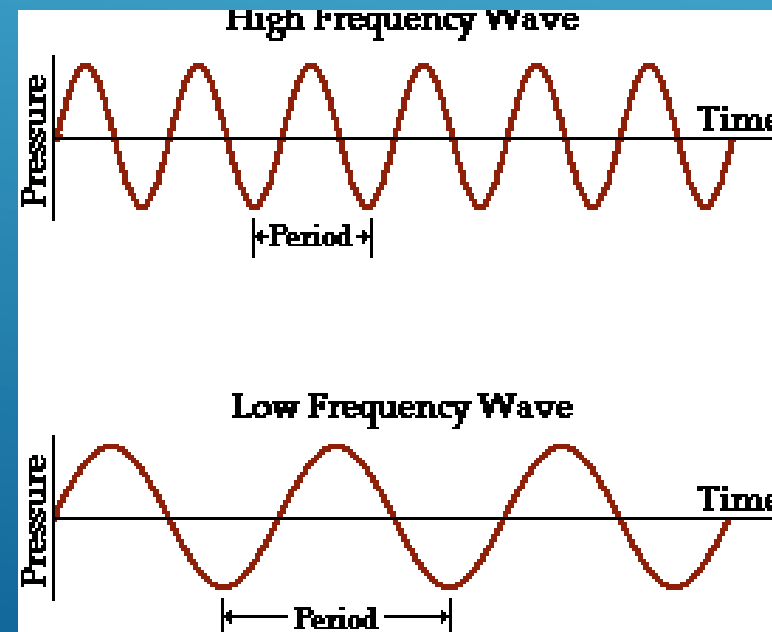# WAVE BEHAVIORS AND PROPERTIES
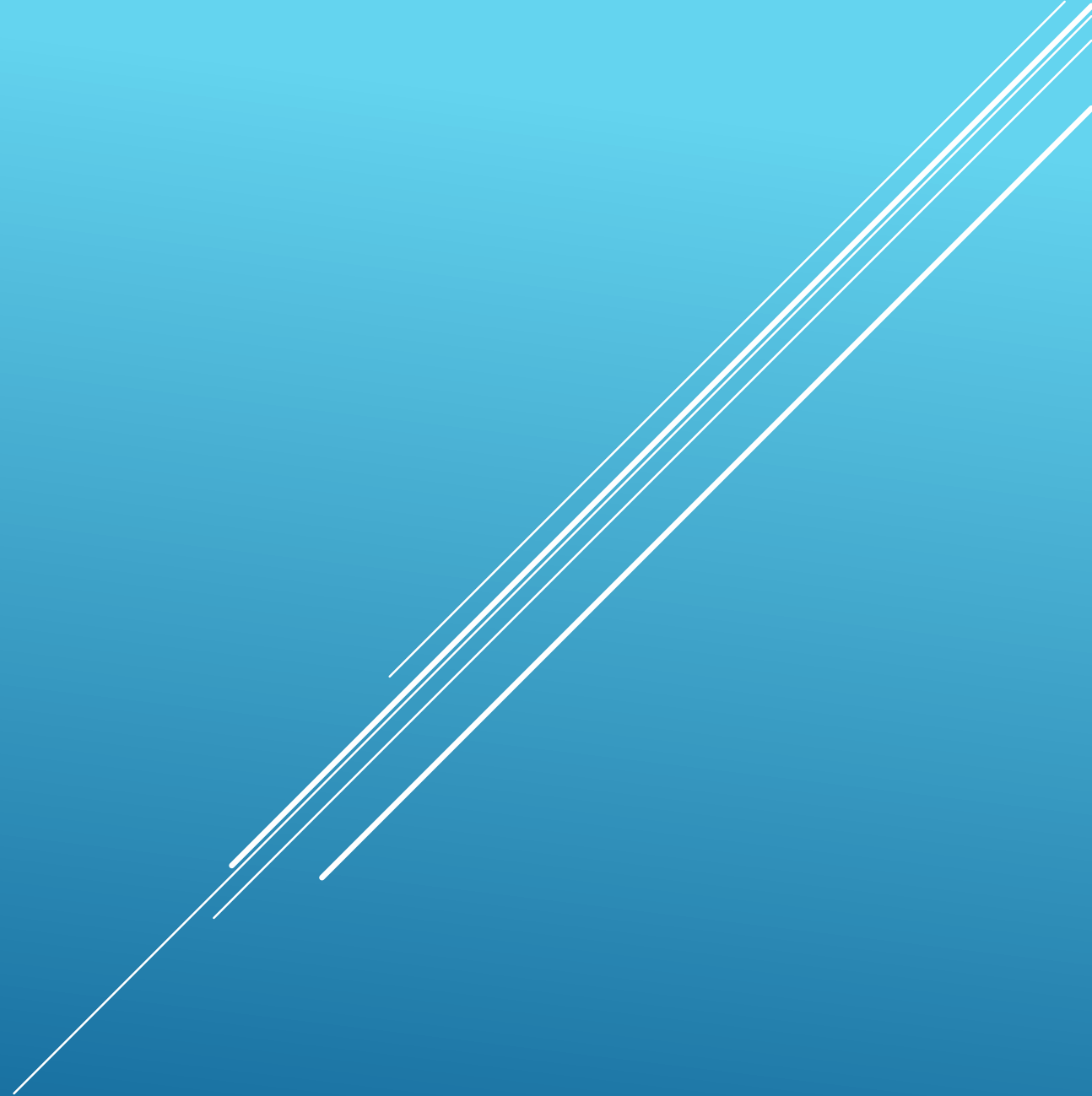
$$V = f\lambda$$

