PHYSICS

- Study of motion, energy & force.

Constant Speed
Physics in Motion

MOTION

- MOTION- distance changed from an object or reference point.
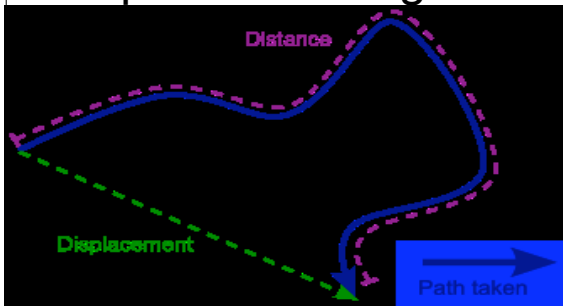- Reference Point- point where detecting movement from. Starting point.

- DISTANCE- length traveled between points.

- DIRECTION- direction heading when in motion.

- DISPLACEMENT- length & direction traveled

Distance = pink
Displacement = green

Distance

Displacement

Path taken

- TIME- amount it takes to get between points.
- SPEED- rate time for distance traveled.

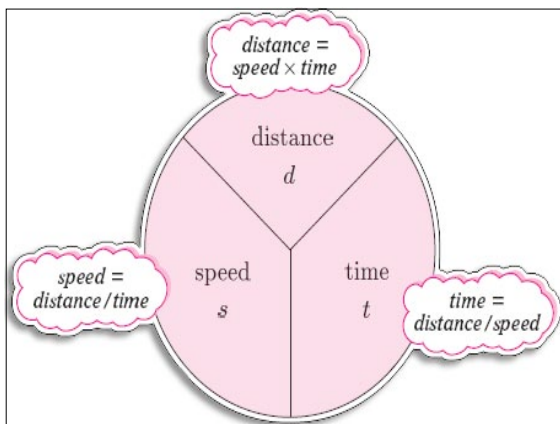## SPEED

- Average speed- Distance/Time
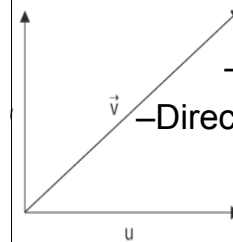- Instantaneous speed- rate of movement @ given instance in time.

Average Speed

$$\text{Average Speed} = \frac{\text{Distance}}{\text{Time}}$$

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distance = speed × time

distance
d

speed = distance / time

speed
s

time
t

time = distance / speed

WHAT NOW?

- VECTOR- quantity of magnitude & direction of movement.
  - Length = magnitude
  - Direction = where headed

$\vec{v}$

u

DISTANCE & TIME

SLOPE- Line on a graph.

- Upward slope- moving away from position.
- Downward slope- moving towards position.
- Horizontal slope- not moving

BEYOND SPEED

- VELOCITY- Speed in given direction.
- ACCELERATION- rate velocity changes.
  - Increasing speed
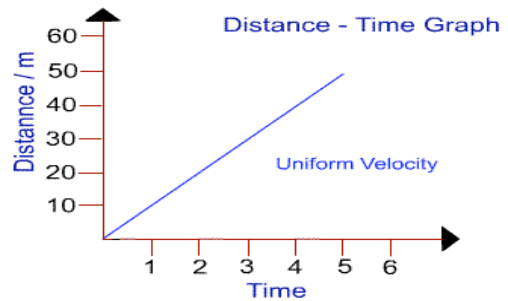 - Decreasing speed
  - Change of direction
    - Final Velocity - Original Velocity
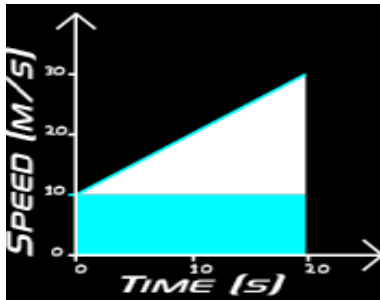   Time

VELOCITY & TIME

- <u>SLOPE</u>- Steepness of a line on graph.
  - Incline- increase in speed
  - Decline- decrease in speed.
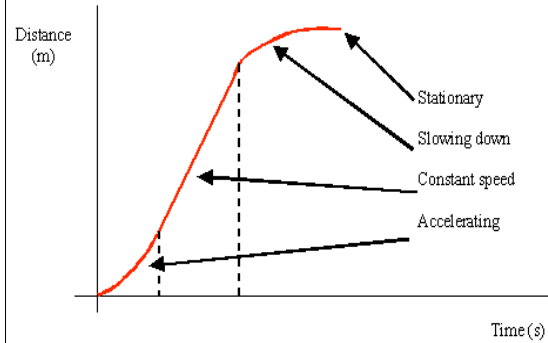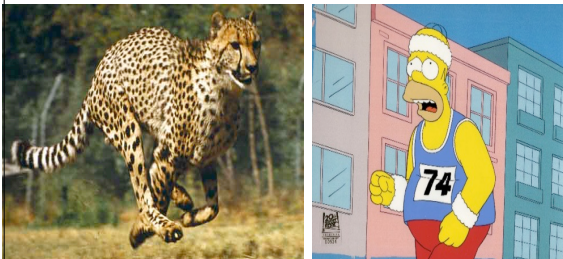 - Horizontal- maintain constant speed.

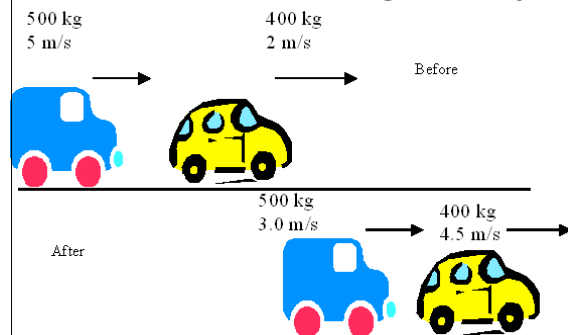## VELOCITY

Always Label!

Otherwise it's useless.

ACCELERATION

ACCELERATION changes

What's happening? Why?

Time for a pit stop.