# How does a Telescope Work?

A telescope makes faraway objects look closer and lets you see them better. This text explains how a telescope works.

## Why do we need a telescope?

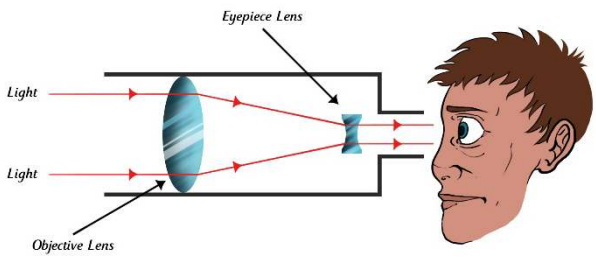
When things are faraway, the pupil of your eye does not allow enough light to enter. This means that you can not see the object in enough detail. Also, a faraway object projects only a tiny image onto the back of your eye. A telescope improves your vision in two ways. Firstly, the large end of the telescope collects lots more light from the object you are looking at. Secondly, the eyepiece of the telescope magnifies the small image, allowing you to see a bigger, more detailed image.

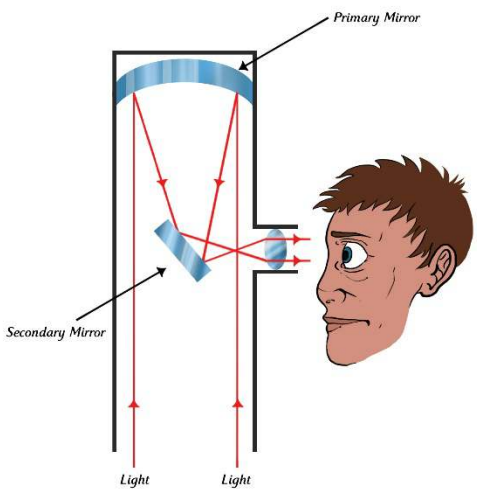
## Optical telescopes

Optical telescopes observe visible light from space. Small ones allow amateur astronomers to study the night sky. In addition to this, there are some rather large optical telescopes positioned around the world. These are used by professional astronomers. There are two main types of optical telescope. The refractor telescope uses a glass lens, whilst the reflection telescope uses mirrors.

## The refractor telescope

A refractor telescope collects light through a special lens called an objective lens. When you look at a faraway object, like a star, the objective lens collects the light from that object. Next, the light travels along the telescope and through an eyepiece. Finally, the eyepiece acts like a magnifying glass, making the object look bigger.




## The reflection telescope

A reflection telescope collects light through a mirror called a primary mirror. Again, the light travels through the telescope to the eyepiece. Finally, the eyepiece acts to make the object look bigger.

## Bigger images

The smaller the objective lens or the primary mirror, the less light it can collect. This means that you see a smaller and less detailed image. The bigger the objective lens or the primary mirror, the more light it can collect. This means that you see a larger and more detailed image.

## Did you know?

The Hubble Space Telescope is one of the most famous optical telescopes in the world. It was sent into space in 1990 and orbits the Earth at a speed of 5 miles per second. Every 97 minutes, Hubble completes a spin around the Earth, taking pictures of planets, stars and galaxies as it goes.

## Text Marking

1. Underline the technical words in blue.
2. Draw a green line around the sub-headings.
3. Draw a red line around the labelled diagram of a refractor telescope.
4. Draw a purple line around the labelled diagram of a reflection telescope.
5. Draw a pink line around the opening statement.
6. Underline the adverbials of time in yellow.

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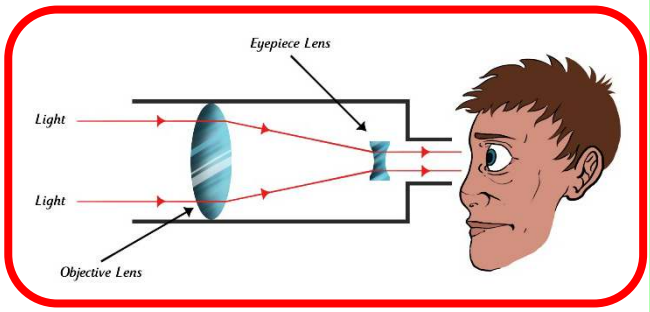


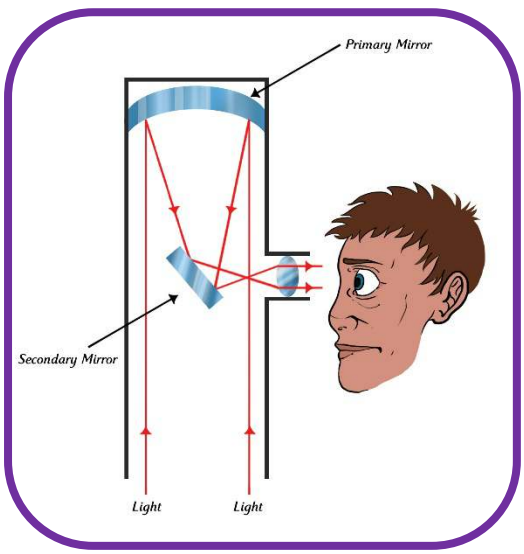


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