Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
Guided Notes: Speed and Acceleration

Calculating Speed

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (S) = distance traveled (d) / the amount of time it took (t).
  + \_\_\_\_\_\_\_\_=\_\_\_\_\_\_\_\_\_ x \_\_\_\_\_\_\_\_\_\_\_

Units for speed

* Depends, but will always be a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ unit / a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ unit
  + Ex. Cars: mi./h
  + Jets: km/h
  + Snails: cm/s
  + Falling objects: m/s
* If I travel 100 kilometer in one hour then I have a speed of…\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* If I travel 1 meter in 1 second then I have a speed of….\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Average speed

* Speed is usually NOT \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Ex. Cars stop and go regularly
  + Runners go slower uphill than downhill
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = total distance traveled/total time it took.
* It took me 1 hour to go 40 km on the highway. Then it took me 2 more hours to go 20 km using the streets.
  + Total Distance: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Total Time: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Avg. Speed: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* I travelled 25 km in 10 minutes. How many meters have I travelled?
  + A) 25000 m
  + B) .0112 m
  + C) .025 m
  + D) 2.5 m
* I ran 1000 m in 3 minutes. Then ran another 1000 m uphill in 7 minutes. What is my average speed?

Velocity

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – the SPEED and DIRECTION of an object.
  + Example:
    - An airplane moving North at 500 mph
    - A missile moving towards you at 200 m/s
* What is the difference between speed and velocity?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* What does the slope of a distance vs. time graph show you about the motion of an object?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Acceleration

* Acceleration = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ up
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – the rate at which velocity changes
  + Can be an:
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in speed
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in speed
    - Change in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Types of acceleration

* Increasing speed
  + Example: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Decreasing speed
  + Example: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Changing Direction
  + Example: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(can be at constant speed)
  + 

A skydiver accelerates from 20 m/s to 40 m/s in 2 seconds. What is the skydiver’s average acceleration?