5.3 Notes Outline

Acceleration

Acceleration Free Write

* In the space provided write down what you know about the following questions:
	+ What happens to acceleration when you slow down?
	+ If you throw a ball straight up, what happens to the acceleration?
	+ What is the acceleration when the ball as at the peak height (where it can no longer go up and has not yet begun to fall)?
* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:** the rate of change of velocity
	+ Units: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	+ Remember: velocity is a change in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Acceleration occurs when an objects changes its \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, its \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, or both
* When an object travels in a straight line and does not change direction, a graph of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ vs time can provide info about the object’s acceleration.
* The slope on a speed-time graph equals the object’s \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	+ - Identify and label the places on the graph where acceleration is occurring
* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:** the rate of change in velocity (m/s2)
* **Acceleration Equation:**
	+ Acceleration (m/s2) = change in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (m/s)

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (s)

 **a= Vf – Vi**

 **t**

* + - In some cases, your calculations will result in a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ acceleration. The *negative sign* for acceleration means *in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_direction.*

Circular Motion

* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**:acceleration toward the center of a curved or circular path

Projectile Motion

* Horizontal and vertical motion
	+ When you throw or shoot an object the force exerted by your hand give the object \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ velocity. The horizontal velocity is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
	+ When you release a rubber band, gravity causes it to accelerate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ causing the rubber band to have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ vertical velocity

Throwing vs Dropping

* If you throw a ball as hard as you could in a perfectly horizontal direction, would it take longer to reach the ground than if you dropped the ball from the same height? --- Actually it would not!
* The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ distance traveled by both objects is the same.
* The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ distance travelled by the thrown object is greater. (This means the energy spent on throwing the ball is used by traveling a greater distance \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ .)



Types of Acceleration Activity

* In groups, demonstrate three ways to accelerate while walking.
	+ Keep in mind the definition of acceleration (a change in velocity divided by a change in time)
* Be ready to verbally justify your reasoning and explain why walking at a constant speed is not accelerating
* Write down your three methods of acceleration and explain your reasoning in the space below: