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Cambridge Primary **Science**

2nd Edition

Brochure

Beyond Basics, Reimagine Education

Marshall Cavendish Education Cambridge Primary Science (2nd Edition)

Marshall Cavendish Education (MCE) Cambridge Primary Science (2nd Edition) series fulfils the new Cambridge Primary Science curriculum framework (0097). The series is designed to help young learners build a sound understanding of scientific concepts and to become young scientists who make a difference to the world with their knowledge and skills.

Within this series, you will find Singapore's tried-and-tested methodologies embodied in high-quality resources that support the Cambridge Primary Science curriculum framework. This programme includes a range of supporting resources, customisable for both online and face-to-face learning, in order to consistently deliver outstanding learning and teaching experiences.

The 2nd Edition has retained the active learning approach, easy-to-understand language, and rich visuals. It builds on the previous edition by incorporating the new Thinking and Working Scientifically strand which aims to nurture students into active learners who understand the role science plays in the world around them.

Product Architecture

STUDENT'S BOOK

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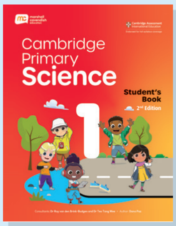

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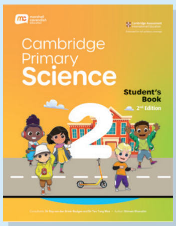

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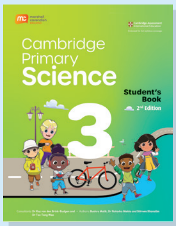

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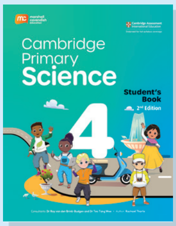

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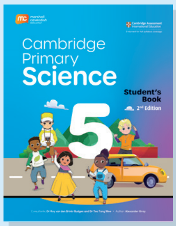

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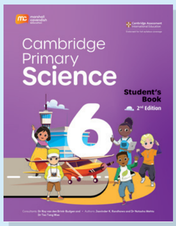

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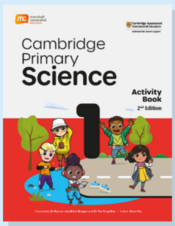

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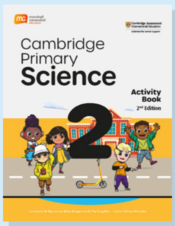

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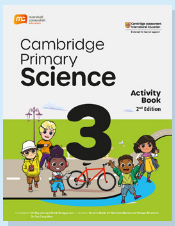

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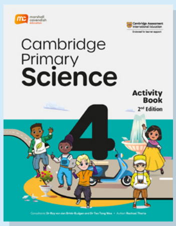

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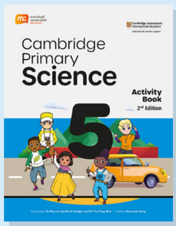

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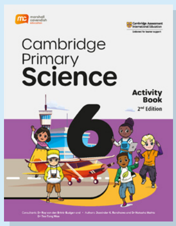

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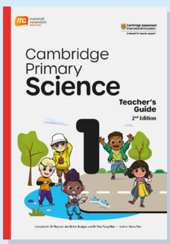

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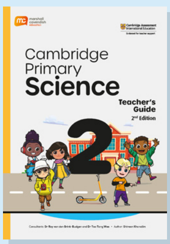

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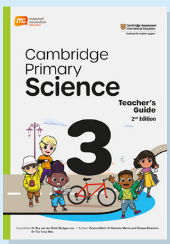

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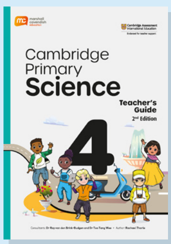

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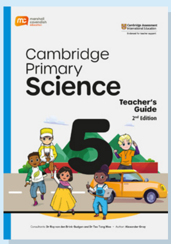

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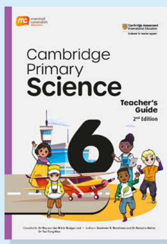

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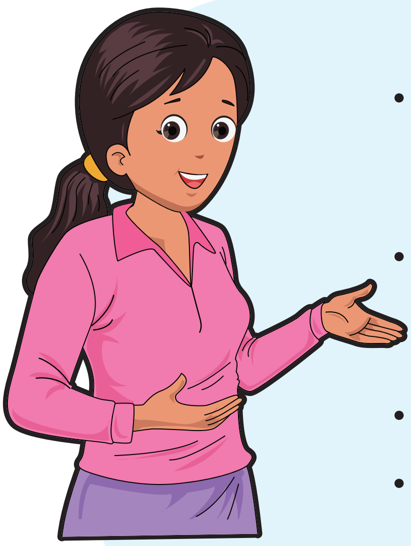
ADDITIONAL DIGITAL RESOURCES*

- o **Student's Book**
  - Annotatable Enhanced eBooks (Tagged with interactive digital resources)
- o **Activity Book**
  - Annotatable eBooks
- o **Digital Teacher's Guide**
  - Scheme of Work (Editable)
  - Lesson Plans (Editable)
  - Teaching Ideas and Strategies (Editable)
  - Suggested Answers for Student's Book and Activity Book
- o **Homework Worksheets (Editable)**
- o **Lesson PowerPoint Slides (Editable)**
- o **Depository of Licensed Videos**

**These resources will not go through the Cambridge International Education endorsement process.*

Why choose MCE Cambridge Primary Science (2nd Edition)?

