

Name \_\_\_\_\_

Period \_\_\_\_\_

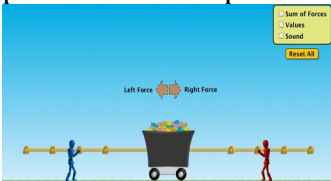
### FORCES AND MOTION

**Question:** What causes objects to move or stay still?

Open up PhET simulation "Forces and Motion."


#### 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 (none, left, right)</b>	<b>Actual Movement (none, left, right)</b>	<b>Sum of Forces (0, x-left, x-right)</b>
Same size, same placement on rope. 			

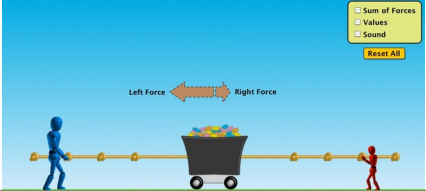
#### TASK 2

- Place 2 people *that are the same size but 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 (none, left, right)</b>	<b>Actual Movement (none, left, right)</b>	<b>Sum of Forces (0, x-left, x-right)</b>
Same size, different placement on rope. 			

**TASK 3**

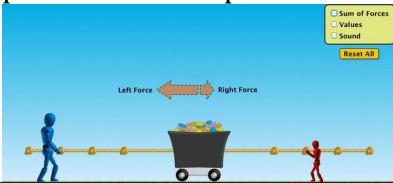
- Place 2 people that are *different sizes the same distance* away from the cart.
- Make a prediction about the movement of the cart.
- AFTER you have observed the actual movement, click on the sum of the forces box at the top right hand corner. Record the number in the data chart.

	<b>Predicted Movement (none, left, right)</b>	<b>Actual Movement (none, left, right)</b>	<b>Sum of Forces (0, x-left, x-right)</b>
<p>Different size, same placement on rope.</p> 			

\* Draw the left force arrow: \_\_\_\_\_ Right force arrow.  
**With numbers**

**TASK 4**

- Place 2 people that are *different sizes but 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 (none, left, right)</b>	<b>Actual Movement (none, left, right)</b>	<b>Sum of Forces (0, x-left, x-right)</b>
<p>Different size, different placement on rope.</p> 			

**Task 5**

- Using what you know so far, set up *2 people on the left side and 3 people on the right side to equal 200 N on each side*. Draw the size and placement of people below. (stick figures are okay as long as you show difference in size)