

• 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



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

TASK 1

- Place 2 people that are the same size the same distance away from the cart.
- Make a **prediction** about the movement of the cart.
- 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		none		IE 100N left
	left	slow	left	slow	50N right
	right	fast	right	fast	0
					Use formatting above
					Balanced or Unbalanced

TASK 2

- Place 2 people that are the same size different distances away from the cart.
- Make a **prediction** about the movement of the cart.
- 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		none		IE 100N left
	left	slow	left	slow	50N right
	right	fast	right	fast	0
					Use formatting above
					Balanced or Unbalanced

TASK 3

- Place 2 people that are different sizes the same distance away from the cart.
- Make a prediction about the movement of the cart.
- 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 slow right fast	none left slow right fast	IE 100N left 50N right 0 Use formatting above Balanced or Unbalanced

TASK 4

- 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 5

- 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 6

a. Complete the table

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