v = velocity
f = frequency
λ = wavelength

1. **LIGHT** waves travels faster than **SOUND** waves

2. **SPEED = WAVELENGTH X FREQUENCY**

3. **FREQUENCY = SPEED / WAVELENGTH**

4. **WAVELENGTH = SPEED / FREQUENCY**

WAVE SPEED

High Frequency Wave

Pressure | Time
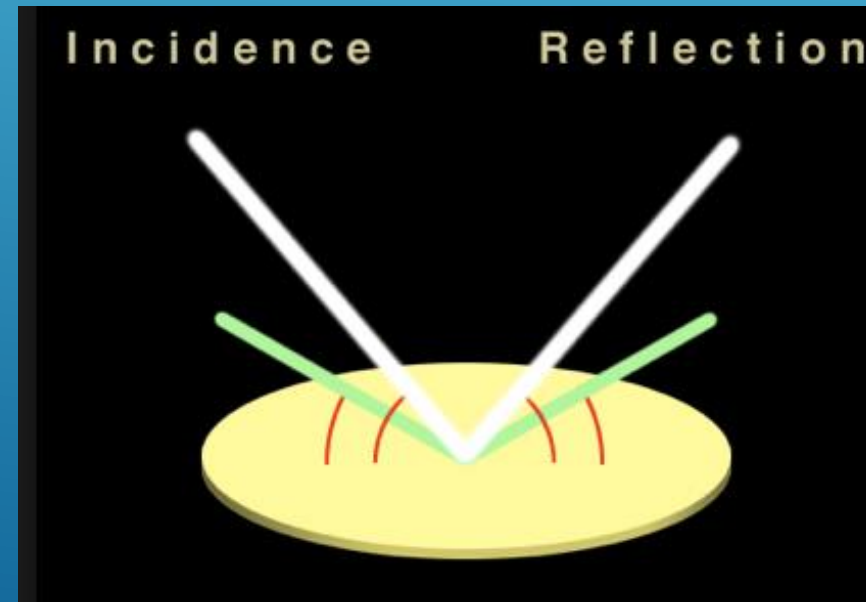|←Period→|

Low Frequency Wave

Pressure | Time
|←Period→|

WAVE BEHAVIORS

1. When an object or a wave hits a surface through which it **CANNOT** pass, it **BOUNCES** back is called **REFLECTION**

