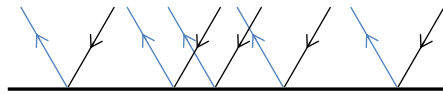


# Reflection and mirrors

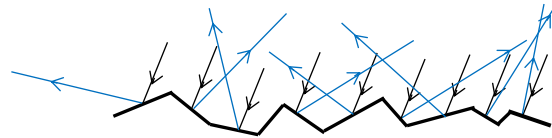
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## Law of reflection

Reflection off a smooth surface is called **specular reflection**. All light rays are reflected in the same direction; unlike diffuse reflection, which is reflection in many directions.



specular reflection



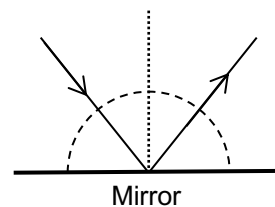
diffuse reflection

- a) Label the following concepts on the figure to the right:

**Normal:** Line perpendicular to the mirror

**Angle of incidence  $\theta_i$  («Theta-i»):** Angle between incident ray and normal

**Angle of reflection  $\theta_r$  («Theta-r»):** Angle between reflected ray and normal



- b) Direct the light ray onto the point where the mirror and the normal intersect. Change the angle between the incident ray and the normal. Observe the reflected light ray. What do you notice?

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- c) Memorize the **Law of reflection**:

$$\theta_i = \theta_r$$

The angle of incidence equals the angle of reflection.

## Plane mirrors

If an object is located in front of a plane mirror, a virtual image is formed behind the mirror.

In a virtual image, the light rays are reflected off the mirror's surface in such a way that they seem to be coming from a point behind the mirror, where they actually do not come from.

The object's image is located on the other side of the mirror, at the same distance from the mirror as the object.

- a) Place an object in front of the mirror. Move it first closer to the mirror, then move it further away again. Observe the movement of the image as the objects moves.

What do you notice?

☞ Pay attention to the size of the image.

☞ Compare the distance between the image and the mirror to the distance between the object and the mirror.

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.....

- b) Construct the mirror image of the object. Describe your method.

