
4. **Fill the table with the diagram on the right.** These words are NOT included in the word bank.

	Season in the Northern Hemisphere	**Season in the Southern Hemisphere**
Earth #1		
Earth #2		
Earth #3		
Earth #4		



5. Fill in the chart below based on the **Northern Hemisphere**. Refer to the diagram on the front of this paper.

	Winter Solstice	**Vernal Equinox**	**Summer Solstice**	**Autumnal Equinox**
Date	December 21	March 20	June 21	September 23
Amount of day and night	_____ daylight and longest night	_____ daylight and nights	_____ daylight and shortest night	_____ daylight and nights
Which Earth in the diagram matches these details?				

6. The only reason we can see the moon is because it _____ light from the sun. It does not produce its own light! Because the moon is a sphere, like Earth, _____ of it is always illuminated by the sun. The reason we see different phases of the moon from Earth is because of the changing _____ of Earth and the moon compared to the sun. We see those changing phases because of how much of the illuminated half is facing toward Earth. We say a moon is _____ when the illuminated portion appears to be increasing, and we say _____ when it appears to be decreasing.

7. **Label the phases of the moon.** (these words are not in the word bank)

1 2 3 4 5 6 7 8

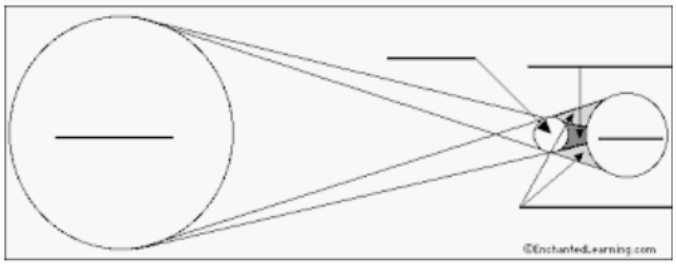
_____ _____ _____ _____ _____ _____ _____ _____

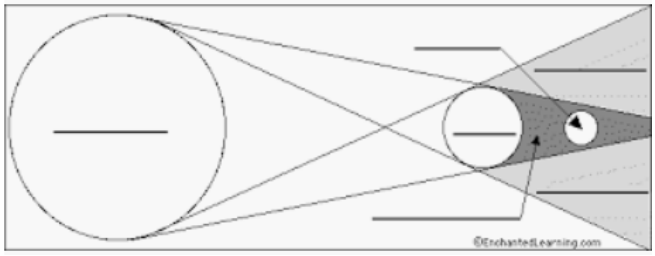
8. From Earth, we can only see one side of the moon because its period of _____ and its period of _____ take the same amount of time. The moon revolves around Earth about every _____ days. We call this a month. It rotates on its axis about every 28 days also.

9. Eclipses happen when the Earth, Sun, and moon all line up. A _____ eclipse happens during the _____ in the new moon phase. The moon must be directly between the earth and the sun for it to block our view of the sun. A _____ eclipse happens at night during a full moon phase –the moon passes through the earth's shadow. We don't see an eclipse with each full moon or new moon because the moon's orbit is tilted _____ degrees. The _____ is the darkest part of the shadow. A _____ eclipse is only visible in the umbra. The _____ is the lighter parts of the shadow, and it creates a _____ eclipse.

10. **Label the parts and identify the type of eclipse show in each diagram**. (these words are not included in the word bank)

Type of eclipse shown below:_____ Type of eclipse shown below:_____





11. Tides are caused on Earth because of the _____ of the sun and the moon. The moon has a greater effect on tides because it is _____ to Earth than the sun. Because Earth rotates faster than the moon revolves around us, most places on Earth have 2 _____ tides and 2 _____ tides every day. There are 2 special days each month when the Earth, sun, and moon are all lined up and the gravity is pulling together. On the new moon and full moon days we get a _____ tidal range. This means there is an extra high high tide and extra low low tide. These are called _____ tides. There is the greatest tidal range (difference between high and low tide) on spring tide days. _____ tides happen on the first quarter and last (3rd) quarter moon days when the gravity of the moon is pulling at a _____ degree angle from the gravity of the sun. This causes not so high high tides and not so low low tides on those days. Neap tide days have the _____ tidal range.

12. **Label <u>2 spring</u> and <u>2 neap</u> tides, <u>full</u> and <u>new</u> moon, <u>first</u> and <u>last</u> quarter moons**: (8 labels in all)