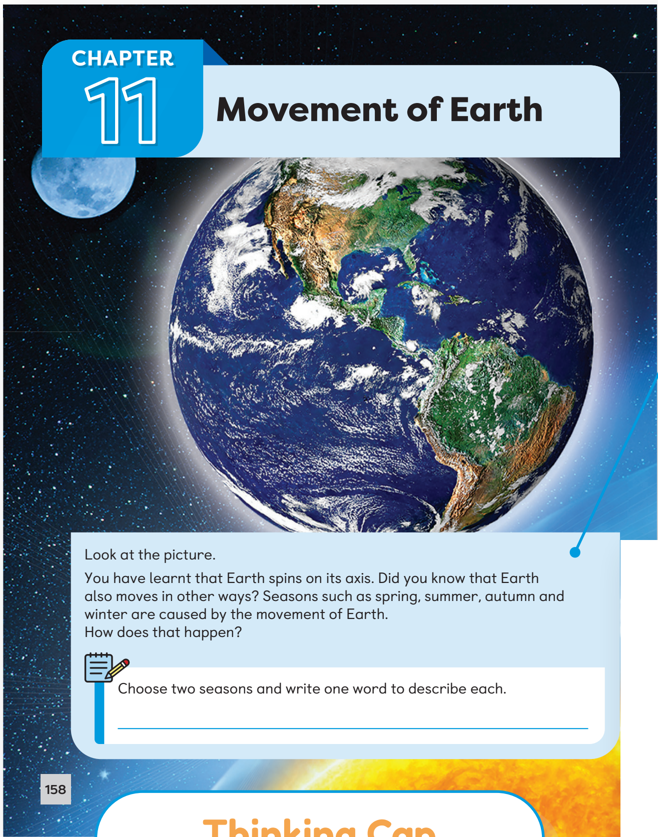


- Offers the best of both worlds to equip students for successful and meaningful living in the 21st century
- Provides effective support and strategies for English as a Second Language (ESL) learners and educators
- Promotes relatability through real-life contexts
- Delivers a fun and engaging hybrid learning experience

Offers the Best of Both Worlds to Equip Students for Successful and Meaningful Living in the 21st Century

This series combines Cambridge International's global standard with Singapore's tried-and-tested methodologies. It has retained the active learning approach and incorporated the new Thinking and Working Scientifically strand. This will help to develop learners' scientific skills, allowing them to master 21st century skills such as critical and creative thinking skills.

Well-crafted questions embedded within the content and investigations support scientific inquiry. This will nurture active learners who think and work like scientists. This series also provides opportunities for self-directed learning and reflective thinking.

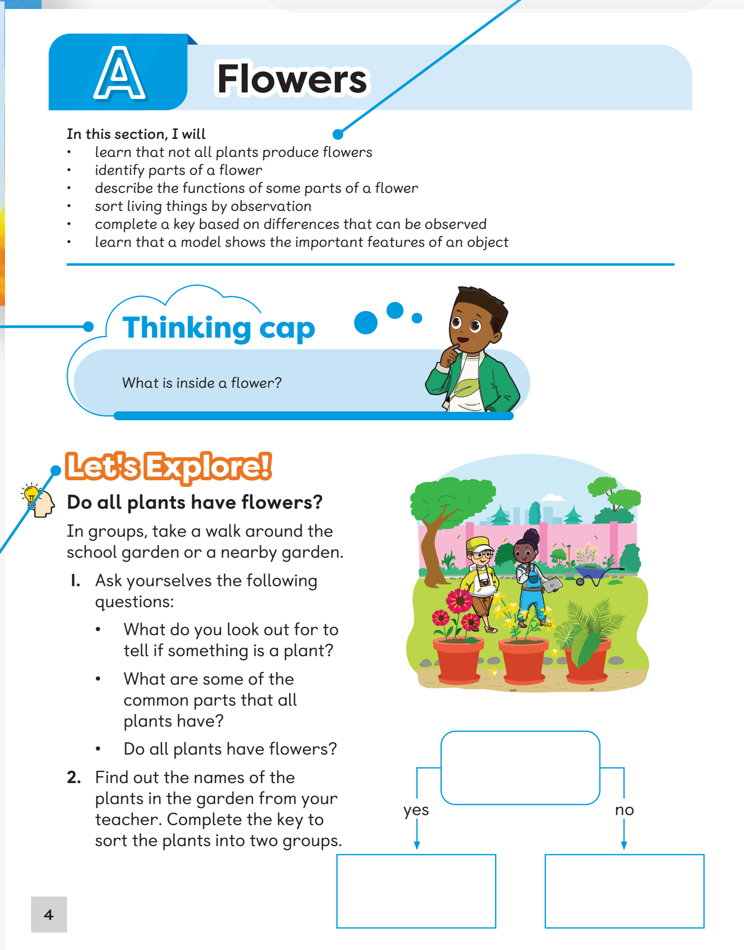


Chapter Opener

Inquiry questions, which require direct answers, opinions, or explanations, are used to ***trigger discussions*** pertaining to the topic and ***encourage deeper thinking*** related to the concepts.

