Book 3A, Unit 3 *Magnets*

Lesson 1 *Magic Magnets*

Science Objectives

By the end of this lesson, students will be able to:

- State that magnets can attract some things without contact.
- State that magnets can attract some metal materials.
- Test if a material can be attracted by a magnet.

Language Objectives

In this lesson, students will have the opportunity to use:

- Words relating to the features of magnets: **attract, magnet**
- The sentence structure: "The magnet (can/cannot) attract (iron/plastic)." to describe exploration with a magnet.
- Additional language: **magnetic, force**

Materials

Unit Opener Activity	**Stimulus Activity**	**Activity 1**
per pair: - a magnet - a few paper clips	*per pair:* - a magnet	*per group:* - a magnet - a piece of paper - a paper clip

Activity 2	**Activity 3**
per group: - a magnet - a plastic bag - a wooden spoon - a sheet of paper - an iron nail - an aluminum can - some copper wire - a set of sticky labels: *plastic, wood, iron, paper, aluminium, copper*	*per group:* - a magnet - a pencil or chopstick - string - coloured paper - paperclips - scissors - pens - a large bowl or other container, with a flat base

Unit Opener Activity

Books closed!

- Put students into pairs. Give each pair a magnet and some paper clips.
- Hold up a magnet and ask: What is it? (It is) a magnet. Write *magnet* on the board.

- Tell students to put their paper clips in a pile on one side of a desk. Ask: Can the magnet push the paper clips? Write *push* on the board and give students time to experiment pushing the paper clips around the desk with the magnet.
- Explain that another word for "push" is "repel". Write *repel* on the board and model it for students to repeat.
- Ask: Can the magnet pull the paper clips? Again, give students time to experiment.
- Explain that another word for "pull" is "attract". Write *attract* on the board and model it for students to repeat.

Open your books

- Open the SB at p8 and draw students' attention to the pictures. Encourage them to describe the pictures by asking questions such as: What can you see in the pictures? Where are the magnets? What do the magnets look like? What are they doing?
- Read the chant line by line, use gestures to help students' understanding:
  - *I can push, I can pull.*
  - *I am a magnet.*
  - *I repel (排斥), I attract (吸引).*
  - *I am a magnet.*
- Play the recording of the chant and ask students to use gesture to mime push/repel, pull/attract.
- Say: In this unit, we are going to find out about magnets.

Stimulus Activity

Books closed!

- Show students a magnet. Hold the magnet against something iron in the classroom, so that it sticks. Say: My magnet sticks to the [object].
- Hold the magnet against something not made of iron (i.e. paper or wood) in the classroom, so that it does not stick. Say: My magnet does not stick to the [object].
- Put students into pairs and give each pair a magnet. Tell students to go around the classroom and do a "magnet test" to find things that it sticks to.

> **Teacher Tips**
>
> Remind students to avoid testing their magnets on watches, mobile phones and IC cards as this could damage them.

Open your books

- Draw two columns on the board, one with a ✔ at the top and one with a ✘.
- Open the SB at p29 and draw students' attention to the picture. Ask: Does Bob's magnet stick to the door handle? Yes, (Bob's magnet sticks to the door handle). Write *door handle* in the ✔column. Ask: Does Susan's magnet stick to the wooden chair? No, (Susan's magnet does not stick to the wooden chair).
- Nominate students to share the results of their magnet test. Write students' answers in the relevant column.

- Point to the ✔column and say: A magnet attracts all these things. Write *magnet* and *attract* on the board.
- Say: Today, we are going to find out about the magic of magnets.

Extension

To make the "magnet test" activity more fun, give students letter magnets and encourage them to use the letters to spell out words on objects and surfaces that the magnets stick to, such as *magnet* and *attract*.

Key Words

- Open the SB at p15 and draw students' attention to the key words.
- Write the key words on the board: **attract**, **magnet**
- Read or play the recording of the key words and ask students to repeat.
- Use pictures or gestures to help students understand their meanings.

Activity 1

Books closed!

- Put students into pairs. Give each pair a piece of paper, a magnet and a paperclip.
- Tell students to draw a race track on the piece of paper. Remind them to keep their design quite simple.
- Tell students to put the paperclip at the start of the race track and a magnet under (but not touching) the piece of paper. Ask: Can your paperclip move around the racetrack?
- When all students have had time to move the paperclip around their race track, ask: Can magnets attract things without contact? Yes, (magnets can attract things without contact). Explain the word "contact" using body language.

Extension

Tell students to repeat the activity with more pieces of paper. Encourage them to describe the effect of this by asking questions such as: Does the paperclip move faster or slower? Does the magnetic force feel stronger or weaker?

Activity 2

Books closed!

- Put students into groups. Give each group a set of labels (*plastic*, *wood*, *paper*, *iron*, *aluminium*, *copper*) and a set of objects (plastic bag, wooden spoon, sheet of paper, iron nail, aluminium can, copper wire).
- Tell students to work together to label the objects.
- Check answers as a class.

Open your books

- Open the SB at p30 and read the question: Which materials can the magnet attract? What do you think? Give students time to discuss and decide together in their groups, and to complete the sentence on p30 with their prediction.
- Give each group a magnet and tell them to use the magnet to try to attract the materials.
- When all groups have tested the materials, tell them to share their results. They should all have found that the magnet can attract iron.

> **Teacher Tips**
>
> Students may have expected the magnet to attract all the metals, but in fact magnets do not attract all metals (e.g. copper, aluminium and some forms of stainless steel).

Activity 3

Books closed!

- Put students into groups. Give each group the materials they need to make their fishing rod and fish.
- Demonstrate each step for students to follow:
  1) Draw around the fish template onto coloured paper.
  2) Cut out the paper fish.
  3) Attach a paperclip to each fish.
  4) Attach the magnet to the rod using the piece of string.
- Tell students to put their paper fish into a bowl and take turns to try to catch the fish.

Open your books

- Open the SB at p31 and tell students to write down the number of fish they caught.

Extension

Play a game of "Go fish!". Put students into teams and make sure each team has a "fishing rod". Put all of the paper fish into a large container or on a large sheet of paper or plastic. Explain that when you call "Go fish!", one students from each team should try to catch as many fish as possible within 20 seconds. When you call "Go fish!" again, the student should pass the fishing rod to another team member. Continue until all of the fish have been caught from the pond – the team that has caught the most fish wins!
To make the game more interesting and challenging, you could also write a number from 1 to 10 on each fish. Students then have to try to catch the fish with the biggest number and add the numbers together as their score – the team with the highest score, not necessarily the most fish, wins.

> **Teacher Tips**
>
> Remind students to be careful not to hit each other with the fishing rods while playing the game. In particular, they should keep the ends of the rods away from other' faces.

Now I Know ...

Books closed!

- Write *Magnets can attract some things with/without contact. Magnets can attract some wooden/metal/paper materials.* on the board.
- Encourage students to complete the sentences by choosing the correct words.
- Read and/or listen to the recording and ask students to repeat: *Magnets can attract some things without contact. Magnets can attract some metal materials.*

Let's Practise!

Open your books

- Open the SB at p32 and read the question: Can a magnet attract keys through a piece of paper? What about two or more? Encourage students to share their ideas.
- Put students into groups. Give each group a magnet, a piece of paper and some keys and tell them to try to attract the key(s) through the paper.
- Tell students to complete the activity by drawing their results.