Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **2**

Magnetic Fields

Period\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Go to the PHeT “**[**Charges and Fields**](https://phet.colorado.edu/sims/html/charges-and-fields/latest/charges-and-fields_en.html)**” simulation.**

<https://phet.colorado.edu/en/simulation/charges-and-fields>

Directions: Draw and record all info on the data table below and on the backside of this paper.

1. Electric fields and magnetic fields are very similar to each other. The positive sphere on the simulation is like north on a magnet and the negative sphere is like south on a magnet. Click the **electric field** and **direction only** boxes in the top right corner of the screen.
2. **Place** a positive sphere onto the black area of the simulation. **Make a mode**l or drawing of the force arrows around the positive sphere on your data table and write a brief description.
3. **Remove** the positive sphere by dragging it back to the box and **place a** negative sphere onto the black area of the simulation. **Make a mode**l or drawing of the force arrows around the negative sphere on your data table and write a brief description.
4. **Place** a positive and a negative sphere about 2 inches apart onto the black area of the simulation.  Which way are the arrows pointing? **Make a mode**l or drawing of the force arrows around the positive and negative spheres on your data table and write a brief description.
5. **Place** a positive and a positive near each other.  Which way are the arrows pointing now? **Make a mode**l or drawing of the force arrows around the two positive spheres on your data table and write a brief description.
6. **Place** a negative and a negative sphere near each other.  Which way is the arrow pointing now? **Make a mode**l or drawing of the force arrows around the two negative spheres on your data table and write a brief description.

**Go to the PHeT “**[**Charges and Fields**](https://phet.colorado.edu/sims/html/charges-and-fields/latest/charges-and-fields_en.html)**” simulation.**

|  |  |  |
| --- | --- | --- |
| **Directions** | **Sketch** | **Description** |
| Positive circle on the simulation screen.  |  |  |
| Negative circle on the simulation screen. |  |  |
| **Directions** | **Sketch** | **Description** |
| Positive sphere near a negative sphere on the screen.  |  |  |
| Drag a positive and positive sphere near each other. |  |  |
| Drag a negative and negative sphere near each other.  |  |  |

|  |
| --- |
| **ANALYZE****How do the arrows you saw in the simulation explain the patterns the iron filings made in yesterday’s activity?** |
| **North end to South End** |  |
| **North end to North End** |  |
| **South end to South End** |  |

Communicating

In the conclusion box, **explain** why opposite ends of a magnet are attracted to each other but two ends that are the same are repelled. **Use evidence from your investigation (Phet simulation) in your summary.**

**Conclusion/Summary**

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