SCIENTIFIC UK

UO-32 LASER RAY KIT

Futures

- ♦ Using red laser light instead of normal light with slits.

beams are parallel and clear

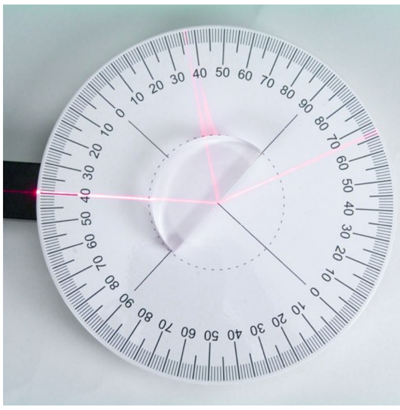
- ♦ One, three or five laser beams can be selected
- ♦ Laser line give better results than dot.
- ♦ More than two hours operation on chargeable battery .

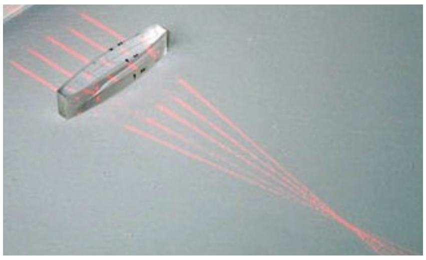
The Kit can use in:

- ♦ Demonstrating the laws of reflection and of refraction in optics.
- ♦ Demonstration of normal , short distance vision and long distance vision of the eye , and its correction
- ♦ Demonstration of telescopes
- ♦ Demonstration of camera
- ♦ Demonstration of microscopes
- ♦ The Laser Ray Box is provided with magnetic bake which enables the user to fit it on any white metal board .
- ♦ The basic kit comes with six optical elements, charger, user and safety manual and the laser ray box all in plastic case .

Using the single laser beam in demonstration of refraction laws and internal reflection .

Three and five laser beans can demonstrate almost all lens phenomena and simple optical instruments .





Ordering information:

- **UO-32**: Ray box kit (ray box, six optical elements, charger and manual in plastic box)
- **UO-32A**: Ray box only with charger and manual
- **UO-32E**: Demonstration kit for eye (sketch of eye on magnetic paper so can mount easy on white board with set of lenses for perfect, short distance, long distance eye and its corrections)
- **UO-32C**: Demonstration kit for camera (sketch of camera on magnetic paper so can mount easy on white board with lens)
- **UO-32T**: Demonstration kit for telescopes (sketch of Galileo and Kepler telescopes on magnetic paper so can mount easy on white board with lens)
- **UO-32M**: Demonstration kit for a microscope

UK-SCIENTIFIC Ltd, BCR House, 3 Bredbury Business Park, Stock Port, SK6 2SN, UK.

www.uk-scientific.com, info@uk-scientific.com, tel : +447535791005

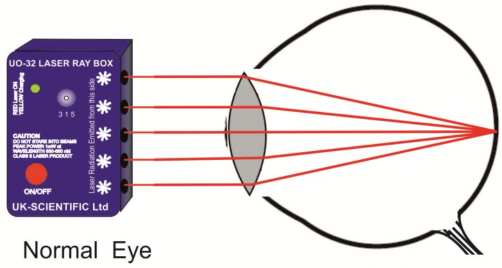
Human eye demonstration kit

The kit designed for demonstrating the basic principles of the human eye , a perfect eye , short distance and long distance eye modules with a correction method for each is demonstrated in this kit.

The kits supplies with set of lenses ; perfect, short distance, long distance , correction for short distance and correction for the long distance with magnet on its back so can fit on any white board . And an sketch of an eye on a

