Light Refraction Lecture

When light strikes an object, it is either reflected, absorbed, or transmitted. **Opaque** materials such as wood and cement will not let light pass through them, while **transparent** materials such as glass and water will let light pass through them. **Translucent** objects such as frosted glass and wax paper are semi-permeable to light, sending a distorted and unclear image through (still somewhat visible). You only see objects through the light that reflects off them. The color of the object you see is light that is reflected from the object’s surface while the rest of it is absorbed by the object. This light returns to your eye, in which the light is focused on your retina. Your eye then carries this information to your brain’s optics system, which displays the image. An **image** is a copy of an object formed by reflected or refracted light. A **virtual image** (right side up) appears to be coming from behind the mirror due to the way the light is focused. A **concave mirror** is a mirror with a surface curved inward like a bowl in which the light reflected comes together at a **focal point** and can produce virtual or real images. A **convex mirror** is a mirror with a curved surface facing outward in which the reflected light produces only virtual images that have a focal point appearing to be located behind the mirror (the image formed from a convex mirror is always a virtual image). When light refracts, it causes the light to bend and/or change direction. This bend in the light waves or change of direction in these waves are due to the sudden change in medium; the denser the medium, the slower the light will travel through it. The **index of refraction** is a measure of how much a medium bends the light waves that travel through it. **Prisms** are shapes/objects that separate white light into its component colors; the longer the wavelength, the less the prism will bend the light waves. **Rainbows** are light shining through tiny droplets of water, in which each droplet of water acts as a prism.