Telescope

Apparatus

small astronomical (refracting) telescope, and/or cut open telescope showing the arrangement of lenses

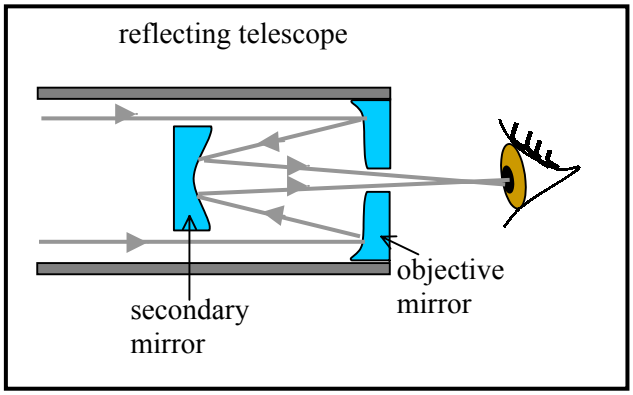
Action

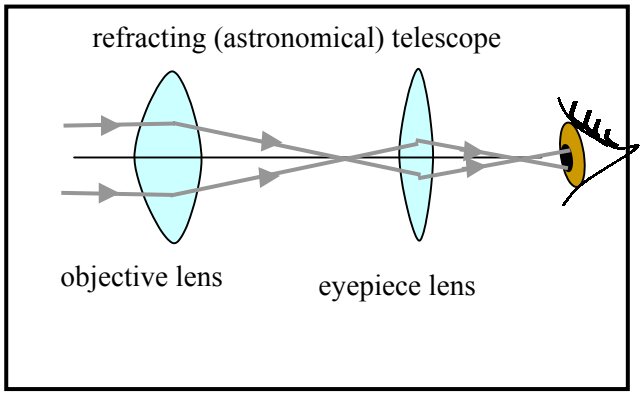
The students look through the telescope, and identify the type of image that they see. They should identify the type of telescope they have, and draw a schematic diagram showing the main optical elements.

The Physics

A telescope is used to look at (relatively) large objects a long way away. The telescope on the left is a reflecting telescope. It uses concave mirrors to produce a real, enlarged image at the eye. Rays from a distant object come in approximately parallel and are converged by the mirrors. The telescope on the right is a refracting telescope, also called an astronomical telescope. This telescope uses a pair of convex lenses to produce a real, enlarged, upright image. The focal length of the eyepiece should be much smaller than the focal length of the objective lens.

The telescope that you used was a refracting telescope. This is the common sort of simple astronomical telescope or spotting telescope.





Accompanying sheet

Telescope

Look at the diagrams shown.
What sort of telescopes are these? Explain how they work.

Now examine the telescope on display.
Use the telescope to view a distant object out the window.
What sort of telescope is this?