In this section, I will...

A list of learning outcomes helps learners to be ***aware of their learning pathway and success criteria*** for each section.



Thinking Cap

Question prompts encourage learners to ***reflect and think about what they already know***, allowing educators to ***evaluate their prior knowledge***. Learners can exercise higher-order thinking and ***model reflective behaviour, like a Cambridge learner***.

Let's Explore!

Hands-on activities, which can include group or peer discussion, are easily conducted in class, allowing learners to ***explore concepts*** before learning the facts and ***build 21st century skills***, such as communication and collaboration.

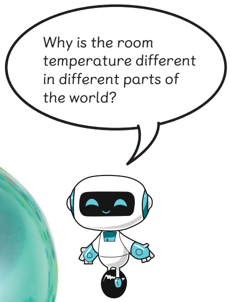
Let's Learn

What Are Gaseous Substances?

In Stage 3, you have learnt that substances can exist as solids, liquids and gases. Substances that are gases are said to be in the **gaseous** state.

When you squeeze a sponge under water, you will observe bubbles. The bubbles are made of air. The air around us is a mixture of gases such as nitrogen, oxygen, and small traces of carbon dioxide, water vapour and hydrogen. These substances exist as gases at **room temperature**, which is the temperature of our surroundings.

The air you blow into a balloon is a mixture of gases.



Can you name other substances that are gases at room temperature?

Word Boost

Let's Learn

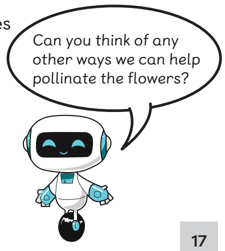
Apart from explanation of the key points, ***inquiry questions*** are embedded within the main text to ***promote thinking and discussion***.

Problem-based Learning

Help pollinate the plants!

Many of the plants grown for food depend on pollination. Honeybees play an important role in pollinating the flowers, but their population is reducing. We need to find other ways to pollinate flowers so we can produce enough food.

1. Work in groups. Design a machine that can be used for pollination. It could be hand-powered or wind-powered, or use another way to transfer pollen.
2. List down a scientific question that your group wishes to investigate in order for you to understand the pollination process better. Select the appropriate scientific enquiry to use to find the answer.
3. Which type of scientific enquiry has your group chosen to use? Why?
4. Present your idea or model to the class.



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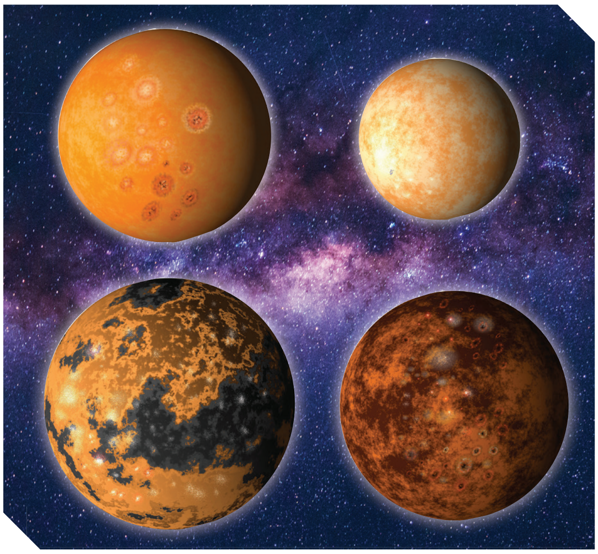
Problem-based Learning

These activities will encourage learners to ***think critically and creatively*** for possible solutions to ***real-life problems*** that affect them, their community, or society.

Science at Work

The Italian astronomer Galileo discovered four of Jupiter's moons in 1610.



Io, Europa, Ganymede and Callisto were the first four moons found by Galileo. More than 70 moons of Jupiter have been discovered over the years, and over 50 of them have been named. There may also be more moons that have not been discovered yet.

Carry out research to find out how our understanding and knowledge of Jupiter's moons have changed over time. Create a timeline to show what you have found.

Science at Work

Provides information to relate the topic to science careers or everyday life. ***Research questions*** are included for ***further exploration to extend learning***.

Tech Talk!

Features modern technology that can be used to solve issues related to the topic and includes a ***critical thinking question*** for learners to ***ponder and conduct research***.

Tech Talk!

Many scientists look at adaptations of animals to come up with new inventions. There is a type of glue that works underwater. This glue is modelled after how mussels have adapted to living underwater. The glue is made to work well in water so that it can be used to fix cracks in aquariums and swimming pool floors.

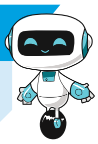
Find out what other useful products have been modelled after adaptations that plants and animals have.

Check Your Learning

Formative assessment questions at the end of a section help to ***check learners' understanding***.

Check Your Learning

Describe two adaptations of plants and animals in hot and cold environments.



