Lenses – Concave and Convex

Apparatus

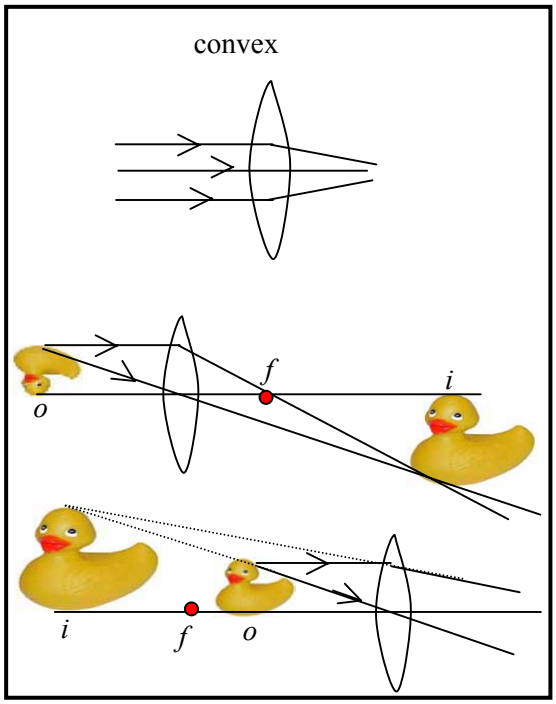
selection of lenses, collimated light source, e.g. light box or pencil torch

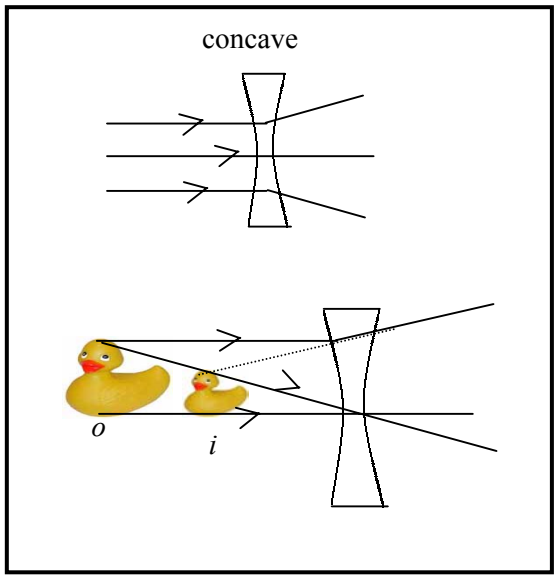
Action

The students observe the effect on light passing through the various lenses. They should try to describe any images they form in terms of magnification, upright or inverted, real or virtual. They should determine from the image produced whether a lens is concave or convex, and converging or diverging.

The Physics

Convex lenses are converging lenses, and concave lenses are diverging lenses. See diagram below. A convex lens gives a real, inverted image if the object is outside the focal length of the lens. It will give a virtual upright image if the object is within the focal length. A concave lens gives a virtual upright image.





Accompanying sheet

Lenses – Concave and Convex

Observe how the different lenses change the direction of the light rays.

Feel the different shapes and relate the shapes to the effect of the lens.

Which ones are converging? Which ones are diverging?