

## Balanced and Unbalanced Forces

Go to the following simulation to complete this worksheet: [https://phet.colorado.edu/sims/html/forces-and-motion-basics/latest/forces-and-motion-basics\\_en.html](https://phet.colorado.edu/sims/html/forces-and-motion-basics/latest/forces-and-motion-basics_en.html)

- Click on the 'net force' simulation.
- Tick the sum of forces, values, and speed boxes.



- Set up the simulations according to the pictures and complete the information:

Scenario:	Force to the right (N)	Force to the left (N)	Net force (N)	What happens when you press go?	Explain, using forces, why you think this is happening.
					
					
					
					
					
					
					
					

2. Determine the combination of players on the red and blue teams and draw an arrow diagram that will produce the net force listed:

Net force (N)	Blue team	Red team	Arrow diagram
150N Right			
100 N Left			

3. Count the second it takes red to win when:

- a) small blue vs medium red \_\_\_\_\_ b) small blue vs medium red and large red \_\_\_\_\_  
 c) explain using your knowledge of forces and net force why combination b moves faster than combination a.

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4. A blue team of two people played against a red team of one person. When the two teams started playing, the cart did not move. Use the simulation to explain why the cart did not move. Include a diagram of the forces in your explanation.

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Diagram:



5. State the direction of movement caused by the following pairs of forces:


6. What are two words that could describe the type of force being looked at in this simulation.

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