I Can

A list of statements which summarise what learners should know at the end of a section. Learners can ***check on their progress*** through this ***reflective exercise***.

Tick (✓) to show what you can do.

- [ ] I can describe how plants and animals are adapted to different environments.
- [ ] I can use science to support my points of view in discussions.

Activity Book
Activity 3A, p. 21

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Practice Worksheet

End-of-chapter questions that are available in various formats, such as fill-in-the-blanks and tick the right answer(s), can help ***consolidate learning*** and ***assess learners' overall understanding of concepts***.

Practice Worksheet

1. Tick (✓) the correct box beside each sentence.

	True	False
Leaves are the reproductive parts of flowering plants.	☐	☐
The anther contains pollen grains.	☐	☐
The transfer of pollen grains from the anther to the stigma is known as fertilisation.	☐	☐
The ovary develops into a fruit after fertilisation.	☐	☐
Seeds are dispersed only by animals.	☐	☐
Seeds need light to germinate.	☐	☐

2. Draw lines to match the parts of flowers to their functions.

part	function
anther •	• attract insects for pollination
ovary •	• the part where pollen lands
petals •	• contains pollen grains
stigma •	• contains ovules that may develop into seeds

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3. This plant has brightly coloured flowers that are useful for a process.

Which process is it?

Tick (✓) the correct answer.

germination ☐

pollination ☐

seed dispersal ☐

4. Reza and Vinit placed some bean seeds in identical pots of soil and gave them an equal amount of water. Reza kept his pot in the refrigerator. Vinit kept his pot at the window sill. The pictures below show what they observed a few days later.

Reza's pot Vinit's pot

Give **one** reason why the seeds in Reza's pot did not germinate.

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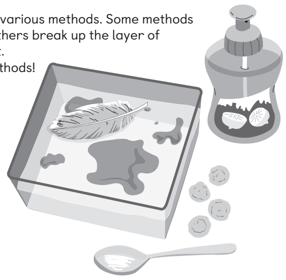
Activity 10B Clean Up the Oil Spill

Skills: Use a model to illustrate and explain a scientific idea, reach a scientific conclusion from my results

Oil spills are cleaned up using various methods. Some methods help to remove the oil, while others break up the layer of oil to reduce its harmful effect.
Let's try out some of these methods!

Materials:
Container
Water
Spoon
Vegetable oil
Feather
Cotton balls
Dishwashing liquid



Method

1 Fill half of a container with water. Add a tablespoon of oil into the container.

Record what you observed.

2 Put a feather into the oily water. Then remove the feather and observe what the oil has done to it.

a Record what you observed.

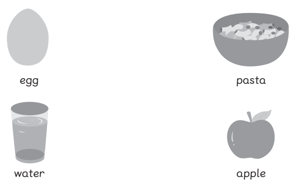
b Based on your observations, how do oil spills affect bir

Activity Worksheet

A variety of engaging activities such as hands-on exercises and research allow learners to ***apply their knowledge in practical scenarios*** and ***encourage them to think and work scientifically***. They are designed to help learners ***develop scientific skills***, as well as ***21st century skills*** such as critical thinking, creativity, and communication.

Let's Review

1 Aminah is preparing to run a marathon. Which of these would provide her with the most energy for the race? Circle the correct answer.



2 Some people do not have a balanced diet. This can cause problems with their health.

Draw a line to match the diet to the problem it can cause.

diet	problem
too much fat •	• not much energy
too much sugar •	• heart disease
not enough protein •	• tooth decay
not enough carbohydrate •	• poor growth

3 Erin wants to eat cupcakes after every meal. Give **two** reasons why this could be unhealthy for Erin.

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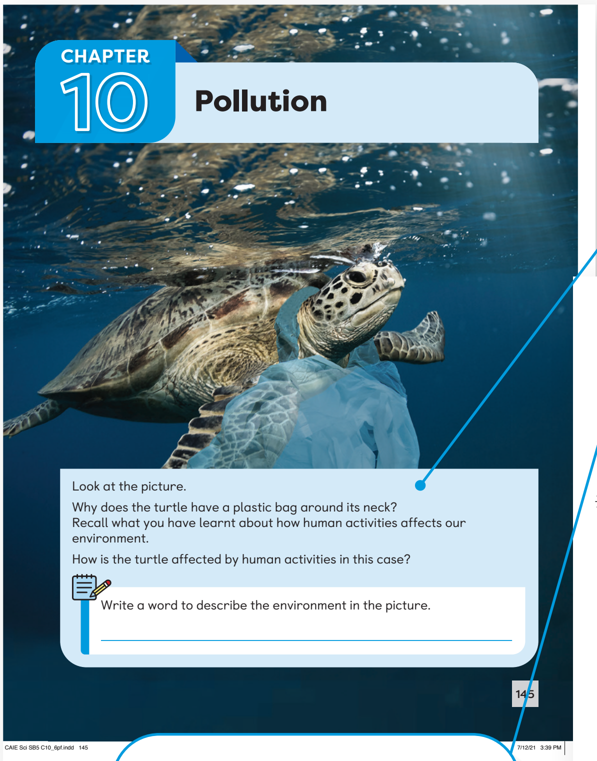
Let's Review

Wrap up each chapter with a variety of questions including ***application-based and structured questions***, which ***reinforce learning*** and ***facilitate assessment for learning***.

