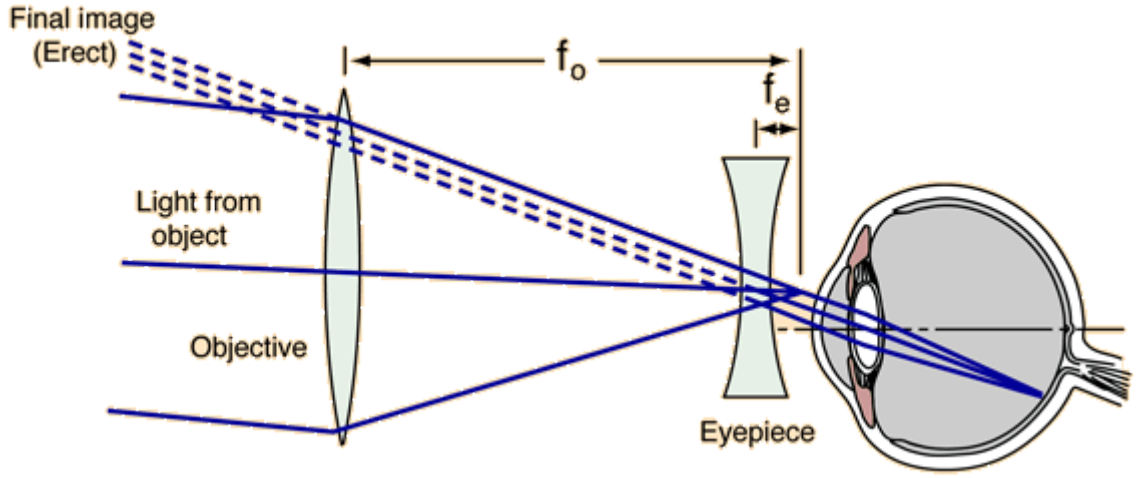
Name:

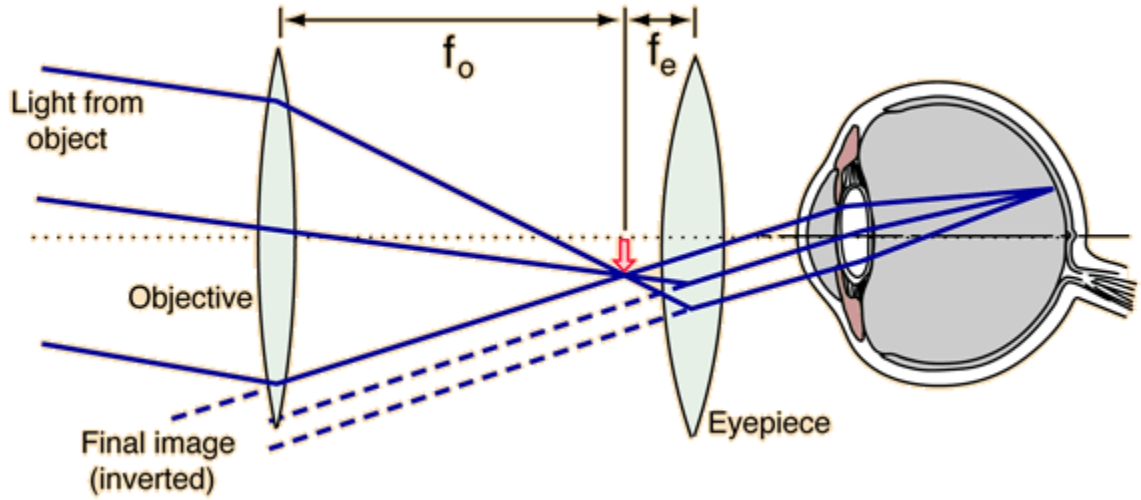
Telescopes

I'm sure we all have some idea of what a telescope is, usually a tube of some kind with lenses and mirrors inside of it that make far away objects visible. Today we will be making telescopes using a handful of optics. The two types of telescopes we'll investigate today are the Galilean and Keplerian telescopes. The Galilean telescope uses one diverging lens as the eyepiece and a converging lens as the objective lens. The Keplerian telescope use two converging lens to create an inverted image. In both cases the magnification of the telescope is given by $M = -\frac{f_o}{|f_e|}$

Galilean Telescope



Keplerian Telescope



Questions:

1) Which type of telescope did you find easier to work with?

2) If you use a telescope backwards by shining a light through the eyepiece it can work as a beam expander. Which telescope design would be better for this?

3) What is one issue you came across when assembling your telescope?

4) Why do large astronomical telescopes use mirrors not lenses?