Wave behavior
Reflection, refraction and diffraction
Examples of Refraction

Light wave is changing direction because it is moving from one type of medium to another. Prism – goes from a gas to solid and to a gas. In the glass of water, it goes from a gas to a liquid.
What allows us to see images, is the presence of light. Light is a type of electromagnetic wave. When the object looks like it is broken, it is because the speed of the light wave changed.

Refraction — when a light wave moves from one medium to another, it changes speed and direction (bends)
The red line is called “normal”, and it is just a vertical line to help you understand how much the light wave bent and how big are the angles of incidence and reflection.

In this example, the light wave is moving from a gas to a liquid. Light is an electromagnetic wave. Electromagnetic waves move faster in gases, slow down in liquids, and slow down even more in solids.

The light wave in the picture is slowing down because it is moving from a gas to a liquid.
Diffraction – when waves bend around an object (barrier)
Diffraction in water
Diffraction of Sound
Reflection happens when a wave hits a surface and bounces back. Light waves can reflect, allowing you to see images and color. Sound waves can reflect creating echoes.
Scattering of light – light wave hits a rough surface and bounces back in different directions. The image is not sharp.
In **reflection**, the angle of incidence and the angle of reflection are the same, because the medium is the same. 

In **refraction**, the angle of incidence and the angle of reflection are different, because the wave changes medium, speed and direction.

The Law of Reflection states that the angle of incidence equals the angle of reflection.
Wave interference – it is the ability of two waves to combine when they overlap, creating a new wave.