

# Waves

Monday, September 12, 2016 10:26 AM

## Types

- water
  - radio: electromagnetic radiation
  - sound
- } — no matter vacuum

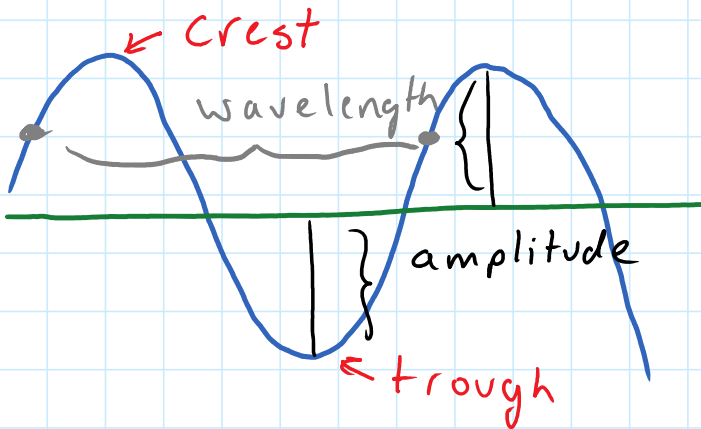
A movement of energy through matter,

vibration ↑  
disturbance ↓

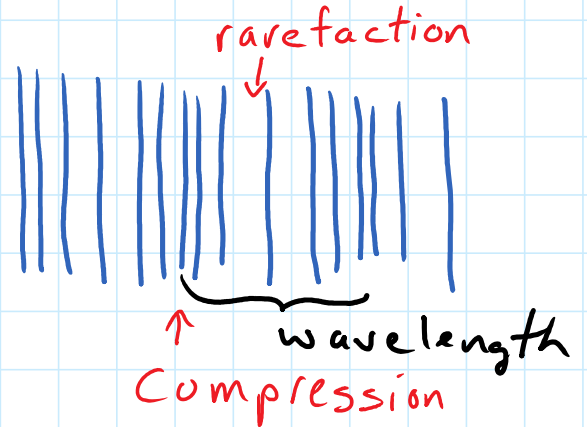
water, air,  
ground, people

## Parts of a Wave

### Transverse



### Longitudinal



## Wave length

- distance between 2 successive points on a wave
- measured in m, cm

- symbol,  $\lambda$ , lambda

## Frequency

- all waves are caused by vibrations
- # of vibrations per second
- # of cycles per second
- measured in Hertz  $1 \text{ Hz} = 1 \text{ cycle/sec}$

## Period (T)

- Time required for 1 cycle
- T, measured in seconds

Period =  $\frac{1}{\text{frequency}}$ ,

$$T = \frac{1}{f}, f = \frac{1}{T}$$

## Wave Speed

- How fast a crest/trough moves past a fixed point

-  $v = \frac{d}{t}$ ,  $v = \frac{\lambda}{T}$

$$v = f \cdot \lambda$$

Universal  
wave  
equation