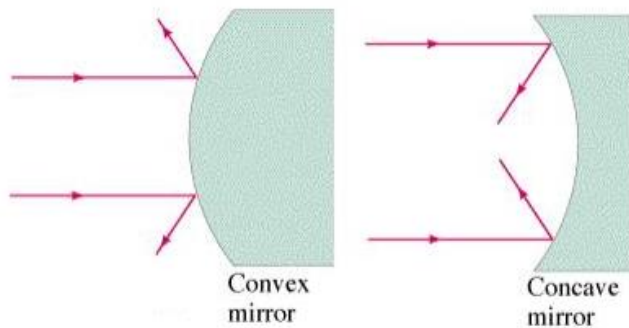


Name_____

Telescopes

- How does a telescope work?
 - collects light from a distant object and focuses it to form an image
 - in the 1800's photography was invented and used by astronomers to take pictures
 - in the early 20th century, astronomers designed telescopes to record images on photographic plates
 - in the 1980's charge-coupled devices (CCD) were invented, which allowed images to be recorded digitally
 - by the end of the 20th century, all research telescopes used CCD's

- Light Collection

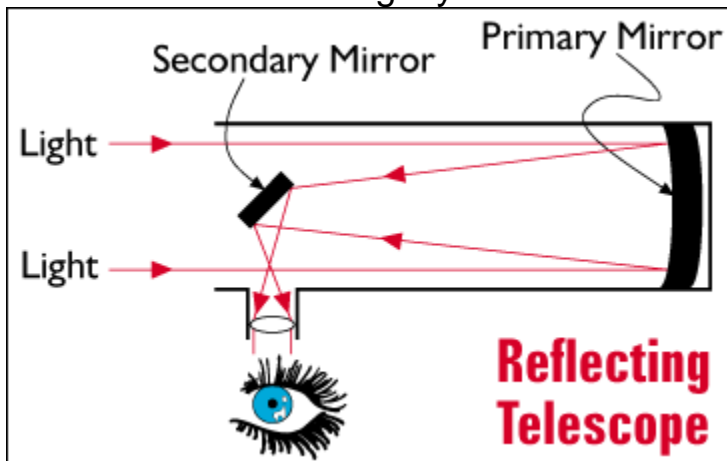


- the bigger the convex lens or concave mirror, the more light it can collect
- the more light it collects, the fainter the objects it allows us to see
- telescopes allow us to see more because their mirrors and lenses can collect more light than the human eye can collect on its own (human eye = small convex lens)

- Focus Light and Create Image

- to create an image, lenses and mirrors bring light rays to meet at a single point called the focal point
- if light rays don't meet at the same point then the image is blurry
- the shape of the lens or mirror is designed to make light rays meet at a single focal point

- Recording Image
 - original observations were recorded by hand
 - CCD-electronic light sensing devices that record images
- Reflecting Telescopes
 - also called Newtonian
 - use 2 mirrors to magnify what is viewed



- Refracting Telescope
 - first invented by Hans Lippershey in 1608
 - large primary lens does most of magnification
 - use 2 lenses to magnify what is viewed

