

Nova's Magnetic Mystery Challenge

Learning objective: To understand the properties of magnets, identify magnetic materials, and explore the behaviour of magnetic poles.

Join Nova the barn owl in her nocturnal laboratory! Read each question carefully and select the best answer. Remember, Nova loves precise scientific vocabulary.

Answer Key: 1. A (Iron), 2. True, 3. Repel, 4. B (North and South), 5. False, 6. Magnetic field, 7. True, 8. C (They have a magnetic field), 9. Steel, 10. Attract. --- Did you know? Magnets were first discovered in ancient times using a naturally occurring mineral called magnetite. Nova uses this knowledge to help her navigate during her night flights!

Word bank: attract · repel · pole · magnetic · iron · force · field · non-magnetic

1. 1. Which of these materials is magnetic? A) Iron* B) Aluminium C) Wood D) Plastic (1 mark)

2. 2. True or False: Two like poles (e.g., North and North) will pull towards each other. (1 mark)

3. 3. If you bring two opposite poles together, do they attract or repel? (1 mark)

4. 4. What are the names of the two ends of a magnet? A) Top and Bottom B) North and South* C) East and West D) Positive and Negative (1 mark)

5. 5. True or False: All metals, including copper and gold, are magnetic. (1 mark)

6. 6. What is the name of the invisible area around a magnet where its force can be felt? (1 mark)

7. 7. True or False: You can increase the strength of an electromagnet by adding more turns of wire to the coil. (1 mark)

8. 8. Why do magnets affect each other without touching? A) They are magic B) They are warm C) They have a magnetic field* D) They have electricity (1 mark)

9. 9. Name one common alloy that contains iron and is magnetic. (1 mark)

10. 10. If a paperclip is made of iron, will a magnet attract or repel it? (1 mark)

Draw: Draw a diagram of a bar magnet and use arrows to show the direction of the magnetic field lines flowing from North to South.



Extension challenge: 1. Explain why a compass needle acts like a tiny magnet. 2. Compare and contrast permanent magnets with electromagnets. 3. Justify your answer: If you cut a bar magnet in half, will you have one North piece and one South piece? Why or why not? 4. What might happen if the Earth's magnetic field suddenly disappeared? 5. Design an experiment to test which household items are magnetic. 6. If a magnet costs £2.50 and a set of iron filings costs £1.75, calculate the total cost for Nova to conduct three separate experiments if she needs one magnet and one set of filings for each.