Normal Eye

Normal or perfect eye focuses the light to the retina

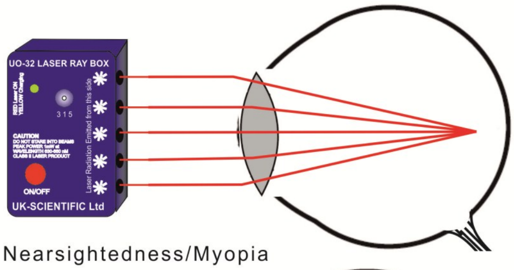


Normal Eye

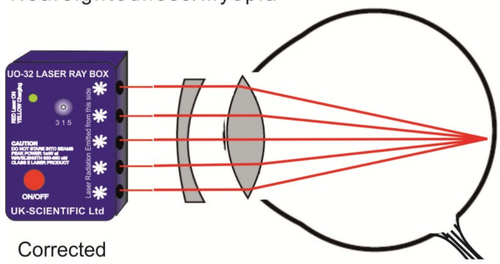
Nearsightedness

When the eyeball is too long or the cornea has too much curvature, light entering the eye is not focused properly. In a nearsighted eye, the cornea is too steeply curved for the length of the eye, causing light rays to focus in front of the retina. Distant objects appear blurred or fuzzy because the light rays are not in focus by the time they reach the retina. The greater the myopia, the more the light rays converge and the more blurred distant objects appear.

Near objects, viewed at the proper distance, can be seen clearly because the focus of their light rays matches the refractive error of the nearsighted eye.



Nearsightedness/Myopia

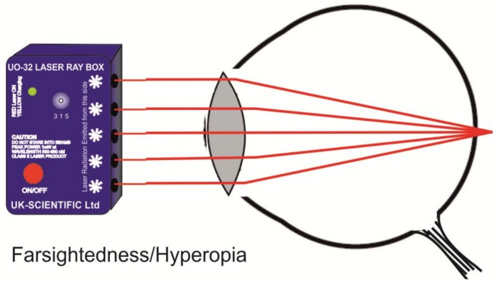


Corrected

Farsightedness

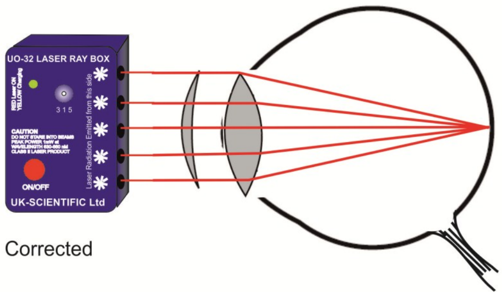
Farsightedness, or hyperopia, as it is medically termed, is a vision condition in which distant objects are usually seen clearly but close ones are not brought into proper focus. If the length of your eyeball is too short or the cornea has too little curvature, near objects cannot be brought into a sharp and clearly focused image.

hyperopia occurs when the eye is too short for the power of its optical components. In hyperopia, the cornea is not steep enough and light rays hit the retina before they come into focus. Distant objects appear blurred, and nearby objects are even fuzzier. Most farsighted individuals need corrective eyewear to see clearly at all distances.



Farsightedness/Hyperopia

Correction of hyperopia requires a lens, which is convex (i.e. thicker in the middle than the edges). This acts as a magnifier, and causes objects to appear bigger by 2% per diopter. For this reason hyperopes while wearing their spectacle correction, appear to have "big" eyes. Optical aberrations and decreased peripheral vision occur are likely to occur with large amounts of hyperopia. It is typically in the +1.00 to +4.00 diopter range, rarely it can be as high as +8.00 diopters.



Corrected

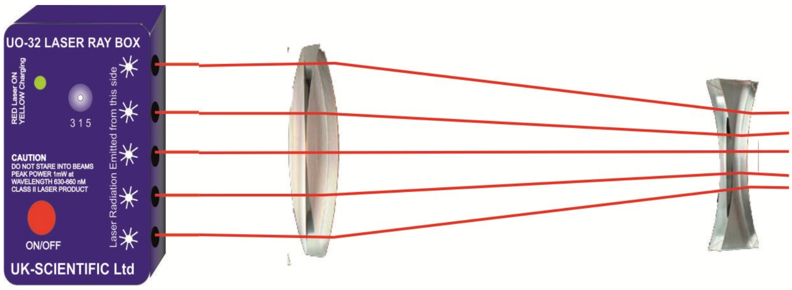
SCIENTIFIC Optical instruments kit

The kit demonstrate some common known optical instruments, as Galileo telescope, Keplar telescope, microscope and camera. From the ray tracing the differences between the above instruments can be shown clearly,

