

Learning Target: I will be able to complete an experiment to provide evidence to support the claim that magnetic fields exist between objects exerting forces on each other even when the objects are not in contact.

Drawing Magnetic Field Lines Activity

Introduction: In today's experiment you will be able to draw magnetic field lines to support the claim that magnetic fields exist between objects exerting forces on each other even when the objects are not in contact.

Materials: - Pen/Pencil - Compass - Magnet - Copy paper

Directions:

1. Turn your copy paper sideways. Place the magnet in the middle of the page and trace around it.
2. Place the compass near the top of the magnet on the right side. Mark the direction the compass needle points by marking a dot.
3. Move the compass so that the back of the needle lines up with the dot.
4. Repeat this until you reach the other end of the magnet on the right-hand side.
5. Connect the dots together to show your line. Draw an arrow to show the direction the needle is pointing in.
6. Place the compass near the top of the magnet making sure not to cover up the previous point. Mark the direction the compass needle points by marking a dot. Repeat steps 3 through 5.
7. Place the compass at the top of the magnet and repeat steps 2 through 5 on the right-hand side again.
8. Now place the compass near the top of the magnet on the left-hand side and repeat steps 2 through 6 like you did on the right-hand side.

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The 4 main properties of magnetic field lines:

Continuous	North	Cross
South	Closest	Poles

1. Magnetic field lines never _____ each other or overlap.
2. Magnetic field lines always point from the _____ pole to _____ pole.
3. Magnetic field lines are _____.
4. Magnetic force is the strongest where the lines are _____ together which is at the _____ of the magnet.

Post-activity Questions:

1. Based upon this activity, how can you tell that magnets have magnetic force and magnetic field lines that cannot be seen by the naked eye alone? _____
2. Where was the magnetic force the strongest on your drawing? _____
How can you tell? _____
3. Where was the magnetic force the weakest on your drawing? _____
How can you tell? _____
4. Write a Claims, Evidence, Reasoning argument using evidence from your activity that supports the claim that magnetic fields exist between objects exerting magnetic forces on each other even when the objects are not in contact. (The claim has been provided)

Claim: _____

Evidence: _____

Reasoning: _____
