MOTION

OBJECTIVE: To observe motion and acceleration.

Motion: A change in place. An object is in motion when it's distance from another object changes.

Motion

- **Motion** compares a ***moving*** object to a ***nonmoving*** or ***fixed*** object.
- **Marker:** nonmoving (fixed) object. Also called reference point.

Example-

Moving Object	Reference Point
riding a bike	tree
rolling ball	centimeter mark

MOTION

- ***Distance:*** *length between two points*
- ***Time:*** *passes during motion*
- **Speed:** distance traveled over time
- ***Velocity:*** *speed with a direction*
- **Acceleration:** change in speed of ball as it goes down the ramp (positive acceleration)

OUTPUT

	LOW RAMP			HIGH RAMP		
	Distance/cm			Distance/cm		
TIME/sec	Trial 1	Trial 2	Avg	Trial 1	Trial 2	Avg
1 sec						
2 sec						
3 sec						
4 sec						
5 sec						

DISTANCE/TIME GRAPH

- Make a distance versus time graph:
- Use the average distances for each second
- Make two lines, one for the low ramp (blue) and one for the high ramp (red)
- **SLOPE: steepness of the line (steeper line = faster object)**

QUESTIONS

2. Is the speed of the ball faster at the top or the bottom of the ramp?
3. What kind of change in motion is this?
4. When you are in a car how would you know that the car is moving?
5. You are comparing objects in motion to fixed objects. What are the fixed objects called?