



# Science

## Forces and Magnets



# Marvellous Magnets



# Aim

- I can explain that magnets attract some materials.

# Success Criteria

- I can identify materials that are attracted to magnets.
- I can use the force of magnetic attraction to make a magnetic game.
- I can explain how a magnetic game works by attracting materials.

# Forces and Magnets

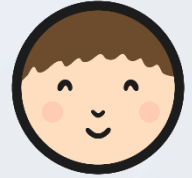


What do you know about forces and magnets? Try this group challenge to show what you know!

Your group has six questions about forces and magnets. At the front of the classroom are eight answers. Your task is to match the numbers of the questions with the letters of the answers!

1. Send one person from your group to the front to collect an answer card.
2. Bring it back to your group and decide which of your questions it answers.
3. Write the letter of the answer next to the question.
4. Send a different person to put the answer card back and swap it for a different one.
5. Be careful! Two of the answers are trick ones - they don't match with any question!
6. Repeat until you have matched all the answers to your questions.

# Use the Force

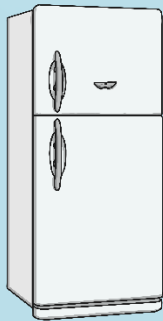


Magnets have a magnetic field around them that produces a pulling force on some materials.

This pulling force can go through other materials such as paper or wood. Try it! Place a magnet behind a piece of paper and see if a paper clip is attracted to the magnet through the paper.



Compass



Fridge



Vending  
Machine



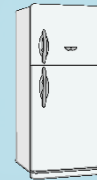
Laptop

# Useful Magnets

This magnetic force can be used...  
to point north in a compass;



to hold a fridge door closed;



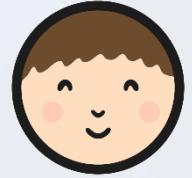
to sort coins in a vending machine.



in a laptop lid so that the computer can tell if it is open  
or closed;



# Magnetic Games



You are going to design and create a game that uses magnetic force to attract materials.

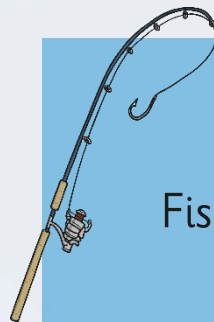
You will have chance to try out your games and evaluate them.

There are several ideas for games you may choose to make. Have a look at the suggestions, and the equipment you have.

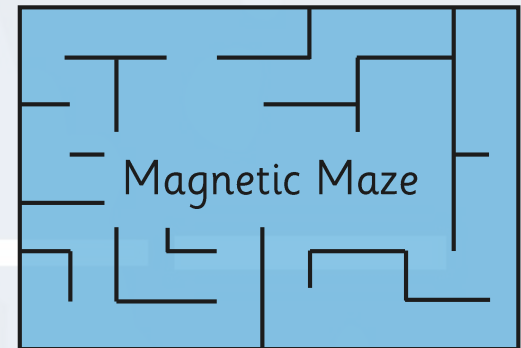
Racing Game



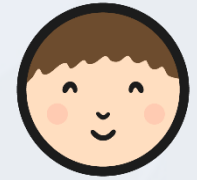
Fishing Game



Magnetic Maze



# Magnetic Games

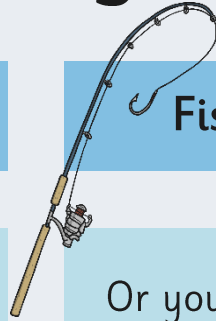


## Racing Game

How about creating a racing game? Draw a race track on card or paper. Cut out cardboard people or cars to race on the track, and attach a paper clip to each one. By holding a magnet under the track, you can control a racer and move it around the track.



## Fishing Game

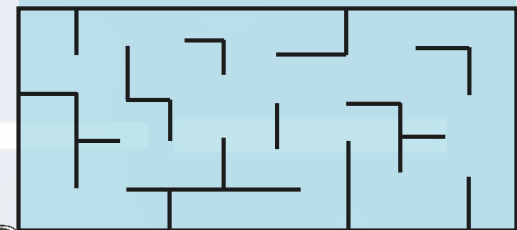


Or you could create a fishing game. Draw a pond on cardboard, or use a bowl or tray. Cut some fish shapes out of cardboard and attach a paper clip to each one. Place them in your pond. Tie a magnet to a straw or dowel with a length of string to make a fishing rod. Use the fishing rod to catch fish from the pond!



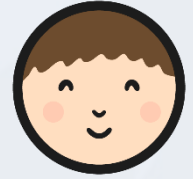
## Magnetic Maze

Why not make a magnetic maze? Draw a maze on a piece of card. Hold a magnet under the card and try to guide a paper clip around the maze. Can you find your way to the centre, or make your way out?





# Design and Make Your Magnetic Game!



Use your **Magnetic Game Activity Sheet** to design your game and explain how it uses magnetic force to attract materials.

When you are happy with your design, it is time to make it!

The worksheet is titled "Magnetic Game" and is divided into two main sections. The left section is for the student's design and explanation, while the right section is for a partner's feedback.

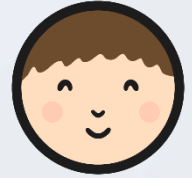
**Left Column:**

- At the top left is a star icon.
- The title "Magnetic Game" is centered at the top.
- Below the title is a rounded rectangular box with three small circles on the right side, intended for a drawing or label.
- Text: "Design and label your magnetic game in the box below." followed by a large empty rectangular box for drawing.
- Text: "How does your game use magnetic force to attract materials?" followed by two horizontal lines for writing.
- Text: "Use these words to help you explain your ideas." followed by a row of icons: a bar magnet, a magnet attracting a paper clip, a magnet attracting a steel nail, a paper clip, a red arrow pointing right, and a person pulling a rope.
- Text: "Your partner should fill in this section when they have played your game." followed by several horizontal lines for writing.
- Text: "What was the game like?" followed by a horizontal line.
- Text: "What did you enjoy about playing it?" followed by a horizontal line.
- Text: "How was the force of magnetic attraction, used in this game?" followed by a horizontal line.

**Right Column:**

- The title "Magnetic Game" is centered at the top.
- Below the title is a rounded rectangular box with three small circles on the right side, intended for a drawing or label.
- Text: "Design and label your magnetic game in the box below." followed by a large empty rectangular box for drawing.
- Text: "How does your game use magnetic force to attract materials?" followed by two horizontal lines for writing.
- Text: "What was the game like?" followed by a horizontal line.
- Text: "What did you enjoy about playing it?" followed by a horizontal line.
- Text: "How was the force of magnetic attraction, used in this game?" followed by a horizontal line.

# Play and Evaluate



Share your game with a partner.

Explain how your game works, then try it out together. Listen to your partner explain their game, and then play it.

How do the games work? How are magnets used in each game?

Swap your **Magnetic Game Activity Sheets** and fill in the Evaluation box on your partner's sheet to comment on their game and how it works.

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