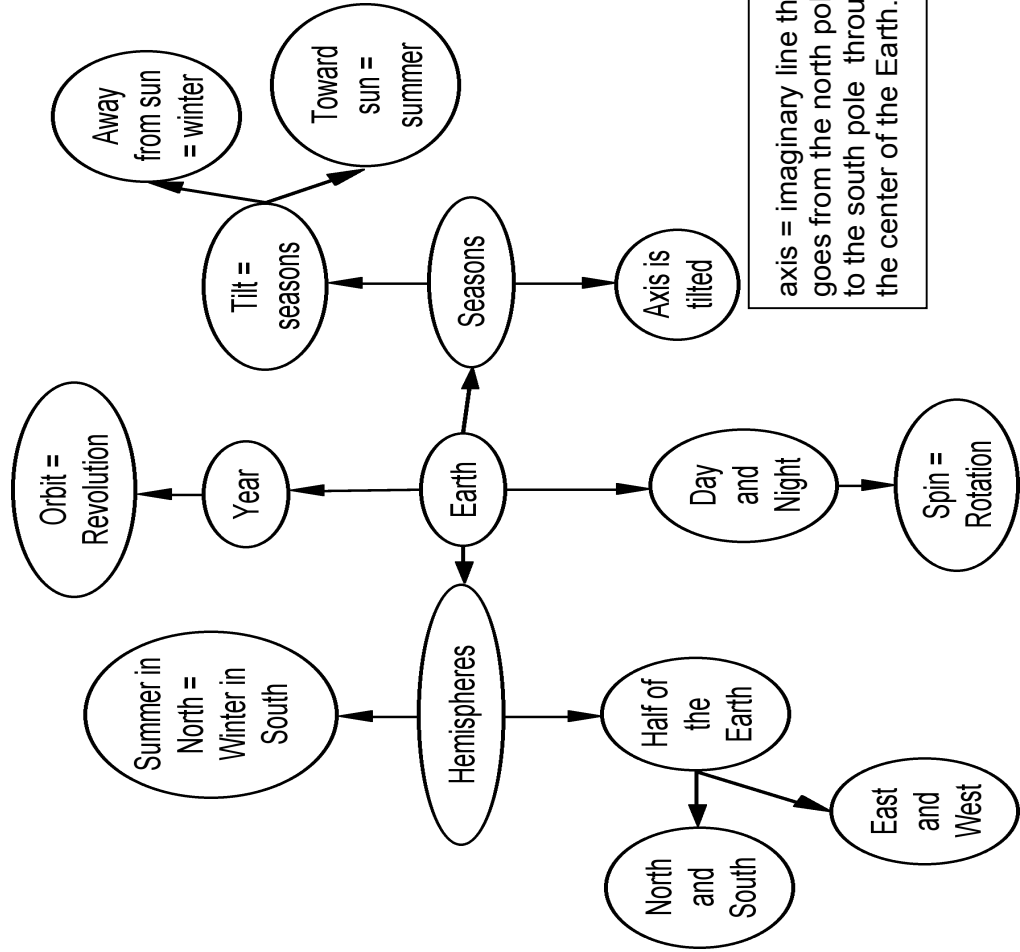


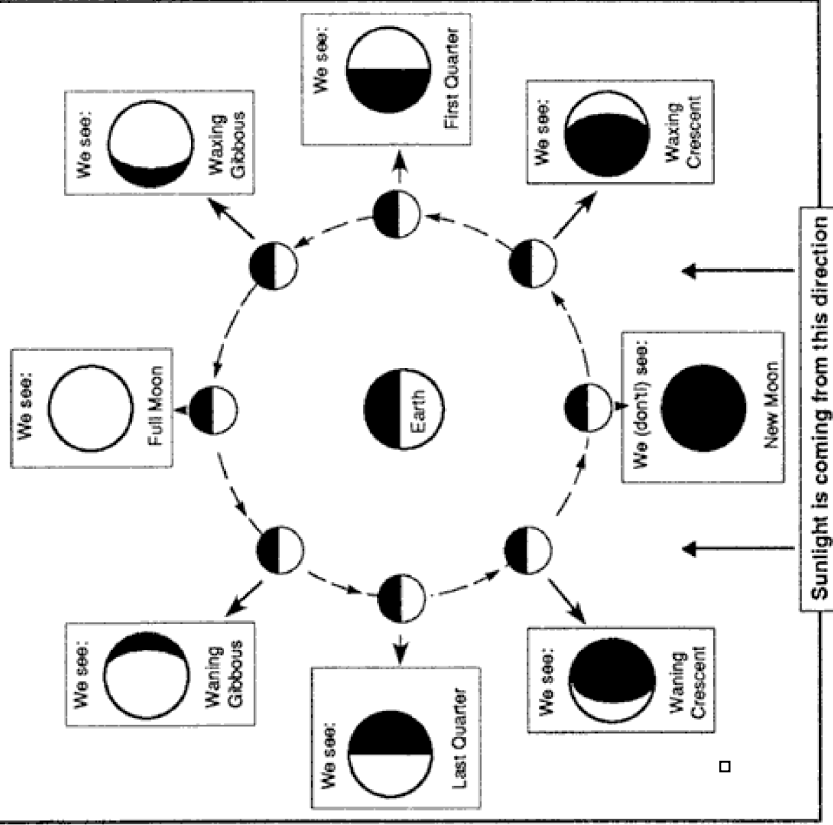
Earth, Moon, Solar System, and Stars Study Guide



