

**GIMNASIO LOS PINOS  
SCIENCE DEPARTMENT  
FOURTH GRADE**

**Astronomy**



The word “astronomy” comes from the Greek words “astron” (which means star) and “nomos” (which means law). Astronomy is the study of celestial objects like stars, planets, galaxies, and comets. It is one of the oldest sciences. Early astronomers would study the night sky with the naked eye, and the invention of the telescope was needed in order for astronomy to become a modern science. Galileo was credited with improving the telescope, which allowed astronomers to see the celestial bodies more closely. This enabled them to make more accurate observations of celestial bodies like stars.

What is a star anyway? A star is a ball of plasma that is held together by its own gravity. The sun is the closest star to Earth, and it is located roughly 93 million miles from Earth. The sun is also the primary source of Earth’s energy. Energy from the sun (which is received in the form of sunlight) supports most of the life on Earth because it is the source of photosynthesis. It takes about eight and a half minutes for light to travel from the sun to Earth. The sun is also responsible for Earth’s weather and climate.

A planet is a celestial body that orbits a star and has enough mass to be rounded by its own gravity. There are eight planets in our solar system. In order of proximity to the sun, they are: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune. Pluto was once considered to be the ninth planet in our solar system, but was re-classified as a dwarf planet based on more recent findings. In addition to Pluto, there are four other dwarf planets in our solar system. They are: Ceres, Makemake, Haumea, and Eris.



One of the differences between a dwarf planet and a regular planet is size. Dwarf planets are considerable smaller than regular planets. Regular planets clear smaller objects from their orbit by pulling the small bodies into themselves or by flinging them out of orbit. Dwarf planets have weaker gravities and are not able to clear their own orbits.



A galaxy is a system that is extremely large and gravitationally bound. This system is made up of stars, an interstellar medium of gas and dust, and dark matter. Earth is in the Milky Way galaxy. The Milky Way is a spiral galaxy. A spiral galaxy is one that has a rotating disk of stars and a bulge of stars in its center. These stars are usually older stars. In addition to spiral galaxies, some of the other types of galaxies are known

as: elliptical galaxies, peculiar galaxies, dwarf galaxies, and starburst galaxies.

One of the other celestial bodies studied in astronomy are comets. Comets are small bodies that orbit the sun and have a “tail” when they are close enough to the sun. This “tail” is mainly caused by the effects of solar radiation on the comet’s nucleus. One of the most well-known comets is Halley’s Comet, which is usually seen every 75-76 years. It may seem that 75-76 years is a long time, but Halley’s Comet is considered to be a short- period comet. It is the only short-period comet that is visible to the naked eye.

## Astronomy Questions

### Multiple Choice:

1. Astronomy studies all of the following EXCEPT:

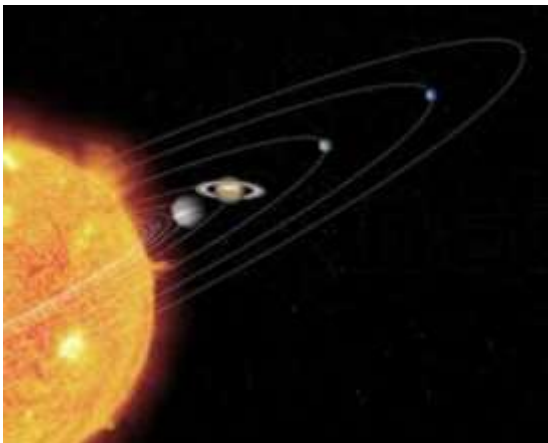
- a. galaxies
- b. stars
- c. clouds
- d. comets

2. Which of the following is NOT a dwarf planet:

- a. Pluto
- b. Eris
- c. Makemake
- d. Mercury



3. Please list the planets in order of proximity to the sun:



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### Matching:

- |           |                                                                                 |
|-----------|---------------------------------------------------------------------------------|
| 3. Star   | a. small bodies that orbit the sun and have a visible "tail"                    |
| 4. Comet  | b. a ball of plasma that is held together by its own gravity                    |
| 5. Planet | c. a system that is extremely large and gravitationally bound                   |
| 6. Galaxy | d. a celestial body that orbits a star and has enough mass to be round in shape |