Chapter 15 & 16
Science Review
(PATTERNS IN THE SKY, OUR SOLAR SYSTEM)
The **Milky Way** – the galaxy that contains our solar system

Our solar system is a speck in the Milky Way galaxy.
Our solar system

Pluto is now considered to be a dwarf planet.
The sun

- The sun is the center of the solar system. Its massive gravity holds the planets in place.
- The sun is a star.
- The largest object in our solar system.
- The Earth is small compared to the sun.
Inner planets vs Outer planets

**Inner planets:**
- Mercury
- Venus
- Earth
- Mars

**Outer planets:**
- Jupiter
- Saturn
- Uranus
- Neptune

How many planets are there? Count them or use multiplication to figure it out!
Know the differences between the inner and outer planets.

**Inner Planets**
- solid
- rocky
- warmer
- closer to the sun
- smaller
- Mercury, Venus, Earth, Mars

**Outer Planets**
- gaseous
- ringed
- colder
- farther from the sun
- larger
- Jupiter, Saturn, Uranus, Neptune

**Similarities**
- orbit the sun
- planets
- separated by asteroid belt
- in the Milky Way
- in the universe
Be ready to label this diagram with the sun and the 8 planets.

Hint: Sing the song we practiced in class to help you!
Sing the planet song to help you remember the order of the planets!

Answers:

- Sun
- Mercury
- Venus
- Earth
- Mars
- Jupiter
- Saturn
- Uranus
- Neptune
Mercury

- Hot, rocky planet
- First planet from the sun
- Smallest planet
*Venus is one of the brightest objects in the night sky. It can even be seen without a telescope on some nights!

*Even though it is the second planet from the sun, **it is the hottest planet because of its thick atmosphere of carbon dioxide which traps heat.**
Earth

- Third planet from the sun.
- Unique because it can support a variety of life.

**Life can survive on Earth for many reasons:**

- It has the perfect amount of heat and light.
- It has water.
- An atmosphere of oxygen and carbon dioxide in the right amounts.
- Plants can complete photosynthesis only on earth.
Mars

- Has two moons.
- Is reddish-orange due to iron oxide.
- Has a rocky surface.
- The last of the inner planets.
- Besides Earth, the mostly likely planet that people could live someday.
The Asteroid Belt

- Separates the inner planets and the outer planets.
- Located between Mars and Jupiter.
- A large ring of mostly asteroids, or rocky objects.
Jupiter

- The largest planet in our solar system.
- Made of mostly gases.
- The Great Red Spot is a storm that has been going on for about 200 years.
- Look at the size of the Great Red Spot compared to the Earth!
* Even though all of the outer planets have rings, Saturn’s is the most visible.
  - Its ring consists of rocks, ice, and dust.
  - Saturn is mostly made of gases.
Uranus and Neptune

- The 7th and 8th planets from the sun.
- Mostly made of gases. The presence of methane gives both of these planets their blue color.
- Scientists are unsure why Neptune is a darker blue than Uranus.
Earth spins on its axis, or makes one rotation, every 24 hours.

Think about it! What would happen if the earth didn’t spin on its axis every day?
Revolution

- It takes the earth **one year** to orbit, or make one revolution around, the sun.
The seasons

- The Northern and Southern Hemispheres have opposite seasons. When it is winter in one, it is summer in the other one.
- During the earth’s revolution around the sun, it is winter in the Northern Hemisphere when the earth is tilted away from the sun and summer when it is tilted toward the sun.
- Look at the picture. Do you see how it’s the tilt of the earth during its revolution around the sun that causes the seasons?

Illinois is in the Northern Hemisphere, so it receives less sunlight in the winter than in the summer.
The moon orbits around the earth

The moon is closer to the earth than the sun, the stars, or any of the other planets.
How does the moon get its light?

- The light you see from the moon is actually sunlight that shines on the moon and reflects off.
Phases of the moon

You do not need to memorize all of these phases. Just know that each of these is an example of a phase.

It takes the moon about a month to rotate around the Earth.

When you see a full moon, this is just one example of a phase of the moon.

You do not need to memorize all of these phases. Just know that each of these is an example of a phase.
The moon is blocking sunlight during a solar eclipse.

The earth blocks sunlight to the moon during a lunar eclipse.
Telescope

- Believed to have been invented in the 1600’s.
- **Magnifies objects, such as stars and planets, that are far away.**
What causes shade?

- Anything that blocks the sun will cause shade.
- In this picture, the shade under the tree is caused by the tree blocking sunlight.
Constellation

- A group of stars that make a pattern.

The Big Dipper and Little Dipper are famous constellations.