

Nova's Magnetic Discovery

Learning objective: To understand the properties of magnets, including magnetic materials and the concept of attraction and repulsion.

Read the passage carefully, then answer the questions below. Use full sentences and refer back to the text to support your answers.

Nova the owl was busy exploring her workshop when she discovered a collection of mysterious metal objects. She decided to test them with her trusty bar magnet. Nova noticed that the magnet pulled strongly towards a small iron key and a steel paperclip, pulling them across the table without even touching them. She scribbled in her notebook, 'These are magnetic materials!' Next, she tried to move a wooden block and a plastic button, but nothing happened. The magnet had no effect on these non-magnetic items.

Curious, Nova brought two magnets together. When she tried to push the two north poles towards each other, the magnets pushed back, refusing to connect. This was a force called repulsion. However, when she flipped one magnet around, they snapped together instantly with a satisfying 'click'. Nova realised that magnets have two poles, and they behave differently depending on which ends are near each other. She wondered if she could use this invisible force to build a magical, floating compass for her future stargazing adventures.

Word bank: magnetic · attract · repel · poles · force · material · iron

1. Identify two materials mentioned in the text that are attracted to a magnet. (2 marks) (2 marks)

2. What happens when Nova tries to push two north poles together? (1 mark) (1 mark)

3. Explain why Nova's magnet did not move the wooden block or the plastic button. (2 marks) (2 marks)

4. Based on the text, how can you tell that magnetic force is invisible? (2 marks) (2 marks)

5. Justify why it is important for scientists like Nova to keep a notebook of their experiments. (3 marks) (3 marks)

Draw: Draw a diagram of Nova's experiment showing two magnets repelling each other. Label the poles 'North' and 'South' and use arrows to show the direction of the invisible force.



Extension challenge: Compare and contrast how a magnet interacts with iron compared to how it interacts with plastic. What might happen if Nova tried to use her magnet underwater; would the invisible force still work? Justify your prediction using your knowledge of magnetic fields.