

Grade 4 Science Assessment: Marvellous Magnets

Learning objective: To assess understanding of magnetic poles, attraction and repulsion, and the identification of magnetic materials.

Read each question carefully before answering. Use a pencil to draw any diagrams. Show your working for calculations if required.

Nova the barn owl is conducting an experiment in her forest laboratory. She has a collection of items including a steel paperclip, a wooden twig, a copper coin, an iron nail, and a plastic button. She uses a bar magnet to test which objects are attracted to it.

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

1. Identify which two items from Nova's collection will be attracted to the magnet. (2 marks)

2. Explain why the plastic button is not attracted to the magnet. (2 marks)

3. Max the monkey has two bar magnets. He pushes the North pole of one magnet toward the North pole of another. Describe what will happen and explain why. (3 marks)

4. If Max flips one magnet so that the North pole faces the South pole of the second magnet, what force will occur? Use the correct scientific terminology. (2 marks)

5. Nova wants to prove that magnets work through materials. Describe a simple experiment she could perform to show that a magnetic force can act through a piece of paper. (4 marks)

6. List two ways that magnets are used in everyday life, explaining the role the magnet plays in each example. (4 marks)

7. Extended Writing: Imagine you are an inventor like Kit the fox. You need to design a way to sort a pile of mixed metal scraps (some containing iron, some containing aluminium) using magnets. Write a paragraph explaining how you would build a sorting machine and how it would effectively separate the materials. (8 marks)

Draw: Draw a diagram of two bar magnets placed end-to-end. Label the poles 'N' and 'S' so that the magnets are repelling each other.



Extension challenge: Total: /25. Research Task: Find out how a compass works. Write three sentences explaining how the Earth acts like a giant magnet to help sailors and explorers navigate.