Provides Effective Support and Strategies for ESL Learners and Educators

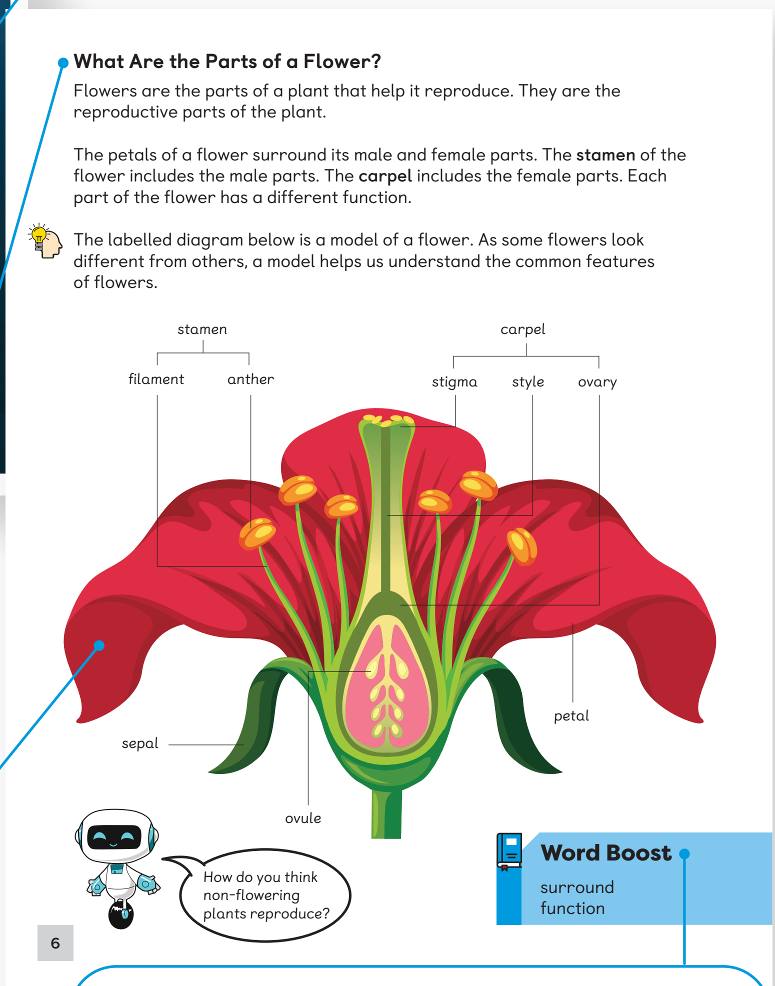
ESL learners and educators are well-supported in their learning and teaching through this series. With the right language pitch and language support features such as Science Words and Word Boost, ESL learners can easily understand the content and grasp concepts quickly. Through this series, they can expand their vocabulary and are guided to apply them in their answers. Vibrant visuals are used to simplify complex concepts by helping learners visualise them, promoting a better understanding.

ESL educators will receive support from the effective strategies and suggested ideas through the lesson plans. The overall content design and scaffolding in the series ensure that they can deliver outstanding teaching and learning.



Chapter Opener

A ***simple and fun language-based writing exercise***, such as writing words or a sentence, can be used to ***capture interest*** while introducing the chapter.



Let's Learn

Simple, concise sentences are used to ***explain concepts in an inviting tone*** and ***ensure easy understanding of the content***. Scientific keywords are presented in bold for emphasis and ***support learners in scientific literacy***.

Vibrant and Rich Visuals

Vibrant and rich visual representations are used in explanations as they ***simplify complex concepts*** and ***help learners visualise*** them.

Word Boost

Non-scientific words are provided with definitions in the Teacher's Guide to support ESL learners in ***expanding their vocabulary*** and ***understanding the content***.

Science Words

A
anther
the male part of a flower that contains pollen grains

C
carpel
the part of a flower that contains the female parts

F
fertilisation
the process in which the pollen and the egg join

flowering plants
plants that bear flowers

flowers
parts of a flowering plant that help it reproduce

G
germination
the development of a plant from a seed

L
life cycle
the stages of growth and development in the life of a living thing

N
non-flowering plants
plants that do not bear flowers

O
ovary
the female part of a flower that contains ovules

P
petals
parts of a flower that usually have bright colours

pollination
the transfer of pollen from the anther of a flower to the stigma of the same or a different flower

S
seeds
small, hard parts of a plant from which new plants grow

seed dispersal
the scattering of seeds away from the parent plant

stamen
the part of a flower that contains the male parts

stigma
the female part of a flower where pollen is received

T
temperature
a measure of how hot or cold something is

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Science Words

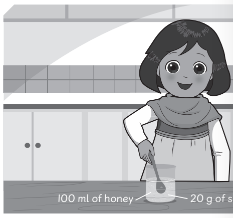
The meanings of the scientific keywords are provided to ***build scientific literacy***.

