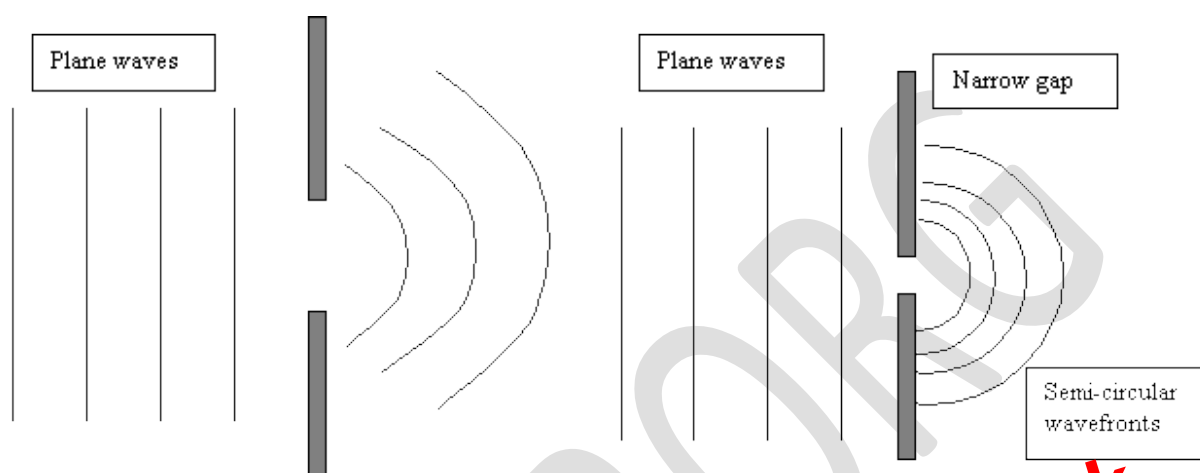


In reflection, there is no change in velocity, frequency, or wavelength. There is only a change in direction.

If the base is shallower, speed decreases and wavelength decreases, however frequency does not.

$$\text{velocity} = \text{frequency} \times \text{wavelength}$$

Diffraction of water waves:



Unit 6: Sound

Sound is a type of energy which depends on the vibration of molecules.

- Sound →
- Needs a medium to move through
 - Longitudinal wave
 - Produces compressions and rarefactions

$$\text{velocity (speed)} = \text{frequency} \times \text{wavelength}$$

N.B. Bell-jar experiment shows that sound cannot travel through a vacuum.

$$\text{speed} = \frac{\text{distance}}{\text{time}}$$

Reflection of sound (echoes):

$$\text{Speed of Sound} = \frac{2 \times \text{Distance to wall}}{\text{time taken}}$$

Humans can detect a frequency from 20Hz to 20,000Hz. Sounds above 20,000Hz are called **ultrasounds**.