

Unit 9: Waves

Content Outline: Optics and Objects (9.8)

I. Diffraction

- A. This is when a wave hits a *medium that it cannot pass through* and it *bends around* the barrier.
- B. It also happens when a wave travels through an opening and then *spreads out* on the other side.

II. Interference

- A. This is when waves are *overlapping*.
- B. There are two types of **interference**:
 - 1. **Constructive interference**
 - a. The crest(s) of one wave overlap the crest(s) of another wave thus blending to make a *bigger* wave- *add amplitudes into one*.
 - 2. **Destructive interference**
 - a. The crest(s) of one wave and the trough(s) of another wave overlap thus blending to make a smaller wave - *subtract amplitudes*.
 - i. If the two waves have *identical amplitudes*, then they will *cancel each other out* causing the energy to go the *resting position (no wave)*.