

Magnetic Maze

SCIENCE
MUSEUM



Age
7-11
11-14

Topic
MAGNETISM

20 MIN

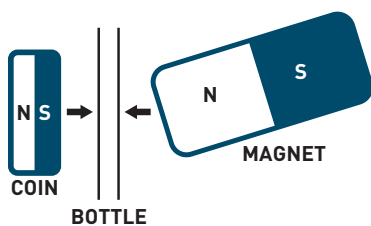
Skills used

MAKING OBSERVATIONS • CURIOSITY

Overview for adults

This activity provides a fun way to explore magnetism. It involves the simple task of using a magnet to guide a coin through a maze drawn on the side of a plastic bottle. There is plenty of opportunity to think about and talk about how magnetism works, and why magnets only attract certain materials.

What's the science?



A magnet is anything that has a magnetic field around it. In this activity, the magnet's field temporarily makes the coin into another magnet. The two magnets attract, and the coin is pulled towards the magnet. Only certain materials are affected by magnetic fields in this way; by far the most affected is iron. Many modern coins are made of steel (an alloy made mostly of iron) coated with a thin layer of either copper or nickel. Twenty-pence coins are made of an alloy of copper and nickel, and will not work in this activity.

Science in your world

Among the many everyday applications of magnets are fridge decorations that cling to (steel) fridge doors, and the magnetic strip on the inside of a fridge door that keeps the door closed. Electromagnets are coils of wire wound around an iron core. When current flows through the coil, it produces a magnetic field, which magnetises the iron. Electromagnets are found in electric motors, cranes in scrapyards and in loudspeakers and headphones.

Museum links



See the Holmes lighthouse generator, which used strong magnets to create electricity and powered one of the world's brightest lights, in the Science Museum's **Making the Modern World** gallery.

You can experiment with magnetism and electricity in **Wonderlab: The Statoil Gallery**.

Did you know...?

The word 'magnet' comes from part of Ancient Greece called Magnesia, where a magnetic iron ore was mined.

Can you guide a coin through a maze, using the invisible force of magnetism?

You will need...



A plastic bottle



A 10p coin, 20p coin
or a ball bearing



A magnet



A marker pen

Think and talk about...

- What happens when you hold the magnet near the coin or ball bearing?
- Why doesn't the bottle stick to the magnet?

Investigate...

- Does this work with all coins?
- Try some other things inside your bottle maze, such as a button, marble or hair clip. Which materials stick to the magnet?

Follow these steps...



Draw a maze onto the bottle with a marker pen.



Drop the coin or ball bearing inside the bottle and use a magnet to guide it through the maze.



Try doing the same with your other objects. Which ones work, and why?



Try some different maze patterns too.

Science in your world

Whether it's keeping your bag closed or sticking photos on your fridge, magnets have many uses in everyday life. They are in loudspeakers, headphones and electric motors.

