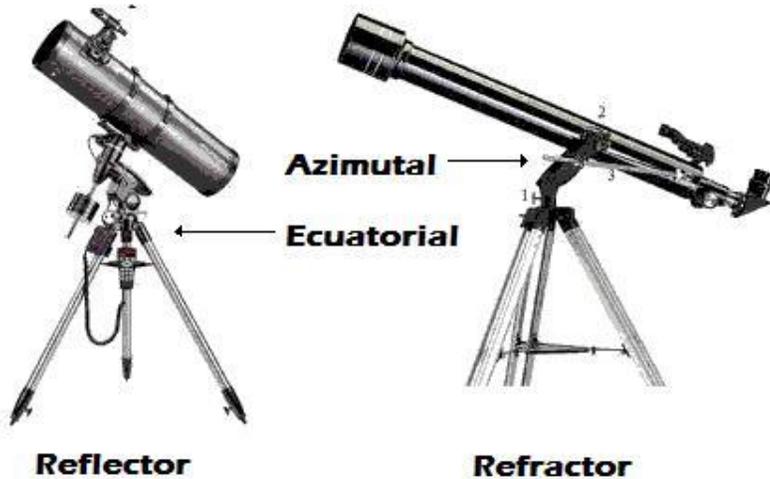


What are the different types of telescopes?

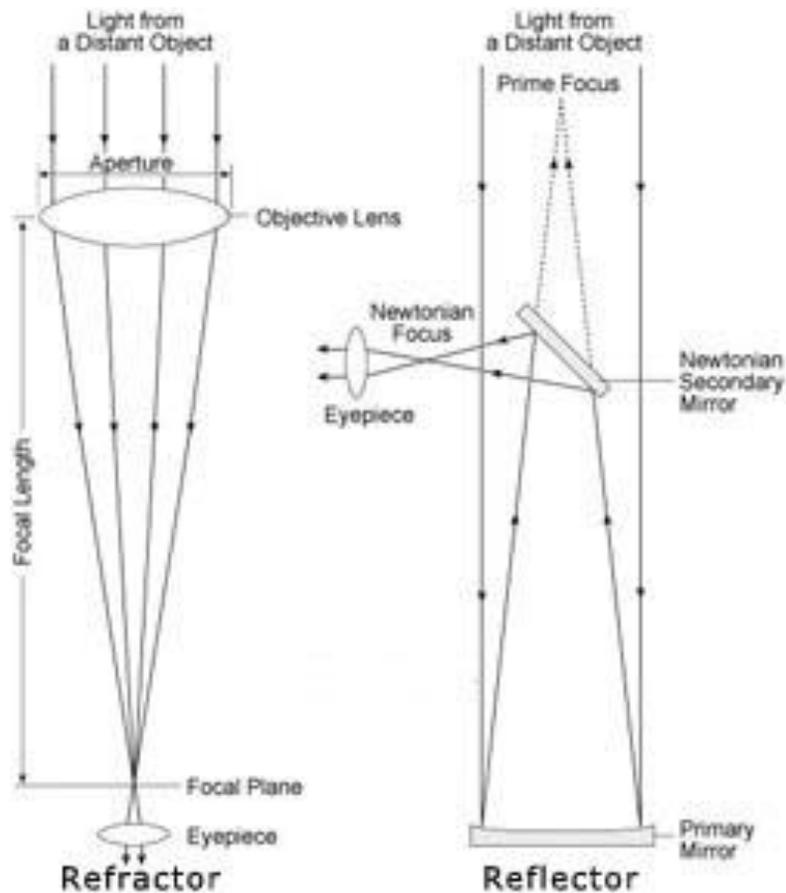
A **reflecting telescope** (also called a reflector) is an optical telescope which uses a single or combination of curved mirrors that reflect light and form an image. The reflecting telescope was invented in the 17th century as an alternative to the refracting telescope which, at that time, was a design that suffered from severe chromatic aberration. Although reflecting telescopes produce other types of optical aberrations, it is a design that allows for very large

diameter objectives. Almost all of the major telescopes used in astronomy research are reflectors. Reflecting telescopes come in many design variations and may employ extra optical elements to improve image quality or place the image in a mechanically advantageous position. Since reflecting telescopes use mirrors, the design is sometimes referred to as a "catoptric" telescope.

