

VISUAL DEFECTS.

The most common **visual defects** are caused by the distorted shape of the eyeball. Other defects are due to irregularities in the **cornea**, the **lens** and the eyeball itself.

Myopia.

Myopia is more commonly known as **short-sightedness**. The normal eye is practically spherical and, when the lens and ciliary muscles are relaxed, the image of a distant object will fall on the retina. In a **myopic** eye, the eyeball is longer than normal. This fact causes the images from distant objects to fall in front of the **retina**. Thus, distant objects will be out of focus for a short-sighted person.

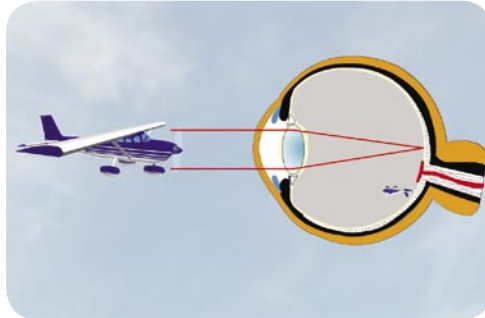


Figure 5.7 The normal eye.

Myopia results from an elongated eyeball. It can be corrected with concave lenses.



A concave lens will correct **myopic** vision by bending or refracting the light from distant objects outwards before it hits the cornea.

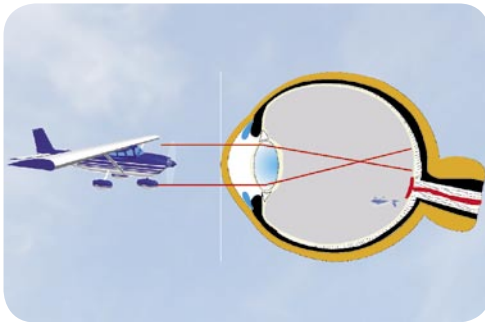


Figure 5.8 In myopia, the eyeball is longer than normal.

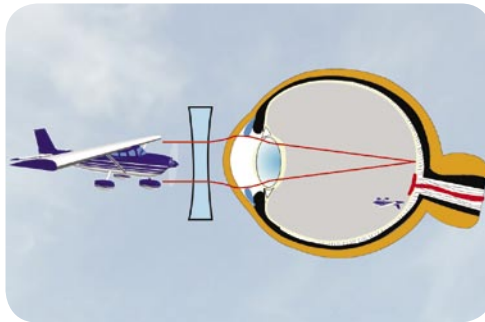


Figure 5.9 Myopia can be corrected with a concave lens.

Normal distance vision for pilots may be very approximately assessed as the ability to read a car-number plate at 40 metres. For the United Kingdom driving test, the distance required is 23 metres.

Hypermetropia.

In long-sightedness, or, in medical terms, **hypermetropia**, a shorter than normal eyeball results in images being formed behind the **retina**.

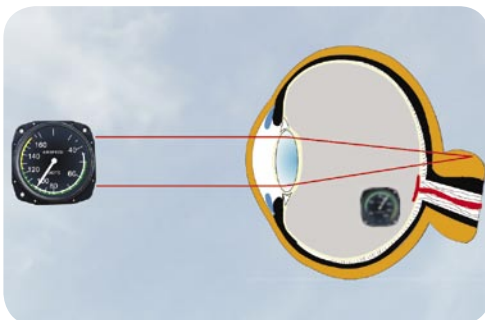


Figure 5.10 Hypermetropia.

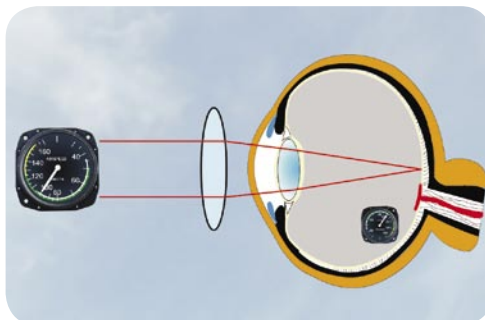


Figure 5.11 A Convex Lens Will Correct Hypermetropia.