Speed

Grade Homework

- Gerc

Lab Time

- You will be learning how to use the cars, ramps and timers
- The pages in the lab book are on your worksheet
- Read the instructions and lab, carefully
- Equipment Needed
  - 1 tower 1 timer/powersupply 2 photogates 1 ramp 1 car

  – Lab Hints
    - Do not put the ramp at the highest point possible. Midway down the tower will be fine
    - Be aware of the position of the timers at the beginning
    - Take several “trial” runs in order to get an average speed
    - After the trial, take all of your readings before you move the car again

Motion

- How do you know when something is in motion?
  - When something changes position
  - Traveling from one place to another
- Motion is described by the change in position and the speed

Motion is Relative

- How can you tell you are in motion when you are in a car?

- How can you tell you are in motion while you are in an airplane?

Motion is Relative

- You can tell something moved if it has changed position relative to a stationary object
- Reference Point- stationary object- helps you know how far something moved
- Relative motion- motion may not be obvious
  - Sitting in your chair, you are not moving relative to the room
    - You are moving relative to other planets

Speed

- How did you define speed?
- How is it measured?
- What units are used in physics?

Word/Term: SPEED	Drawing:
Describe in own words:	
Textbook Definition:	Rate my Understanding: 1 2 3 4
How I remember it:	Reflections:

Speed and GERC

- The formula for Speed is:

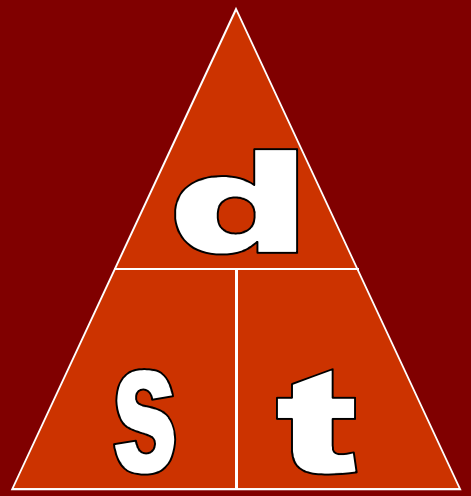
s = d/t

The unit for speed is meters/second (m/s)

s – speed (m/s)

d – distance (m)

t – time (s)



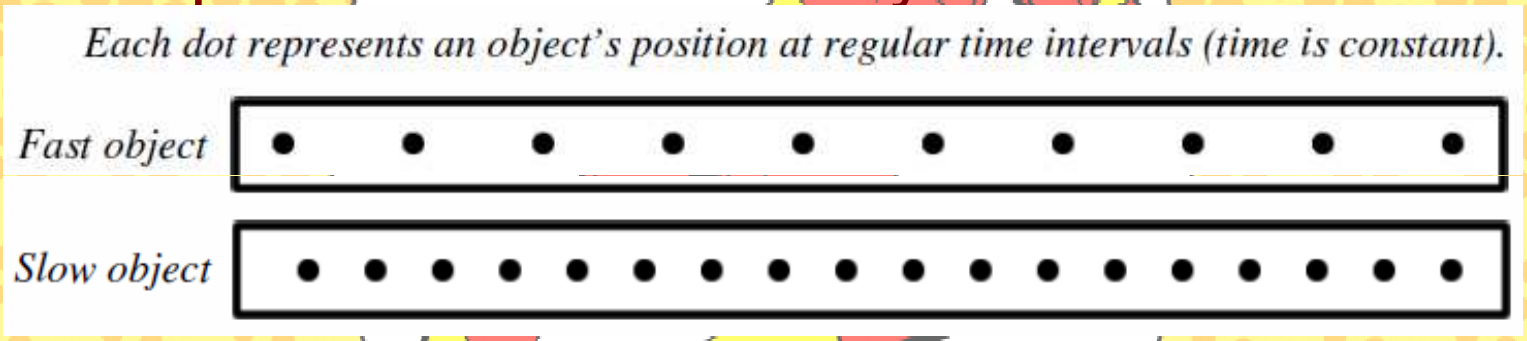
Big Bang Help

Types of Speed

- Instantaneous Speed- The rate of Motion at any given time
  - How fast is the Flash and the car moving right now?

Types of Speed

- Constant Speed
  - A speed that doesn't vary



- Initial Speed
  - The speed of an object at the beginning of a formula
    - A car standing still at a stoplight
    - A car moving 60 km/h at the start line

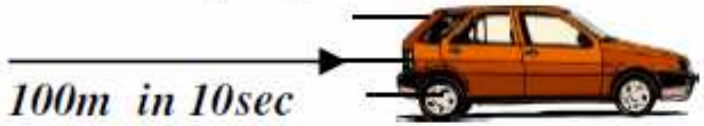
Types of Speed

- Final Speed
  - The speed of an object at the end of a problem
- Average Speed
  - Total distance traveled divided by the amount of time it took to travel that distance
  - Used when the rate of motion varies a great deal

Changes in Speed

Speed is proportional to distance:
A faster object goes farther, in the same amount of time.

Doubling the distance, doubles the speed.



$$S_1 = \frac{\Delta D}{\Delta T} =$$

$$S_2 = \frac{\Delta D}{\Delta T} =$$

Speed is indirectly proportional to time:
A faster object travels the same distance in less time.

Doubling the time, halves the speed.

$$S_1 = \frac{\Delta D}{\Delta T} =$$

$$S_2 = \frac{\Delta D}{\Delta T} =$$

A slower object can travel the same distance as a faster object, it just takes more time. A fast object travels the same distance faster.

Classwork

- Speed Worksheet
  - Grade next class