## Motion and Forces Learning Targets Chapter 5, Sections 1 - 3



	Target	Before we start	Still don't know	Know some of it	Can Teach it	
1.	I can calculate speed using the correct formula and give the correct answer with correct units.					
2.	I can calculate velocity using the correct formula and give the correct answer with correct units and direction.					
3.	I can place distance and time on the correct axes on a line graph, calculate the interval, and correctly plot time and distance.					
4.	I can interpret and analyze a graph to be able to calculate speed at any given point or average speed.					
5.	I can identify what constant speed, stopping, slowing down, and speeding up look like on a graph.					
6.	I know the difference between a contact force and a noncontact force and can give examples of each.					
7.	I know the difference between a balanced force and an unbalanced force and can give examples of each.					
8.	I can calculate Net Force when given a set of balanced or unbalanced forces.					
9.	I can demonstrate and explain how inclined planes can be used to change the amount of force to move an object.					
Make and study flashcards for these vocabulary terms.Reference point– the starting point you choose to describe the location, or position, of an object						
Mot	tion – the process of changing position					
<b><u>Speed</u></b> – the distance an object moves in a unit of time						
Ave	erage Speed – total distance traveled divided by total time					

- 5. <u>Velocity</u> the speed AND direction of a moving object
- 6. <u>Distance/Time Graph</u> a graph that shows how distance and time are related
- 7.  $\underline{Force}$  a push or a pull on an object

1.

2.

3.

4.

- 8. <u>Contact Force</u> a push or a pull one object applies to another object that is touching it
- 9. <u>Noncontact Force</u> a force that one object applies to another object without touching it
- 10.  $\underline{\mathbf{Gravity}}$  an attractive force that exists between all objects that have mass
- 11.  $\underline{Mass}$  the amount of matter in an object
- 12. Weight the measure of the gravitational force acting on an object's mass

13. <b>Fr</b>	iction – a c	contact force	that resists	the sliding	motion of	of two	surfaces	that are	touching
				0					

14. Air Resistance – the frictional force between air and objects moving through it

15. Net Force – When more than one force acts on an object, the forces combine and act as one force. The sum of all the forces acting on an object is net force.

- 16. **Balanced Force** If the net force on an object is 0 N
- 17. Unbalanced Force if the net force on an object is not 0 N
- 18. Simple Machine has only one or two parts and is the simplest form of a device that can make work easier
- 19. Inclined Plane (ramp) a flat, sloped surface

20. Work – the amount of energy used as a force moves an object over a distance

#### Target 1

What is the formula to calculate speed?

A cheetah ran 100 m in 20 seconds. What was its average speed?

#### Target 2

The family took a vacation and traveled from Florida to New York. They traveled 1000 miles. It took them two days to make the trip. What was the average velocity on their trip?

Formula:\_\_\_\_\_

Equation:

Answer: \_\_\_\_\_

(number unit direction

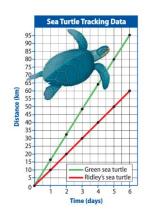


Target 3

### Plot the turtle's travel.

Time (sec)	Distance (cm)
0	0
3	30
6	60
9	90

## Target 4



Which turtle traveled fastest?

What is the speed of each turtle at 4 days?\_\_\_\_\_

What is the average speed of each turtle?\_\_\_\_\_

# Target 5

Under the graph, write if it is showing constant speed, stopping, increasing speed or decreasing speed.

distance	distance	distance Ump	
<u>Target 6</u>			
Contact Force			-
Example:			
Noncontact Force			-
Example:			

Targets 7-8					
Balanced Force					
Unbalanced Force					
	Is the picture to the left demonstrating a balanced force or an unbalanced force?				
5N 5N	Is the picture to the left demonstrating a balanced force or an unbalanced force?				
	Calculate the net force:				
What are three ways a simple machine, like an inclined plane, can make work easier?					
How do you find mechanical advantage	e of an inclined plane?				
Circle the inclined planes has the greate	est mechanical advantage.				
4 m	18 m				
Why?					