

# Ray Model of Light

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- \* Light travels in straight lines. Because of this, we can use light rays (lines and arrows) to show the direction and path that light takes

# Ray Model of Light

- \* Geometric optics - the use of light rays to determine how light behaves when it strikes an object
- \* Incident Light - the light that is emitted from a source and hits an object

# Ray Model of Light

- \* There are 3 types of objects that light can strike:
- \* transparent – materials that allow light to pass through easily. Objects can be clearly seen (e.g., glass, water)



# Ray Model of Light

- \* translucent - materials that allow some light to pass through, but the rest is absorbed or reflected. Objects are not clearly seen. (e.g., ice, frosted glass)

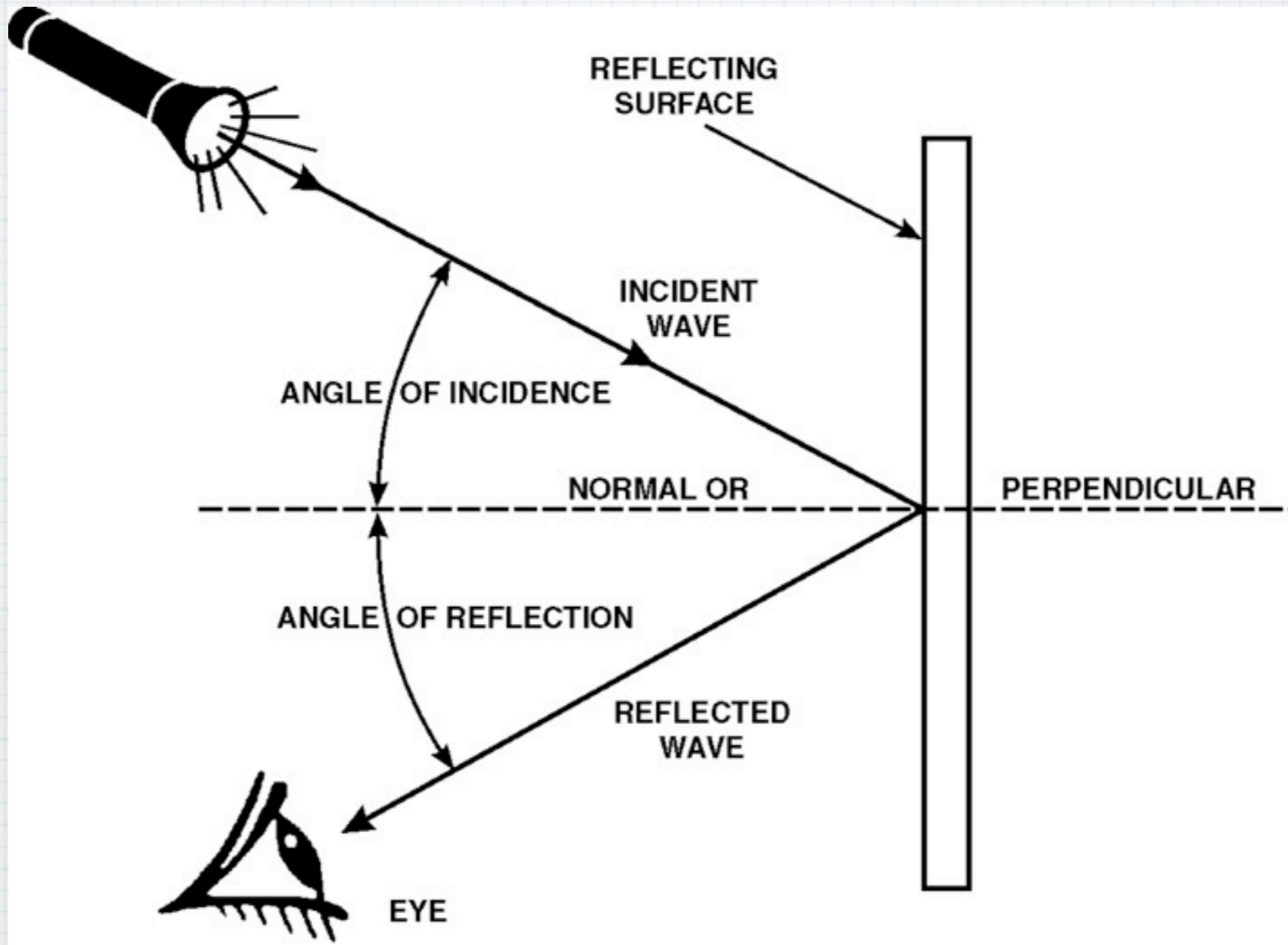


# Ray Model of Light

- \* opaque - no light passes through material. All light is either absorbed or reflected. Object behind material cannot be seen. (e.g., mirror, wood door)



