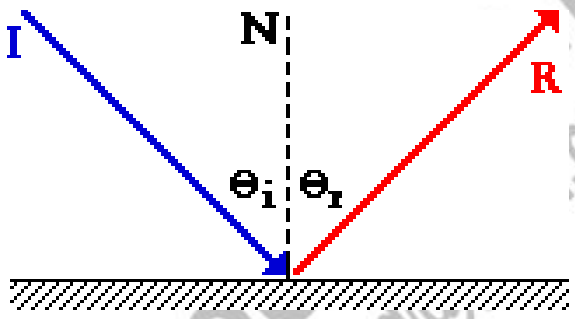
Reflection of light:

Light is known to behave in a very predictable manner. If a ray of light could be observed approaching and reflecting off of a flat mirror, then the behavior of the light as it reflects would follow a predictable *law* known as the **law of reflection**. The diagram below illustrates the law of reflection.



In the diagram,

The ray of light approaching the mirror is known as the **incident ray** (labeled **I** in the diagram).

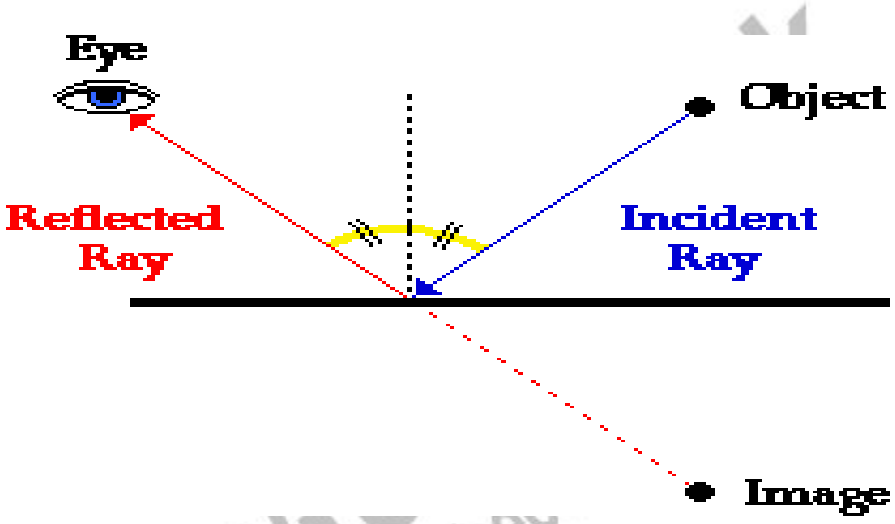
The ray of light that leaves the mirror is known as the **reflected ray** (labeled **R** in the diagram).

At the point of incidence where the ray strikes the mirror, a line can be drawn perpendicular to the surface of the mirror. This line is known as a **normal line** (labeled **N** in the diagram). The normal line divides the angle between the incident ray and the reflected ray into two equal angles.

The angle between the incident ray and the normal is known as the **angle of incidence**.

The angle between the reflected ray and the normal is known as the **angle of reflection**.

To view an image of a pencil in a mirror, you must sight along a line at the image location. As you sight at the image, light travels to your eye along the path shown in the diagram below. The diagram shows that the light reflects off the mirror in such a manner that the angle of incidence is equal to the angle of reflection.



It just so happens that the light that travels along the line of sight to your eye follows the law of reflection. If you were to sight along a line at a different location than the image location, it would be impossible for a ray of light to come from the object, reflect off the mirror according to the law of reflection, and subsequently travel to your eye. Only when you sight at the image, does light from the object reflect off the mirror in accordance with the law of reflection and travel to your eye. This truth is depicted in the diagram below.

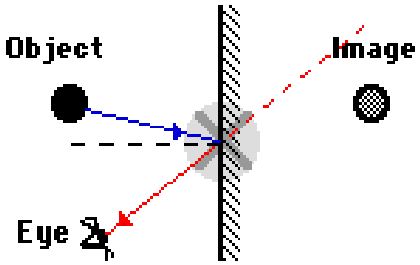


Diagram A

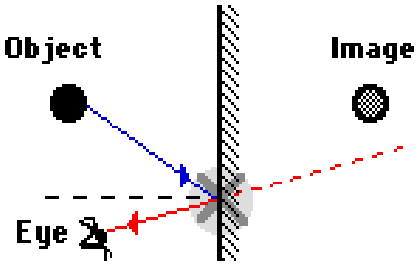


Diagram B

Laws of Reflection of Light:

There are two laws of reflection which can be stated as,

1). The angle of incidence is equal to the angle of reflection.
2). The incident ray, the normal at the point of incidence and reflected ray all lie in the same plane.