# Force and Motion Lab

8 Exploratory Stations

## Ball

- 1. Place the ball on the table/counter, where the "X" is.
- 2. Is this an example of balanced or unbalanced force? Why?
- 3. GENTLY push the ball so that it goes across the table/counter to the taped line.
- 4. Draw the movement of the ball.
- 5. Is this movement an example of balanced or unbalanced force? Why?

#### Car

- 1. With your lab partner, push the car back and forth GENTLY between the two of you.
- 2. What direction did the car go in? Explain why you think the car went on the path that it did (using new vocabulary words on forces).
- 3. Now explain what makes the car stop. Would the car eventually stop on it's own? How?

Dominoes

- 1. Set up the dominoes in a row so that they will touch each other when they fall.
- 2. How are you going to make the dominoes fall?
- 3. Knock the dominoes over. Was this an example of an unbalanced or balanced force?
- 4. Draw the domino set up and draw arrows to show the direction of movement.

Velcro Paddle and Ball

With a lab partner, play catch 2 or 3 times.

- 1. What is the force that makes the ball stop?
- 2. Is there a different force making the ball go towards the ground? What is it called?
- 3. When the paddle stops the ball, is that force moving in the same direction as the ball?

Spring Scale

One person hold the spring scale while another person puts weights on the scale.

- 1. What does the spring scale measure?
- 2. Write down the Force in Newtons (N) for each weight.

Weight	
100	g
200	g
500	g

Work these problems

- 1. Determine net force in Newtons.
- 2. Show your work!



Object hanging by a string

- 1. Draw a sketch of the set up on your paper.
- 2. Draw a force body diagram showing all the forces present.

Tug of War!

View the picture and then sketch it on your paper.



#### Tabitha

Tabitha and Zack are playing tug of war. If Zach pulls the rope to the left with a force of 800 N and Tabitha pulls the rope to the right with a force of 800 N, what will happen to the flag in the middle of the rope?