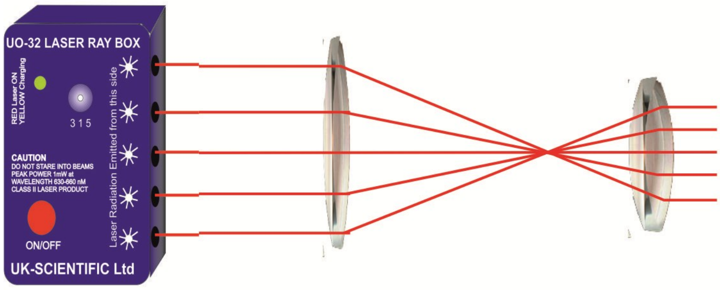
The kit includes templates for the above instruments to make the understanding of the inner work more easy .

Telescopes

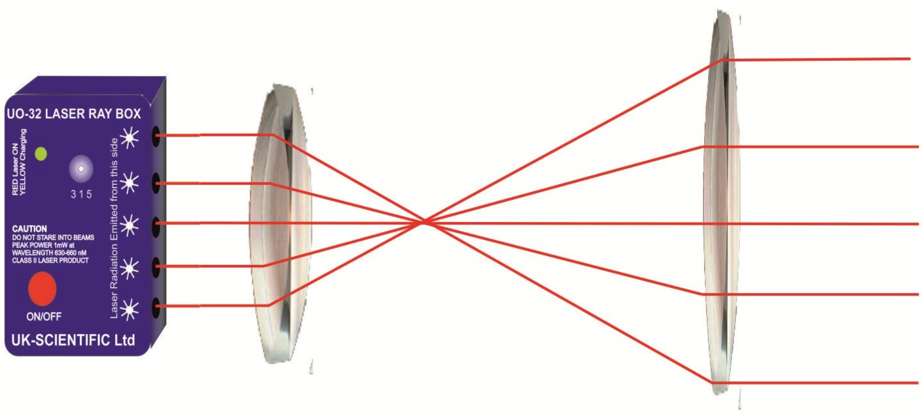
A telescope requires two lenses with different focal lengths, a long focal length for the ***objective*** (the lens in front where light from a distant object enters) and an ***eyepiece*** (the lens you look through) with a short focal length.



The Galilean telescope was innovative in that he was the first to expand the range of magnification of the new spyglasses beyond 3X, using his particular set of lenses.

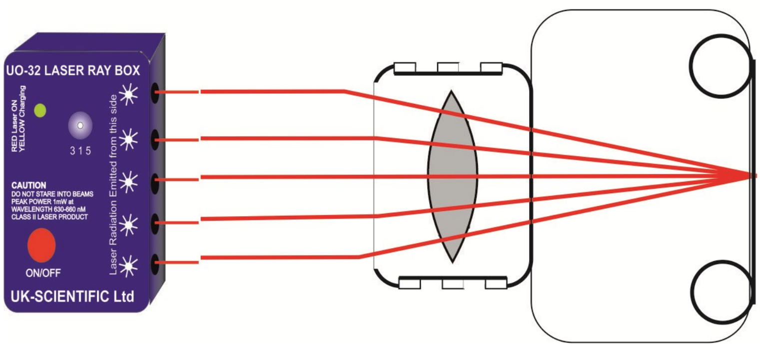


Actually, the Galilean telescope was quickly abandoned for other types, in particular the design suggested by Johannes Kepler. This ***Keplerian*** telescope employs a converging lens as the eyepiece and gives a wider field of view (i.e., takes in more of the sky) than the Galilean arrangement. Its main disadvantage is that the resulting image is upside down, but it was quickly realized that this is has no significance in astronomical observations



Microscope

A **microscope** is an instrument used to see objects that are too small for the naked eye. Optical microscope uses in basic two double convex lenses, the one near the object calls objective and has a short focal length and the one which use for observing calls the eye piece and it has long focal length.



Camera

Cameras use in principle a single double convex lens to focus an object image into the film or other sensitive device .