2. The Law of **REFLECTION** stated that the angle of **INCIDENCE** = the angle of **REFLECTION**

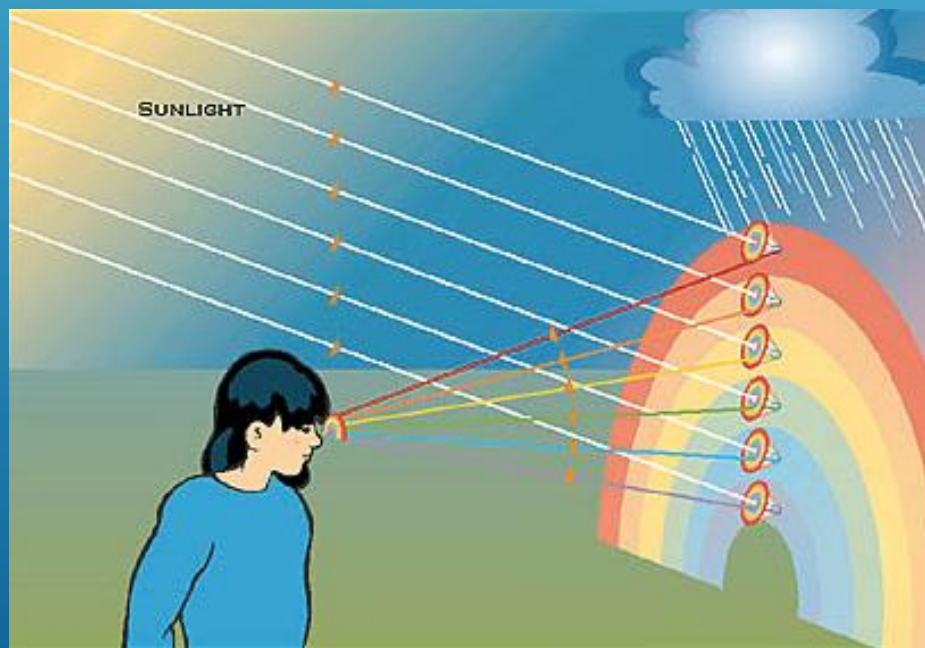Incidence   Reflection

I. REFLECTION

1. When a wave enters a new **MEDIUM** at an angle, one side of the **WAVE** changes **SPEED** before the other side, causing the wave to **BEND,** the bending of the wave due to change in speed is **REFRACTION**

2. A **RAINBOW** is created due to __**REFRACTION**__

II. REFRACTION

1. When a wave moves **AROUND** a barrier or through an **OPENING** in a barrier, it **BENDS** and **SPREADS** out is called **DIFFRACTION**

III. DIFFRACTION

1. **INTERFERENCE** is the interaction between **WAVES** that meet.
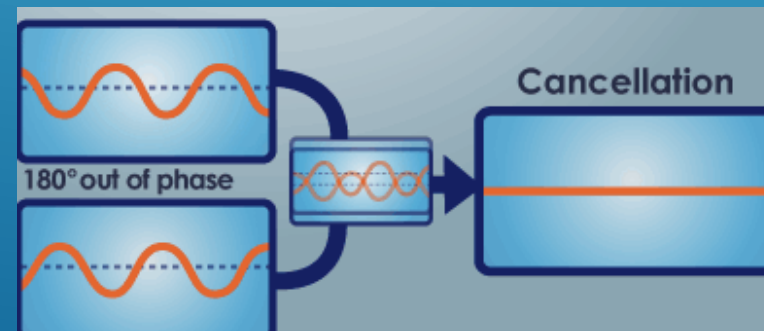
A. Constructive Interference

1. The **INTERFERENCE** that occurs when waves **COMBINE** to make a wave with a larger **AMPLIFICATION** is called **CONSTRUCTIVE INTERFERENCE**
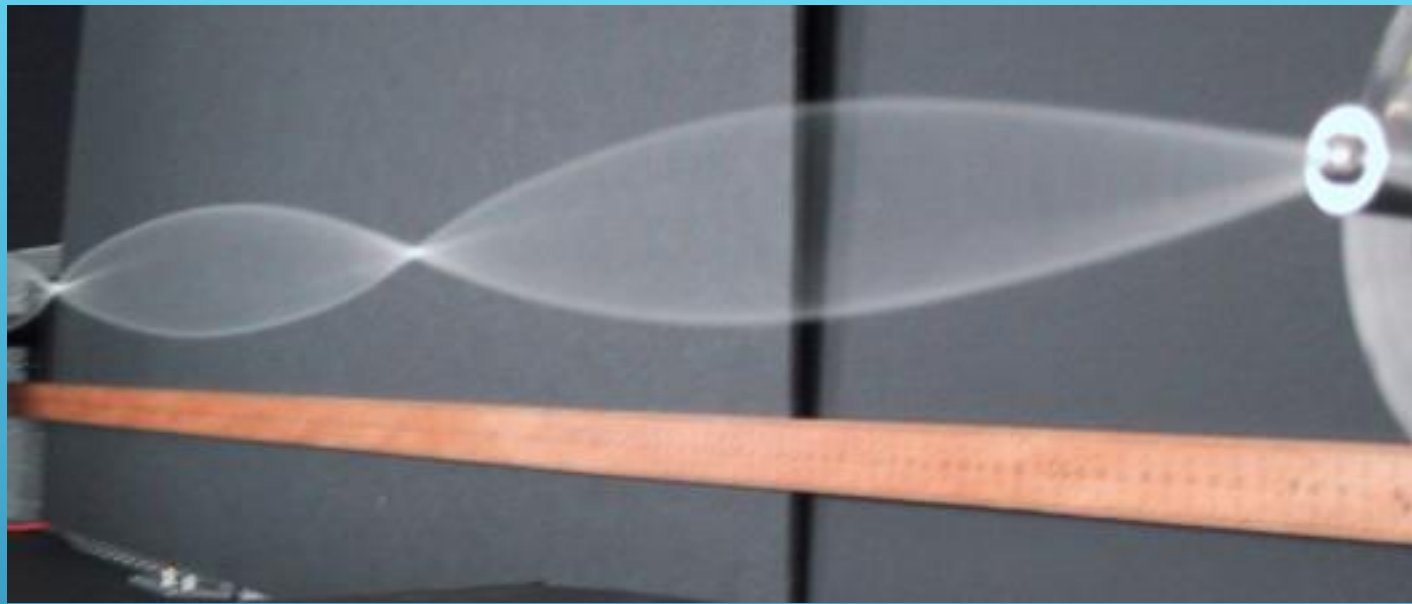
B. Destructive Interference