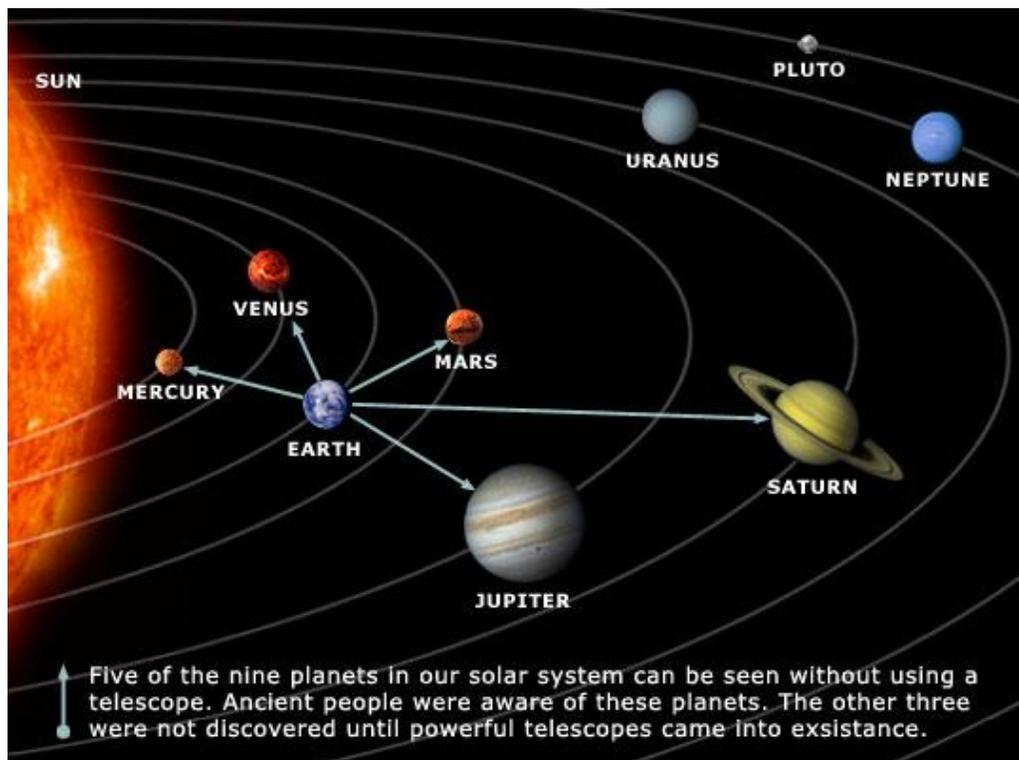


A **refracting telescope** (also called a refractor) is a type of optical telescope that uses a lens as its objective to form an image (also referred to a dioptric telescope). The refracting telescope design was originally used in spy glasses and astronomical telescopes but is also used for long focus camera lenses. Although large refracting telescopes were very popular in the second half of the 19th century, for most research purposes the refracting telescope has been superseded by the reflecting telescope which allows larger apertures. A refractor's magnification is calculated by dividing the focal length of the objective lens by that of the eyepiece.

The one you shall use throughout the science club will be the reflector telescope.



