Ray Model of Light

Focus:

1. To be able to explain the ray model of light
2. To be able to differentiate among transparent, translucent, and opaque objects
3. To be able to understand and draw ray diagrams to represent reflection and refraction
* **Light rays** travel in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ lines. A light ray is illustrated as a straight line with an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to indicate the direction that the light wave travels.
* **Transparent** objects will \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ light, allowing light to pass through.
* **Translucent** objects will allow light to pass through but will \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ light rays in all directions.
* **Opaque** objects \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ light from passing through it. Light rays will be reflected or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* **Shadows** demonstrate how light rays travel in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ lines.



Reflection

* **Reflection** occurs when light rays strike a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ object and bounce off.
* The **Law of Reflection** states that the angle of reflection is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the angle of incidence
* Note that **angles** are always measured from the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ line to the ray
* The **normal** is a line drawn \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the mirror (boundary) at the point of incident.

Refraction

* Light is bent, or **refracted**, as it changes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, passing from one medium to another.
* The **angle of refraction** (R) is the angle of a light ray \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ from a material, measured between the normal and the refracted ray.



Light rays from the object bend away from the normal as they pass from water to air. Objects appear closer to the surface than they really are.

* A **mirage** is an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ caused by the refraction of light through air.