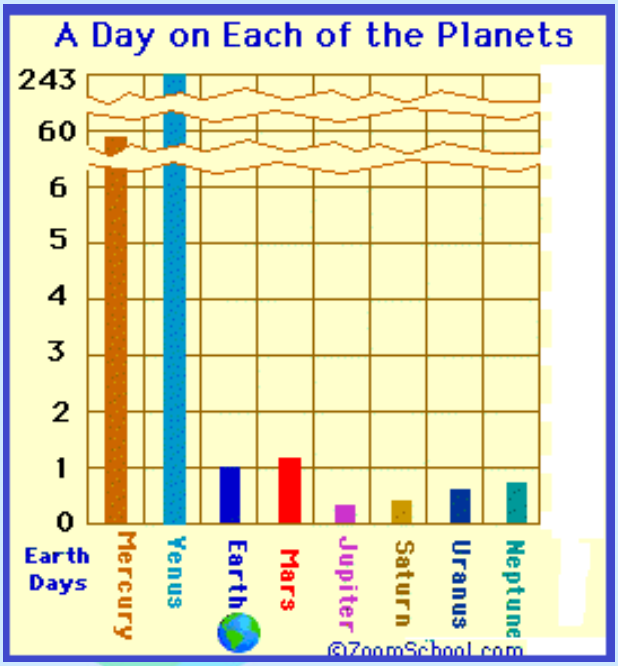
Motion of the Solar System Objects (Planets, Comets, and Asteroids)

1. Examine the data provided in the table below and **discuss the factor** that determines the **length of day** for each of the planets.



The data show the length of day for each of the planets in our solar system.

The length of day depends on how quickly or slowly each planet makes one complete rotation as each spins on its axis.

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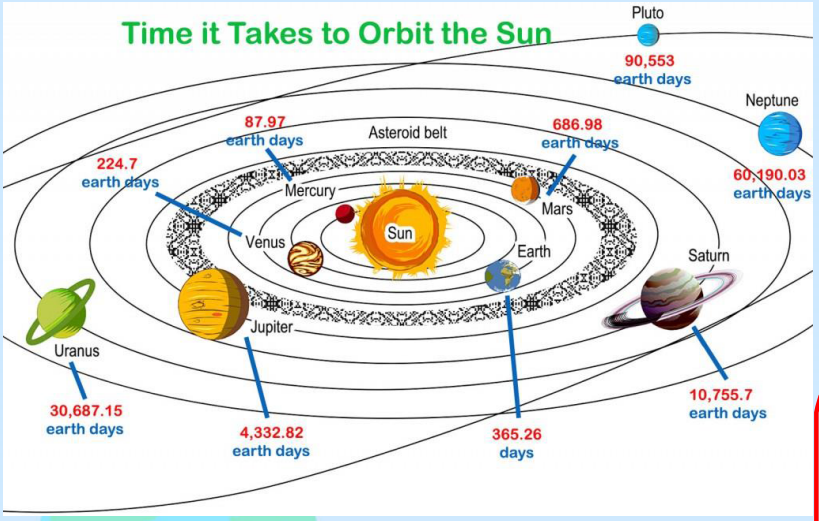
Motion of the Solar System Objects (Planets, Comets, and Asteroids)

2. Examine the graphic below and **discuss the factor** that determines the **length of a solar year** for each of the planets.



The graphic shows how long each planet takes to make one complete revolution around the sun. One complete revolution equals the solar year for that planet.

The farther a planet is from the sun, the longer its orbital path (complete revolution) and therefore the more time it takes to complete a solar year.

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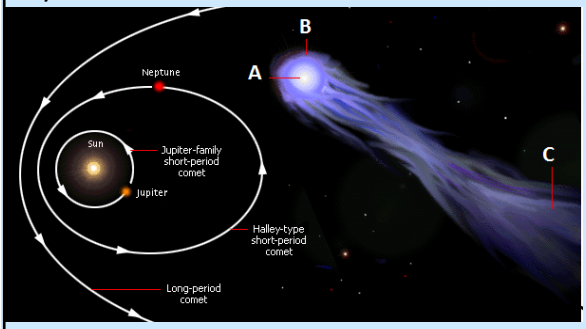
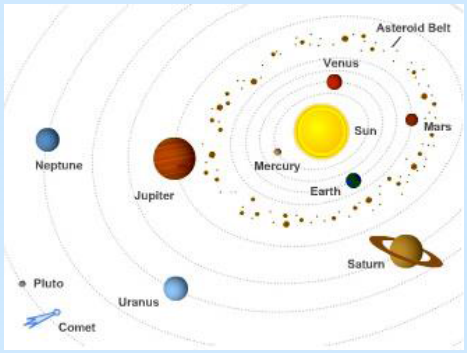
Motion of the Solar System Objects (Planets, Comets, and Asteroids)

