

Light
SUMMARY**Reflection in Plane mirrors**

Light is a form of **energy** given out by a **self luminous** body, which travels into infinite media. Light makes things around us **visible**. Objects that do not give out light of their own are called non-luminous objects. They just reflect light that falls on them. We see with our **eyes**. When light reflected from an object enters our eyes, the object becomes visible. A **mirror** changes the direction of light that falls on it. The light ray that falls on a mirror is called the **incident light ray**. The ray that comes back from the surface after reflection is called the **reflected light ray**. The point where the incident ray strikes the reflecting surface is called the **point of incidence**. A line drawn perpendicular to the mirror at the point of incidence is the **normal**. According to the **laws of reflection**, the incident ray, the normal at the point of incidence, and the reflected ray lie in the **same plane**; and the angle of incidence is equal to the angle of reflection.

Light rays are visualised as **parallel rays**. If the rays, after reflection from a surface, are **parallel**, then the reflection is termed as **regular reflection**. The reflection from a **plane mirror** is an example of regular reflection. When parallel rays, after reflection from a surface, are not parallel, then it is called **diffused reflection** or **irregular reflection**. The reflection from an uneven surface is diffused reflection. If a reflected light ray is reflected again on being incident on another surface, it is termed **multiple reflections**. Multiple reflections are used in periscopes. Periscopes are used in **submarines, war tanks** and by soldiers in **bunkers** to see objects that are not visible directly. In a barber's shop, we see the back of the head using **multiple reflections** of two mirrors. In a **kaleidoscope**, beautiful patterns are formed due to **multiple reflections**.

Light and Eyes

We see objects around us with our **eyes**. The eye is an important **sense organ**. The human eye is roughly **spherical** in shape. Its **transparent** front part is called the **cornea**. Behind the cornea, there is a **muscular structure** called the **iris**. There is a small opening in the iris, whose size can be controlled, and is called the **pupil**. The iris controls the amount of light entering the eye. Behind the pupil, the eye has a **lens**, which is thicker in the middle. The lens converges light on the **retina**, which has a number of **nerves**. The nerves carry the sensations to the **brain** through the **optic nerve**. The nerves contain two types of **cells - cones and rods**. The cones are **sensitive to bright light**, while the rods are sensitive to **dim light**. The cones also distinguish the **colour** of an object. The small region where the optic nerve and the retina meet has **no sensory cells**, and is called the **blind spot**.

The impression of an image on the retina lasts **forth of a second**. If 16 **still images** of an object are flashed before the eye per second, then the eye perceives the object as moving. The **eye lids** protect the eye from dust. The eye has the ability to form a clear image of a near and a far object. This ability is called its **power of accommodation**. For a normal eye, the distance for **clear vision** is 25 cm. This differs from person to person, and varies with age. Some persons can see near objects clearly and some others far off objects. These defects can be corrected using suitable corrective lenses. The eye sight of some people becomes **foggy** in their old age, and objects **appear dim**, due to **cataract**. Some people have no vision since birth. Such people use **Braille** to read and communicate.