Name: _____ Date: _____

Investigating Non-Touching Forces

Part 1: Distance and Strength of Magnetic Force

Refer to the investigation plan that you made as a class. Conduct the tests with your partner and record the results below.

Test #	Starting distance between magnets	Distance one magnet moved
1	0 centimeters (touching)	
2	0 centimeters (touching)	
3	0 centimeters (touching)	
4	1 centimeter	
5	1 centimeter	
6	1 centimeter	
7	2 centimeters	
8	2 centimeters	
9	2 centimeters	
10	3 centimeters	
11	3 centimeters	
12	3 centimeters	

What pattern do you think the evidence shows about distance between magnets and strength of magnetic force?

_____

_____

Name: _____ Date: _____

Investigating Non-Touching Forces (continued)

Part 2: Investigating Strength of Forces

1. Which force will you investigate? (check one)

- ☐ magnetic force
- ☐ electrostatic force

2. What variable will you investigate?

_____

_____

3. How will you conduct your tests?

_____

_____

_____

_____

_____

4. How will you change that variable between each test?

_____

_____

_____

Name: _____ Date: _____

Investigating Non-Touching Forces (continued)

5. What will you measure and/or observe in order to gather evidence about the strength of the force?

_____

_____

6. What will you keep the same for each test?

_____

_____

_____

7. How many tests will you do?

_____

_____

Name: _____ Date: _____

Investigating Non-Touching Forces (continued)

Part 3: Investigation Results

Record the results of your investigation on this page. Create a data table if it helps to organize your results.

Name: _____ Date: _____

Investigating Non-Touching Forces (continued)

Part 4: Magnetic Device Problem

One team of engineers builds a device that uses repelling magnets to make a cart move. The moving cart has kinetic energy. A second team of engineers tries to build a copy of the device, but the cart does not move as fast. It does not have as much kinetic energy. The second team used the same cart as the first team, but they made their own version of the repelling magnets.

What might the second team have done differently? Describe two magnet variables that might have been changed. For each variable, explain why the change would have caused the cart to move more slowly and to have less kinetic energy.

First possibility:

_____

_____

_____

_____

_____

Second possibility:

_____

_____

_____

_____

_____