axis = imaginary line that goes from the north pole to the south pole through the center of the Earth.

Moon Phases

The moon revolves around the Earth. The sun's light is reflected from the moon to the Earth. The shape of the moon changes by where it is as it orbits the Earth.



Sun Facts:

- All of the heat and light that is needed for life on Earth comes from the Sun.
- The sun's huge gravity pulls all of the planets, asteroids, and comets in the Solar System toward it.
- The sun is a small, yellow star.
- The sun seems to be so big and bright because it is so very, very close to us compared to all of the other stars.

Planets

	Planet	Type	Moons	Rings
Inner Planets	Mercury	Rocky	0	No
	Venus	Rocky	0	No
	Earth	Rocky	1	No
	Mars	Rocky	2	No
Outer Planets	Jupiter	Gas giant	many	Yes
	Saturn	Gas giant	many	Yes
	Uranus	Gas giant	many	Yes
	Neptune	Gas giant	many	Yes

Solar System Facts

The **Solar System** includes all of the objects that orbit the Sun. Pluto used to be called the ninth planet. Now it is called a **dwarf planet** because it doesn't clear other objects from its orbit. A dwarf planet is very small, sphere-shaped, and sometimes has moons. Pluto has one large moon and two very small moons.

Asteroids are rocks that orbit the sun between Mars and Jupiter. Ceres is a dwarf planet that is in the asteroid belt.

Comets are balls of ice, dust, and rock that orbit the sun. When comets get close to the sun they have a **tail** because the ice melts into a gas. The tail always faces away from the sun.

Stars and Technology

Constellations are pictures that people see in the stars. Different cultures have seen different pictures. Some constellations are called the "zodiac." Constellations include the Big and Little Dippers, Orion, and Scorpio.

A **telescope** is used to study objects that are very far away. Telescopes can be **optic** or **radio**, depending on how they look or hear. Space **probes** are robots that are sent to study planets, moons, and asteroids. No space probes have reached a star. No space probes have even reached the edge of the Solar System yet, even though some have been in space for many years. There is a lot of space in space! ☺

Comparing Stars and Planets

* Stars follow a very slow path across the sky because they are so very far away from us.	* Planets follow fast paths compared to stars because they are much closer to us than stars.
* Stars do not orbit the sun.	* All planets in our Solar System orbit the sun.
* Stars stay in their constellations (keep the same picture) as they follow the path.	* Planets will seem to be in different places at different times.
* Stars are spheres of burning gases.	* Planets are spheres. Some are rocky and some are gassy. The gassy planets do not burn like stars.
* Stars come in many colors and sizes.	* Planets come in many colors and sizes.
* There are millions of stars in the galaxy.	* There are eight planets in the Solar System

Other Words to Know

- **Galaxy** ~ all of the solar systems in one region. We are in the Milky Way galaxy.
- **Universe** ~ all of the galaxies put together. It is so huge that it is almost impossible to imagine.
- **Eclipse** ~ when one body blocks the view of another body.
 - A **solar** eclipse is when the moon blocks out the light of the sun.
 - A **lunar** eclipse is when the Earth blocks out the reflected light of the moon.
- **Atmosphere** ~ the "blanket" of air that surrounds the Earth. Most planets do not have atmosphere.
- **Meteor** ~ a rock from space that enters the Earth's atmosphere. It burns up in the atmosphere, making a streak of light, sometimes called a "shooting star" or "falling star." It is not a star.
- **Meteorite** ~ a meteor that doesn't burn up all the way; it hits the Earth. It can leave a crater.
- **Astronaut** ~ a person who goes into space. Russian astronauts are called **cosmonauts**.
- **Space Station** ~ a place where astronauts can work for days or months at a time in space.
- **Space Shuttle** ~ a vehicle that can take astronauts into space and then bring them back to Earth.