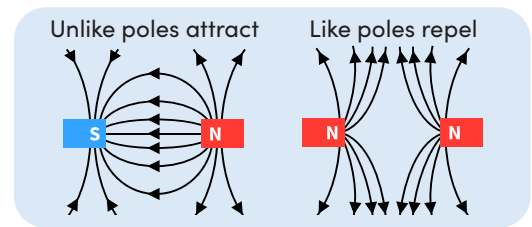


INVESTIGATING THE MAGNITUDE OF MAGNETIC FORCES

Magnets can pull or push on each other without touching. When magnets attract, they pull together. This is called an **attractive magnetic force**. When magnets repel, they push apart. This is called a **repulsive magnetic force**. The diagram shows the magnetic forces between two different pairs of magnets.



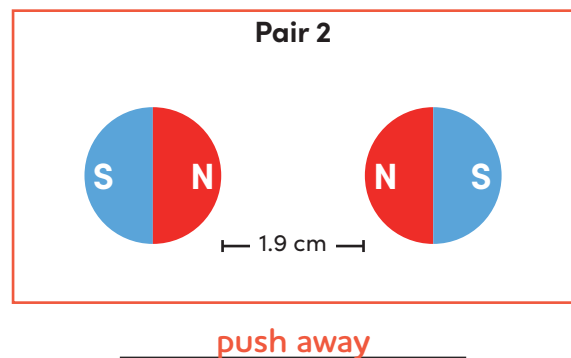
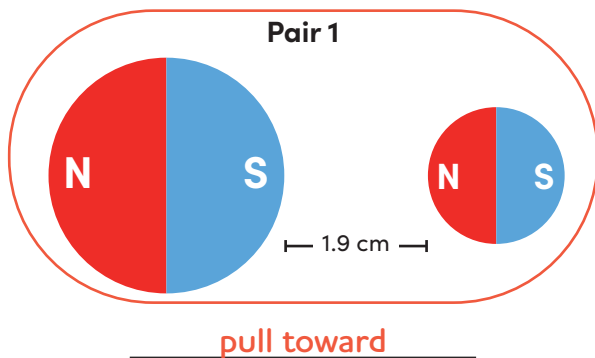
The strength of a force is called its **magnitude**. The greater the magnitude of a magnetic force, the stronger the attractive or repulsive force between the magnets. The magnitude of a magnetic force depends on the size of the magnets and the distance between them:

- The larger the size of the magnets, the greater the magnitude of the magnetic force between them.
- The smaller the distance between two magnets, the greater the magnitude of the magnetic force between them.

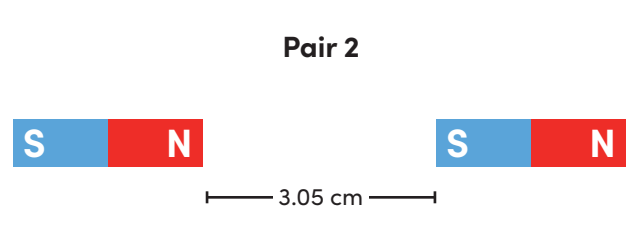
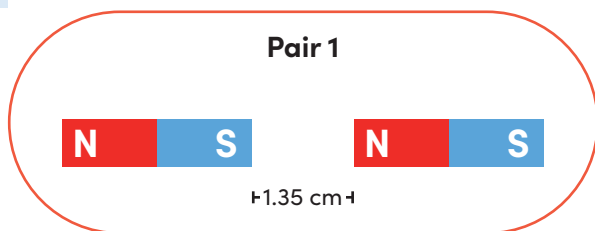
Look at the pairs of magnets in each problem below. Then answer the questions that follow.

Note: All magnets are made of the same material.

1. Underneath each pair of magnets, write whether they would push away or pull toward each other. Draw a circle around the pair of magnets that shows an **attractive magnetic force**. Draw a box around the pair of magnets that shows a **repulsive magnetic force**.



