

Nova's Magnetic Discovery Lab

Learning objective: To identify magnetic materials, understand the forces of attraction and repulsion, and explore how magnets work in everyday life.

Follow the drawing prompt to create your scientific diagram. Use the word bank to label your invention. Ensure your diagram clearly shows the difference between magnetic and non-magnetic materials.

Draw: Create a detailed scientific diagram on A4 paper. Include a large bar magnet with clearly marked poles. Surround the magnet with a variety of objects: a steel spoon, a wooden pencil, a copper coin, a rubber eraser, and a metal key. Use dotted lines to illustrate the invisible magnetic field lines curving from the North Pole to the South Pole. Use a clean, technical drawing style similar to an explorer's field journal.



Label words: North Pole · South Pole · Attraction · Repulsion · Magnetic Field · Ferrous Material · Non-magnetic

Steps:

1. Step 1: Draw a large bar magnet in the centre of your page. Label the two ends as the North and South Poles.
2. Step 2: Draw three items that would be attracted to your magnet and two items that would not. Label them clearly.

3. Step 3: Explain why a plastic ruler is not attracted to your magnet. Use the term 'magnetic material' in your answer.
4. Step 4: Predict what would happen if you brought the North Pole of a second magnet near the North Pole of your drawing. Label this interaction 'Repulsion'.
5. Step 5: Justify your answer: Why do we say magnets have a 'magnetic field' even though we cannot see it?
6. Step 6: Compare and contrast: How is a permanent magnet different from a magnetic material like a steel paperclip?