3. Examine the graphics below.

a) Referring to the figure to the LEFT, **describe** the **composition** (from what it is made) of a comet and **identify** parts **A**, **B** & **C**.

b) Using the figure to the right, discuss the likely movement of comets through our solar system.





Comets are made of ice and dust.
A shows the NUCLEUS of a comet.
B is the COMA,
C shows the TAIL of a comet which is a trail of gas and dust.

Comets originate (come from) the Ort cloud or the Kuiper belt and cut across the orbital paths of all the planets in our solar system in a severe elliptical path (narrow and long orbit) around the sun.

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Components of the Universe (Galaxies)

4. Examine the graphic below.

Identify and **describe** the **type**, **size**, and **scale**, of the Milky Way Galaxy.

Spiral galaxies have a central bulge surrounded by large spiral arms that wrap around it. Spiral galaxies make up about two-third of the galaxies in the universe visible to scientists.

The Milky Way Galaxy is spiral galaxy. Looking down on it from the top, you would see a central bulge surrounded by four large spiral arms that wrap around it. the Milky Way is about 100,000 light years across but only about 1,000 light years thick. It is the home to our solar system.

SCALE: If our solar system were the size of a quarter, the Milky Way Galaxy would be the size of the United States! Spiral arms curl around the center of our galaxy. The Milky Way Galaxy contains at least 200 BILLION stars and contains enough dust and gas to form billions more. The spiral arms are home to the newer stars.

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Components of the Universe (Galaxies)

5. Examine the graphic below.
Identify and **describe** the type of galaxy shown.

The galaxy shown is an elliptical galaxy.
Elliptical galaxies lack the swirling arms of their more well-known siblings, spiral galaxies.
Instead, they bear the rounded shape of an ellipse, a stretched-out circle.
Some stellar collections are more stretched than others.
Elliptical galaxies are the most abundant type of galaxies found in the universe. However, because of their age and dim qualities, they are frequently outshone by younger, brighter collection of stars.

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Components of the Universe (Galaxies)

6. Examine the graphic below.
Identify and **describe** the type of galaxy shown.

Irregular galaxies are simply all of the galaxies that are not spiral or elliptical.
They can look like anything and have many different characteristics.
Many irregular galaxies probably were originally spiral or elliptical that changed as a result of a collision with another galaxy.
Other irregular galaxies were never spiral or elliptical; they simply didn't evolve that way.

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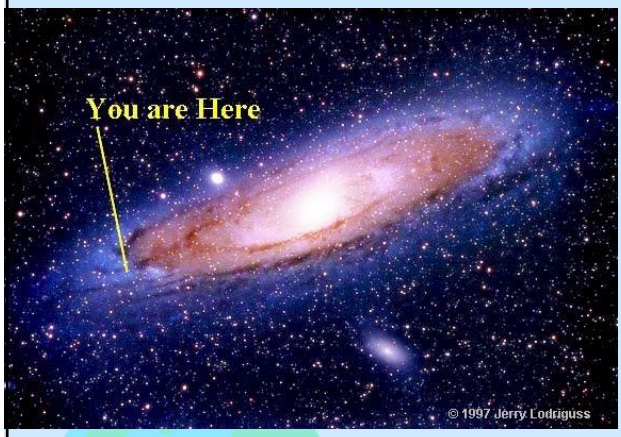
Components of the Universe (Galaxies)

7. Examine the graphic below.
Identify and **describe** all of the relationships you see in the view of part of the universe, which features our galaxy, pictured below.



Our galaxy, the Milky Way Galaxy, is a spiral galaxy with hundreds of billions of stars.
Our solar system is a tiny part of one of the arms that radiate from the thick, dense center bulge.
Our galaxy is one of billions of galaxies that make up the universe.
Many of these galaxies appear in the night sky as faint spots of light that look like individual stars but are clusters of billions of stars so far away, the light we see has traveled billions of years across the universe.