2. Circle the pair of magnets that has the **greater** magnetic force.



Explain why the pair of magnets you circled above has the greater magnetic force. Is this force attractive or repulsive?

Sample answer: This pair of magnets is closer together, so the magnitude of the magnetic force will be greater. This is an attractive magnetic force.

INVESTIGATING THE MAGNITUDE OF MAGNETIC FORCES

Keep going! Look at the pairs of magnets in each problem below. Then answer the questions that follow.

Note: All magnets are made of the same material.

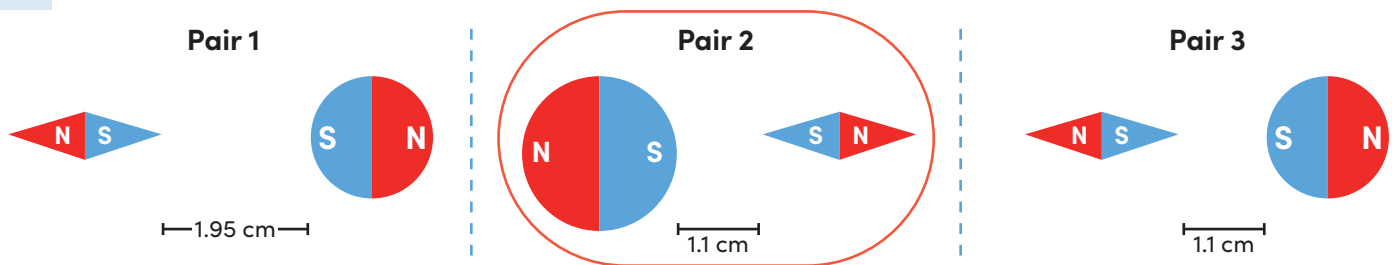
3. Circle the pair of magnets that has the **smaller** magnetic force.



Explain why the pair of magnets you circled above has the smaller magnetic force. Is this force attractive or repulsive?

Sample answer: This pair of magnets is smaller than the other pair, so the magnitude of the magnetic force will be smaller. This is an attractive magnetic force.

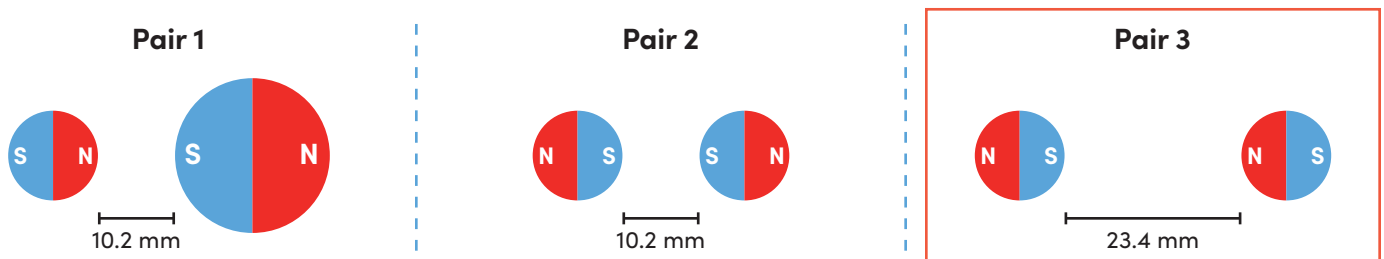
4. Circle the pair of magnets that has the **greatest** magnetic force.



Explain why the pair of magnets you circled above has the greatest magnetic force. Is this force attractive or repulsive?

Sample answer: This pair of magnets is larger and is closer together than the other magnet pairs, so the magnitude of the magnetic force will be the greatest. This is a repulsive magnetic force.

5. Circle the pair of magnets that has the **smallest** magnetic force.



Explain why the pair of magnets you circled above has the smallest magnetic force. Is this force attractive or repulsive?

Sample answer: This pair of magnets is the farthest apart, so the magnitude of the magnetic force will be the smallest. This is an attractive magnetic force.