

What are characteristics of different behaviors of light?

Wave Behaviors

Reflection (Specular)

When a wave meets a smooth surface and bounces back in one direction (predictably).

Light bouncing off of a mirror
Light bouncing off a wet road

Refraction

The bending of a wave as it crosses a boundary, changes medium, and changes speed.

A pencil or paper that looks broken in a cup of water
A fish that appears closer to the surface than it really is

Diffuse Reflection

When a wave meets a rough surface and bounces back in many directions (randomly).

Light bouncing off of paper
Light bouncing off of dry road

Total Internal Reflection

When the angle of incidence is larger than the critical angle, there will be complete reflection of light back into the original medium.

The brilliant sparkle of a diamond

Diffraction

When a wave bends around objects or through openings

AM/FM radio waves traveling to your car
How light and sound waves come through a door to fill a room
Carrying information (internet, cable) through optical fibers at the speed of light.