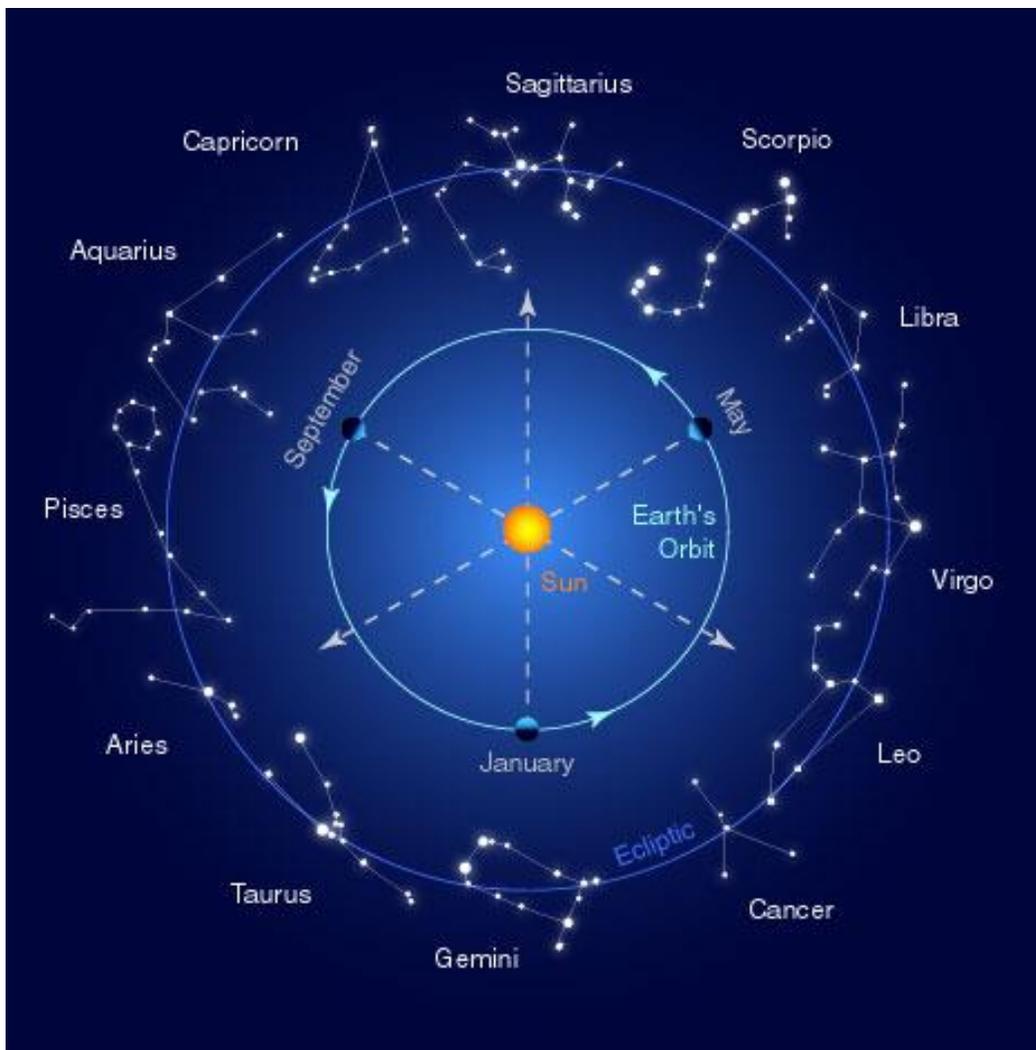
Astronomy is a natural science that studies celestial objects and phenomena. It applies mathematics, physics, and chemistry, in an effort to explain the origin of those objects and phenomena and their evolution. The objects of interest include planets, moons, stars, galaxies, and comets; while the phenomena include supernovae explosions, gamma ray bursts, and cosmic microwave background radiation. More generally all astronomical phenomena that originate outside Earth's atmosphere is within the pervue of astronomy. A related but distinct subject, physical cosmology, is concerned with the study of the Universe as a whole. Astronomy is the oldest of the natural sciences. The early civilizations in recorded history, such as the Babylonians, Greeks, Indians, Egyptians, Nubians, Iranians, Chinese, and Maya performed methodical observations of the night sky. Historically, astronomy has included disciplines as diverse as astrometry, celestial navigation, observational astronomy and the making of calendars, but professional astronomy is now often considered to be synonymous with astrophysics. During the 20th century, the field of professional astronomy split into observational and theoretical branches. Observational astronomy is focused on acquiring data from observations of astronomical objects, which is then analyzed using basic principles of physics. Theoretical astronomy is oriented toward the development of computer or analytical models to describe astronomical objects and phenomena. The two fields complement each other, with theoretical astronomy seeking to explain the observational results and observations being used to confirm theoretical results. Astronomy is one of the few sciences where amateurs can still play an active role, especially in the discovery and observation of transient phenomena. Amateur astronomers have made and contributed to many important



astronomical discoveries, such as finding new comets.

A constellation is formally defined as a region of the celestial sphere, with boundaries laid down by the International Astronomical Union (IAU). The constellation areas mostly had their origins in Western-patterns of traditional stars from which the

origins in traditional stars from



constellations take their names. In 1922 the International Astronomical Union officially recognized the 88 modern constellations, covering the entire sky. They began as the 48 classical Greek constellations laid down by Ptolemy in the *Almagest*. Constellations in the far southern sky are late 16th- and mid 18th-century constructions. 12 of the 88 constellations compose the zodiac signs, though the astronomical positions of the constellations only loosely match the dates assigned to them in astrology. The term constellation can also refer to the stars within the boundaries of that constellation. Notable groupings of stars that do not form a constellation are called asterisms. When astronomers say something is “in” a given constellation they mean it is within those official boundaries. Any given point in a celestial coordinate system can unambiguously be assigned to a single constellation (but see *Argo Navis*). Many astronomical naming systems give the constellation in which a given object is found along with a designation in order to convey a rough idea in which part of the sky it is located. For example, the Flamsteed designation for bright stars consists of a number and the genitive form of the constellation name.