1. The interference that occurs when **WAVES** combine to make a wave with a **SMALLER** amp is called **DESTRUCTIVE INTERFERENCE**
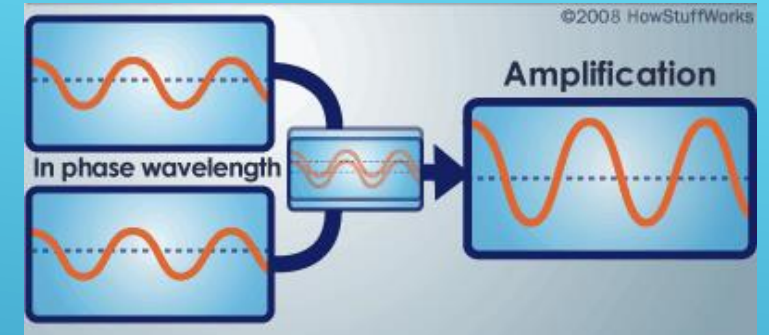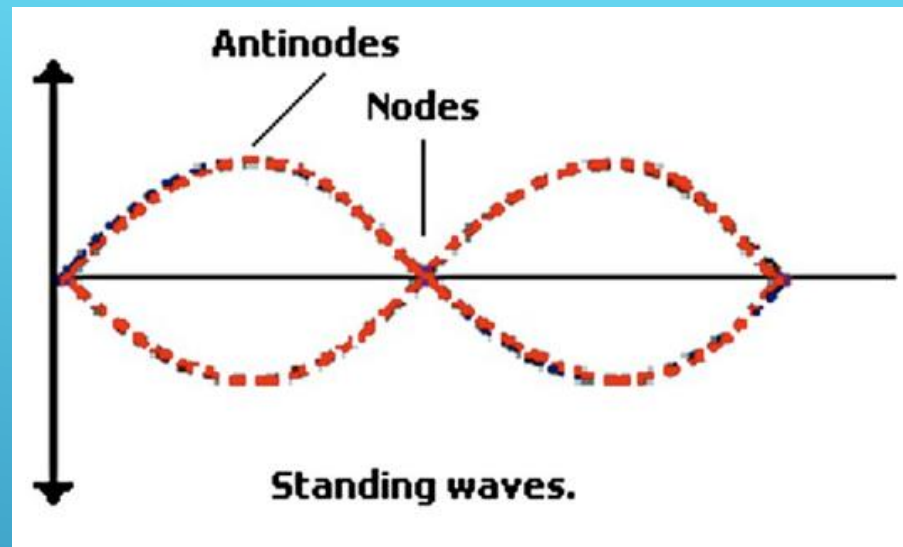
IV. INTERFERENCE

1. A **STANDING WAVE** is a wave that appears to **STAND** in one place, even though it is really **2** waves **INTERFERING** as they pass through each other

VI. STANDING WAVES

1. Points of a wave that **MEET** the resting position are called **NODES**

2. 2. Points of a wave that are **MAXIUM** distance from the resting position are called **ANTINODES**

A. NODES AND ANTINODES

1. **RESONANCE** is an increase in the amplitude of a **VIBRATION** that occurs when external vibrations match an object's **NATURAL** frequency

2. **STANDING** waves occur in an object when it **VIBRATES** at its natural frequency

B. RESONANCE