**Presentation 1 MOTION NOTES**

**Describing Motion**

* **Newton’s First Law of Motion**
	+ An object at rest will remain at rest and an object in motion will continue moving at a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ unless acted upon by a net force.

A. Motion



* **Problem:**
	+ Is your desk moving?
* We need a **reference point**...
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* **Motion**
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Distance is how far something has **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

* + Measured in **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** etc.
	+ If you run one lap around a track, you have moved a distance of **\_\_\_\_\_\_\_\_\_\_\_**
	+ If you travel a mile, your distance traveled is **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Displacement is the **\_\_\_\_\_\_\_\_\_\_\_\_\_** in position of an object from **\_\_\_\_\_\_\_\_\_** to **\_\_\_\_\_\_\_\_\_\_\_\_**.

* + Measured in **METERS, km, cm, mm**, etc.

**Problem:**

* You are a passenger in a car stopped at a stop sign. Out of the corner of your eye, you notice a tree on the side of the road begin to move forward.



* You have mistakenly set yourself as the

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Unit 8 Day 2



B. Speed & Velocity

* **Speed**
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of motion
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* **Instantaneous Speed**



* + speed at a given instant
* **Average Speed**
* **Problem:**
	+ A storm is 10 km away and is moving at a speed of 60 km/h. Should you be worried?

|  |  |
| --- | --- |
| * + Given
 | * + Work
 |
|  |  |

* **Velocity**
	+ speed in a given direction
	+ can change even when the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_!



C. Acceleration

* **Acceleration**
	+ the rate of change of velocity
	+ change in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***a*:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***vf*:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***vi*:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***t*:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* **Positive acceleration**
	+ “speeding up”
* **Negative acceleration**
	+ “slowing down”
* Your neighbor skates at a speed of 4 m/s. You can skate 100 m in 20 s. Who skates faster?

|  |  |
| --- | --- |
| * + Given
 | * + Work
 |
|  |  |

* A roller coaster starts down a hill at 10 m/s. Three seconds later, its speed is 32 m/s. What is the roller coasters acceleration?

|  |  |
| --- | --- |
| * + Given
 | * + Work
 |
|  |  |

* Sound travels 330 m/s. If a lightning bolt strikes the ground 1 km away from you, how long will it take for you to hear it?

|  |  |
| --- | --- |
| * + Given
 | * + Work
 |
|  |  |

* How long will it take a car traveling 30 m/s to come to a stop if its acceleration is -3 m/s2?

|  |  |
| --- | --- |
| * + Given
 | * + Work
 |
|  |  |

**E. Graphing Speed**



**Distance and Time are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_!**

**Independent Variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**(X Axis)**

**Dependent Variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**(Y Axis)**

**Reading a Speed Graph Distance – Time Grahp**



* slope =
* steeper slope =
* straight line =
* flat line =

**Reading a Constant Speed Graph**

* Who started out faster?
	+ \_\_\_\_\_\_\_\_ (steeper slope)
* Who had a constant speed?
	+ \_\_\_\_\_\_\_\_\_\_\_\_
* Describe B from 10-20 min.
	+ \_\_\_\_\_\_\_ stopped moving
* Find their average speeds.
	+ A = \_\_\_\_\_\_\_\_\_\_\_\_\_\_
	+ A = \_\_\_\_\_\_\_\_\_\_\_\_
	+ B =\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	+ B = \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Reading an Acceleration Graph**

**Distance Time Graph**



* Acceleration is indicated by a \_\_\_\_\_\_\_\_\_\_

on a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ graph.

* Changing slope = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Graphing Acceleration**

* slope =

Speed Time Graph

* + straight line =
* flat line =
* E. Graphing Acceleration

Specify the time period when the object was...

* slowing down
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* speeding up
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* moving at a constant speed
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* not moving
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_