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Motion of the Solar System Objects (Planets, Comets, and Asteroids)

8. Examine the graphics below.
a) Discuss the limitations of the way in which the solar system models are illustrated below.
b) Identify and describe the pattern of movement of all objects in our solar system and the force responsible for that movement.

The left graphic represents the scale of the sun and planets relative to one another but does not represent the distances between them.
The graphic on the right tries to represent the distance between each celestial object but overstates their relative sizes.
The sun's enormous mass keeps all of the celestial objects in our solar system from hurtling off into space in a straight line and holds them in elliptical orbits around it.

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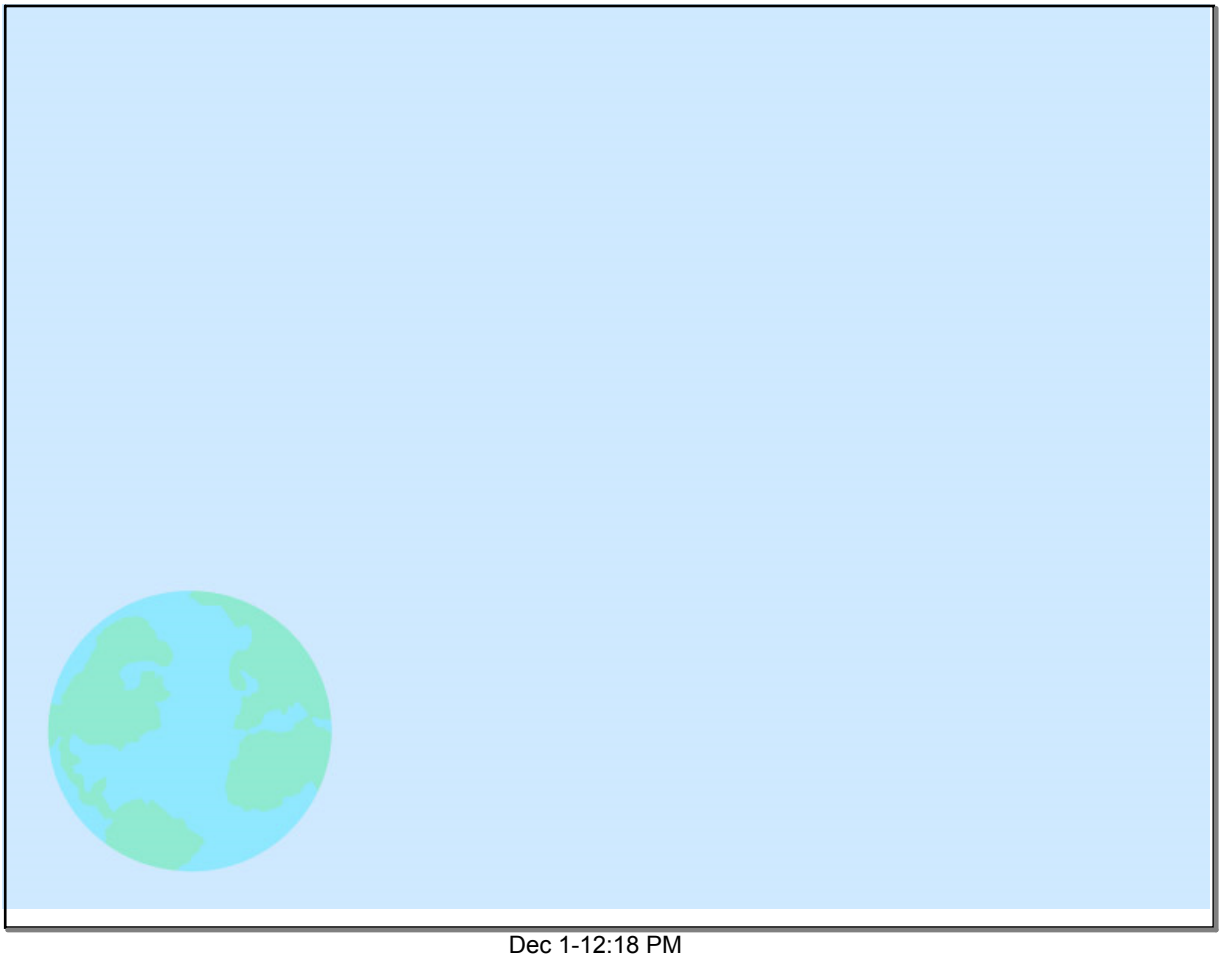

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