- **Name**_____ **Date**_____

Open up PhET simulation **"Forces and Motion."**

https://phet.colorado.edu/sims/html/forces-and-motion-basics/latest/forces-and-motion-basics_all.html

Force Size

0 **1:**  **2:**  **3:** 

+50N +50N +100N + 150N

TASK 1

a. Place 2 people that are the same size the same distance away from the cart.
b. Make a **prediction** about the movement of the cart.
c. **AFTER** you have observed the actual movement, click on the sum of the forces box at the top right hand corner of the simulation. Record the number in the data chart.

	Predicted Movement	**Actual Movement (none, left, right)**	**Sum of Forces (0, x-left, x-right)**
Same size, same placement on rope. 	none left slow right fast	none left slow right fast	IE 100N left 50N right 0 **Use formatting above** **Balanced or Unbalanced**

TASK 2

a. Place 2 people that are the same size different distances away from the cart.
b. Make a **prediction** about the movement of the cart.
c. **AFTER** you have observed the actual movement, click on the sum of the forces box at the top right hand corner of the simulation. Record the number in the data chart.

	Predicted Movement	**Actual Movement (none, left, right)**	**Sum of Forces (0, x-left, x-right)**
Same size – different placement 	none left slow right fast	none left slow right fast	IE 100N left 50N right 0 **Use formatting above** **Balanced or Unbalanced**

TASK 3

a. Place 2 people that are different sizes the same distance away from the cart.
b. Make a prediction about the movement of the cart.
c. AFTER you have observed the actual movement, click on the sum of the forces box at the top right hand corner. Record the number in the data chart.

	Predicted Movement	**Actual Movement (none, left, right)**	**Sum of Forces (0, x-left, x-right)**
Different size – same placement 	none left right slow fast	none left right slow fast	IE 100N left 50N right 0 **Use formatting above** **Balanced or Unbalanced**

TASK 4

a. Complete the table

	Predicted Movement	**Actual Movement (none, left, right)**	**Sum of Forces (0, x-left, x-right)**
	none left right slow fast	none left right slow fast	IE 100N left 50N right 0 **Use formatting above** **Balanced or Unbalanced**

Task 5

a. Complete the table

	Predicted Movement	**Actual Movement (none, left, right)**	**Sum of Forces (0, x-left, x-right)**
	none left right slow fast	none left right slow fast	IE 100N left 50N right 0 **Use formatting above** **Balanced or Unbalanced**

Task 6

a. Complete the table

	Predicted Movement	Actual Movement (none, left, right)	Sum of Forces (0, x-left, x-right)
	none left slow right fast	none left slow right fast	IE 100N left 50N right 0 **Use formatting above** **Balanced or Unbalanced**

Task 7

a. Complete the table

	Predicted Movement	Actual Movement (none, left, right)	Sum of Forces (0, x-left, x-right)
	none left slow right fast	none left slow right fast	IE 100N left 50N right 0 **Use formatting above** **Balanced or Unbalanced**

Task 8

a. Complete the table

	Predicted Movement	Actual Movement (none, left, right)	Sum of Forces (0, x-left, x-right)
	none left slow right fast	none left slow right fast	IE 100N left 50N right 0 **Use formatting above** **Balanced or Unbalanced**

Two small men on the left and a large man on the right is an example of an unbalanced force.

- **Give an example of a balanced force.**

- **Give an example of an unbalanced force.**