- \* **Image - reproduction of an object through the use of light**
- \* **Mirror - any polished surface reflecting an image (eg. A lake on a still day, polished metals, clear glass)**





- \* Normal - the perpendicular line to the mirror surface
- \* Incident Ray - the original incoming ray
- \* Angle of Incidence - the angle between the incident ray and the normal
- \* Reflected Ray - the ray that bounces off a reflective surface

**\*Draw Ray Diagram on Board\***

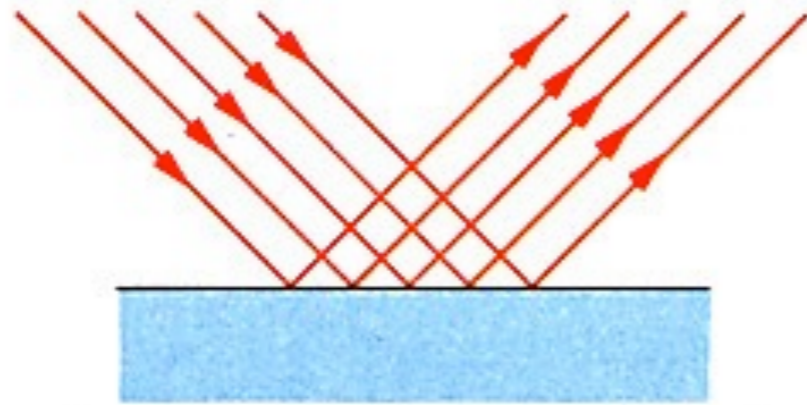
## \* The Laws of Reflection

\* There are two laws of reflection:

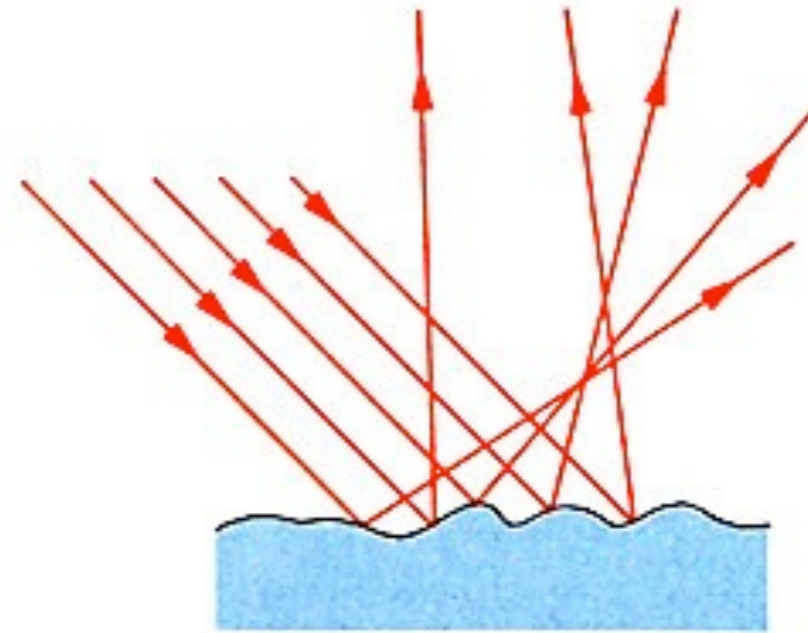
\* 1. The Angle of Incidence equals the Angle of Reflection

\* 2. The incident rays, the reflected ray and the normal all lie in the same plane

- \* **Specular reflection** - reflection of light off a smooth surface (eg. Plane mirror, very still water, flat piece of foil)
- \* **Diffuse reflection** - reflection of light off an irregular or dull surface (eg. Sheet of paper, water surface with waves or crumpled foil)
- \* incident rays are parallel to one another but angles of incidence would differ. Angles of reflection would also be different. Reflected rays would not be parallel.



**(a) Specular reflection**



**(b) Diffuse reflection**

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