

# Speed Notes

- Motion happens when the position of an object changes
- Speed tells you how fast the object's position changes
- Speed has 2 parts
  - Distance traveled-how much the object's position changed
    - Measured in **meters**
  - Times-how long the change in position took
    - Measured in **seconds**
- **Speed is a scalar quantity**
- To determine an object's speed we divide the distance traveled by the amount of time the travel took
- The unit for speed is meters per second or m/s

- We can write this as a formula:

$$S = \frac{D}{T}$$

- What is the speed of an object that travels 10 meters in 5 seconds?
  - Step 1-Write the formula  $S = D/T$
  - Step 2-Replace the 'D' with the distance traveled  $S = 10m/T$
  - Step 3-Replace the 'T' with the time  $S = 10m/5s$
  - Step 4-Divide the numbers  $S = 10/5 = 2$
  - Step 5-Write the answer with the unit  $S = 2m/s$
- You can move the terms around in the formula to solve for different values

$$S = \frac{D}{T} \quad T = \frac{D}{S} \quad D = ST$$

- Sometimes it is helpful to think of the formula as a triangle:
  - If you are solving for S, divide D and T
  - If you are solving for T, divide D and S
  - If you are solving for D, multiply S and T

