

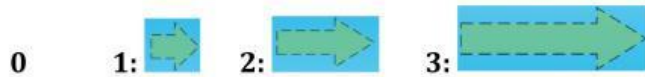
• Name \_\_\_\_\_

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](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.

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


**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.

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


**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.

	<b>Predicted Movement</b>	<b>Actual Movement (none, left, right)</b>	<b>Sum of Forces (0, x-left, x-right)</b>
Different size – same placement 	none left      slow right     fast	none left      slow right     fast	<div style="border: 1px solid black; padding: 5px;">                     IE 100N left                      50N right                      0                 </div> Use formatting above  Balanced or Unbalanced


**TASK 4**

- Complete the table

	<b>Predicted Movement</b>	<b>Actual Movement (none, left, right)</b>	<b>Sum of Forces (0, x-left, x-right)</b>
	none left      slow right     fast	none left      slow right     fast	<div style="border: 1px solid black; padding: 5px;">                     IE 100N left                      50N right                      0                 </div> Use formatting above  Balanced or Unbalanced


**Task 5**

- Complete the table

	<b>Predicted Movement</b>	<b>Actual Movement (none, left, right)</b>	<b>Sum of Forces (0, x-left, x-right)</b>
	none left      slow right     fast	none left      slow right     fast	<div style="border: 1px solid black; padding: 5px;">                     IE 100N left                      50N right                      0                 </div> Use formatting above  Balanced or Unbalanced


**Task 6**

a. Complete the table

	<b>Predicted Movement</b>	<b>Actual Movement (none, left, right)</b>	<b>Sum of Forces (0, x-left, x-right)</b>
	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

	<b>Predicted Movement</b>	<b>Actual Movement (none, left, right)</b>	<b>Sum of Forces (0, x-left, x-right)</b>
	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

	<b>Predicted Movement</b>	<b>Actual Movement (none, left, right)</b>	<b>Sum of Forces (0, x-left, x-right)</b>
	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.