Activity 5C Changing Solvents

Skill: Reach a scientific conclusion from my results

In Activity 5B, you found out that sugar can dissolve in water. In this activity, you will find out if sugar can dissolve in other solven

Materials:
Honey
Two beakers
10 g of sugar
Two teaspoons
Cooking oil



Method
1 Pour 100 ml of honey into one of the beakers.
2 Put 10 g of sugar into the beaker of honey. Using the teaspoon, stir 20 times.
3 Repeat steps 1 and 2, this time using cooking oil as the solvent.
4 Observe if there is any sugar remaining after each mixture is stirred 20 times.

Using your observations, complete the sentence below to make conclusion for this investigation.

Sugar can dissolve in ______

Let's Map It!

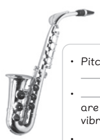
Fill in the blanks. Use the following words.

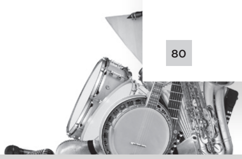
decibels gases high light liquids loud low quickly quiet slowly solids sound meter speed strength strong vibrate

Sounds
- Sounds are made when objects ______.
- Sounds can travel through ______, ______ and ______.

Pitch
- Pitch depends on the ______ of vibrations.
- ______ - pitched sounds are made when an object vibrates ______
- ______ - pitched sounds are made when an object vibrates ______

Volume
- Volume depends on the ______ of vibrations.
- ______ sounds are made by ______ vibrations.
- ______ sounds are made by ______ vibrations.
- It can be measured using a ______.
- The unit measure is ______ (dB).





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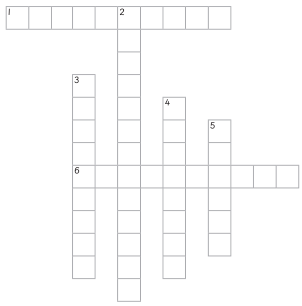
Word Whizz

Help Eddy solve the puzzle!
Use the clues to complete the crossword puzzle.



Across
1 A layer of gas that surrounds the Earth
6 The continuous movement of water from the Earth's surface to the sky and back to the Earth's surface (two words)

Down
2 Water that falls from clouds onto the Earth, especially as rain or snow
3 Water that has no dissolved substances in it (two words)
4 A gas that is found in the largest amount in the atmosphere
5 A gas found in the atmosphere that is necessary for survival

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Activity Worksheet

ESL-friendly worksheets include questions to help learners ***practise writing answers***.

Let's Map It!

Concept maps with keywords for learners to fill in serve as a tool to ***revise key concepts and consolidate learning***.

Word Whizz

Fun language-based exercises, such as crossword puzzles, help ***reinforce keywords and hone scientific literacy***.

CHAPTER 2 THE DIGESTIVE SYSTEM

***Chapter Learning Objectives**

5Bp.01 Know that animals, including humans, need an adequate, balanced diet in order to be healthy.
5Bs.04 Describe the human digestive system, including the functions of the organs involved (limited to mouth, oesophagus, stomach, small intestine, large intestine and anus), and know that many vertebrates have a similar digestive system.
5TWSm.01 Know that a model presents an object, process or idea in a way that shows some of the important features.
5TWSm.02 Use models, including diagrams, to represent and describe scientific phenomena and ideas.
5TWSc.01 Sort, group and classify objects, materials and living things through testing, observation and using secondary information.
5TWSc.07 Use a range of secondary information sources to research and select relevant evidence to answer questions.
5TWSc.08 Collect and record observations and/or measurements in tables and diagrams appropriate to the type of scientific enquiry.
5TWSa.05 Present and interpret results using tables, bar charts, dot plots and line graphs.
5SIC.03 Use science to support points when discussing issues, situations or actions.

Expected student prior knowledge

Before starting this chapter, students are expected to:

- know how to identify and describe the functions of some important organs in humans (stomach and intestine).
- know how to describe food chains, that animals can eat plants and other animals.

** The information in this section is taken from the Cambridge Primary Science curriculum framework (0097) from 2020. You should always refer to the appropriate curriculum framework document for the year of your students' examination to confirm the details and for more information. Visit www.cambridgeinternational.org/primary to find out more.*

Learning Objectives

Curriculum framework codes are indicated to let educators know which learning objectives from the Cambridge curriculum framework will be covered in the chapter.

Expected Student Prior Knowledge

A list of what learners should know to understand the chapter well.

Science Words to Highlight

Educators are encouraged to highlight the scientific words to learners as this ***builds scientific literacy***.

Common Misconceptions

Promotes ***assessment for learning*** and serves as an easy reference for educators to ***highlight and correct commonly misunderstood concepts***.

Lesson Plan

ESL and non-specialist educators can ***easily understand the content*** as the lesson plans are ***written using simple language***. The step-by-step lesson plans allow educators to ***deliver engaging lessons effectively and conveniently.*** They provide guidance to conduct activities and contain suggested questions and answers to support lesson delivery.

Section B **Reproduction in Flowering Plants** **Number of Periods:** 3

***Section Learning Objectives**

5Bp.02 Know the stages in the life cycle of a flowering plant.
5Bp.03 Describe how flowering plants reproduce by pollination, fruit and seed production, and seed dispersal.
5TWSm.01 Know that a model presents an object, process or idea in a way that shows some of the important features.
5TWSm.02 Use models, including diagrams, to represent and describe scientific phenomena and ideas.
5TWSc.01 Sort, group and classify objects, materials and living things through testing, observation and using secondary information.

Science Words to Highlight

- fertilisation, life cycle, pollination, seed dispersal

Common Misconceptions

Misconception 1: Plants produce seeds on their own (pollination or fertilisation is not needed).
Correct concept: Pollination and fertilisation need to take place before seed formation can happen.
How to address:
Ask: Have you heard of pollination and fertilisation? What is pollination and what is fertilisation?
Explain to students that pollination is the transfer of the pollen from the male part to the female part of a flower, while fertilisation happens when the pollen and egg join. Some students may think that pollination and fertilisation refer to the same process. Point out that these are different processes, and both are necessary before seeds are formed.

Misconception 2: All seeds from the same plant have the same size and shape.
Correct concept: Seeds from the same plant may come in a variety of sizes and shapes.
How to address:
Ask: Have you paid attention to the seeds from the apple that you eat? Do they all have the same size and shape?
Explain to students that many factors come into play during fertilisation, which can affect the size or even shape of every single seed produced. Point out that this is why we can sometimes notice that seeds may be of various sizes and shapes, even if the seeds come from the same fruit.

Lesson Plan

The lesson plan below will be available online for teachers to edit and customise according to their requirements.

Lesson 3 (80 min)	
Lesson Trigger and Pre-evaluation **(10 min)**	• Refer to 'Thinking Cap' on page 8 of the Student's Book. Display pictures of a real tree and a real seed on the board. Get students to observe the pictures on the board. • Ask students to discuss how a large tree could grow from a tiny seed. (Expected answer: Students may refer to one or more stages in the process of germination. For example, roots will help absorb water and nutrients to help the seed grow into a small plant. Over time, the small plant grows into a tree as the stem of the plant grows and thickens.)
Activity **(15 min)**	• Refer to 'Let's Explore!' on page 8 of the Student's Book. • Get students to use the stickers at the back of the Student's Book, to show how a plant grows. (Expected answer: Picture of a seed → picture of a seedling → picture of a young plant → picture of an adult plant) • **Ask: How do you think plants change as they grow?** (Expected answer: As the seed grows into a seedling, the roots and stem(s) also develop and grow. The plant produces leaves that make food for the plant. Over time, the plant grows into an adult plant. Some adult plants produce flowers that can help them reproduce.) • To support students in their sharing of ideas, you could write some of the science words you want them to use on the board, for example, 'seed', 'seedling', 'young plant' and 'tree'.

** The information in this section is taken from the Cambridge Primary Science curriculum framework (0097) from 2020. You should always refer to the appropriate curriculum framework document for the year of your students' examination to confirm the details and for more information. Visit www.cambridgeinternational.org/primary to find out more.*

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Alternative Lesson Ideas for Trigger, Activities for Main Lesson and Wrap-up

Additional lesson ideas serve as an easy and convenient reference to ***support educators in learners' engagement***. Suggested lesson trigger ideas ***involve various teaching strategies*** such as visual stimulus, which can be used to ***further engage learners***.

Alternative Lesson Trigger Ideas
- Engage students by asking them to imagine they are an Inuit who has found a seed in the snow. Invite students to discuss if the seed will grow if it was planted in the snow. Then, ask students to imagine they are living in the hottest desert in the world. **Ask: Will the seed grow in this desert?**

Alternative Activity Ideas for Main Lesson
- Get students to observe two pictures. Picture A shows a pot with healthy leaves by a window sill on a sunny day. Picture B shows a pot with only soil and a seed placed in the refrigerator. Invite students to discuss their observations and explain why the seed in picture B did not germinate. Emphasise that a suitable temperature is required for plants to germinate. (Expected answer: The seed in picture B did not germinate because it is placed in a cold place. Seeds require warmth for germination.)

Alternative Lesson Wrap-up Ideas
- List the stages involved in germination on the board, in an incorrect order. Ask students to rearrange the stages of germination in the correct order.

Extended Learning Ideas
- Students can find out about other methods of growing plants, such as hydroponics and vertical crops. **Ask: How do these types of plants obtain suitable conditions they need to grow?** Get students to compare these methods to that of traditional farming and discuss how the methods differ. (Expected answer: Answers may vary. For example, soil is not used in hydroponics, yet the plants are being effectively grown in water. The nutrients required for plant growth are found in the water solution used.)

Working with Parents
- Parents can work with their child to germinate a seed in their own home. Parents can guide their child to discuss what materials are needed and the conditions that are necessary for germination, which includes assessing the best location to place the seed preparation in their home.

Differentiation
Activities that provide challenge: Inform students that seeds have an outer coating. Ask students to think about what characteristics seed coatings should have to cope with different conditions. (Expected answer: Answers may vary. A seed needs a hard coating to protect the seed when it is being transported from location to location, such as by an animal./ A seed needs to be thick or hard enough to prevent other organisms from entering.)

Activities that provide support: Provide a worksheet with sentences on the stages of germination in the correct order. Leave blanks in place of key words. Show students a list of the key words arranged in no particular order. Encourage students to fill in the blanks with the correct key word. Alternatively, students can be asked to describe the stages in sentences rather than just filling in the key words.

Working with Parents

Suggested home-based activities serve as reference for educators to involve parents in ***supporting learning from home***. This ***promotes self-directed learning*** and a ***school-home partnership***.

Differentiation

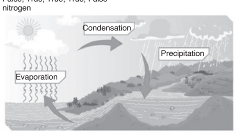
Activity ideas ***provide support*** and ***challenge learners*** during lessons, allowing educators to ***assess learners' understanding***.

Suggested Answers

Suggested answers for Student's Book and Activity Book ***support educators in assessment for learning***.

Suggested Answers

Student's Book
Practice Worksheet, pp. 143–144
1. False, True, True, True, False
2. nitrogen
3.



Activity Book
Word Whizz, p. 80
1. Atmosphere
2. Precipitation
3. Pure Water
4. Nitrogen
5. Oxygen
6. Water Cycle

Let's Map It!, p. 81
The water cycle is the continuous movement of water from the Earth's surfac
surface.
As more water droplets come together, clouds are formed.
As the water vapour cools, it condenses to form tiny water droplets.
Precipitation happens when water falls from the sky in the form of rain, snow
Water from the ground and water bodies evaporates to become water vapou
Atmosphere is the layer of gases surrounding the Earth.
Nitrogen
Oxygen
Carbon Dioxide

Let's Review, pp. 82–83
1. John and Omar
2. condensation, evaporation, precipitation
3.
a. The water gained heat and evaporated to become water vapour. Upon watch glass, the water vapour condensed to form tiny water droplets. W together, they fall back into the beaker, just like the rain that falls onto t
b. Gas burner

Thinking Frames

These ***promote thinking*** and ***consolidate learning***, and can be used as indicated in the lesson plans.

Thinking Frame 2 – KWHL

Name: ______________________

Date: ______________________

Topic: ______________________

K What I know	W What I want to know	H How am I going to find out?	L What did I learn?

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Promotes Relatability through Real-life Contexts

This series presents opportunities to learn science in context so learners will be able to understand the relevance of science in their daily lives. The practical applications allow learners to transfer knowledge and skills to everyday scenarios, which can boost their understanding and make learning science meaningful.

As the series includes multicultural references and photographs, it caters to the international audience.

Real-life examples

Examples are drawn from real life through visuals that can ***provide context and promote relatability***.

CHAPTER 2

The Digestive System

breakfasts from different parts of the world. Do any r to you? Have you eaten any of them?

nt to keep you healthy. Have you wondered what akfast in your body after you have eaten it?

entence to describe your favourite breakfast.

Science at Work

Have you ever had dried fish such as *ikan bilis*?
Do you know that evaporation is used to dry the fish?

Evaporation is commonly used in the food industry to reduce the water content in food and make it last longer. Many people also love the flavour of the dried food.

Visit your local grocer or supermarket and identify some dried food items. Carry out research to find out how they are dried.

What Happens During Condensation?

Look back at the picture on page 55. What causes the mirror in the bathroom to become foggy after you take a hot shower?

The hotter water vapour in the bathroom comes in contact with the cooler surface of the mirror. When that happens, the water vapour loses heat and changes into water droplets. This process of a gas changing into a liquid is called **condensation.**

Word Boost

foggy
contact
droplets

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Tech Talk!

Showcases ***real-life applications*** by featuring modern technology, which learners may have encountered before, to ***demonstrate the relevance of science in daily life***.

Can Magnetic Force Act Over a Distance?

You discovered in the 'Let's Explore!' activity on page 123 that a magnet can attract an iron nail without touching it. Magnetic force can act over a distance between magnets, and between magnets and magnetic materials.

Magnetic force can act over a distance to attract the iron nails.

Tech Talk!

Maglev (magnetic levitation) trains can travel more than 400 kilometres per hour. The strong magnets between the train and the tracks repel each other, causing the train to 'float' above the tracks. Other magnets allow the trains to move at great speeds. Why is the distance between the 'floating' train and the tracks important? What could happen if it is too short or too long?

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B Evaporation and Condens

In this section, I will
- *describe the processes of evaporation and condensation*
- *use a model to explain a process*
- *plan a fair test and identify the three types of variables*
- *choose equipment and use it properly during an investigation*
- *describe risks in practical work and ways to minimise them*
- *use knowledge and understanding to make predictions*
- *decide when to repeat observations to get reliable results*
- *do practical work safely*
- *take measurements accurately*
- *create tables and diagrams to present the results of my observations when appropriate*
- *recognise the features of different scientific enquiries*
- *describe the use of science locally*

Thinking cap

I wonder why my glasses become foggy sometimes...

Let's Explore!

Where did the water droplets come from?

You will need:
- Small mirror

1. Hold the mirror in front of your mouth.
2. Open your mouth and breathe out in front of the mirror.
3. What do you observe? Give a possible reason for your observation.
4. Leave the mirror aside for a few minutes.
5. What do you observe now? Why?

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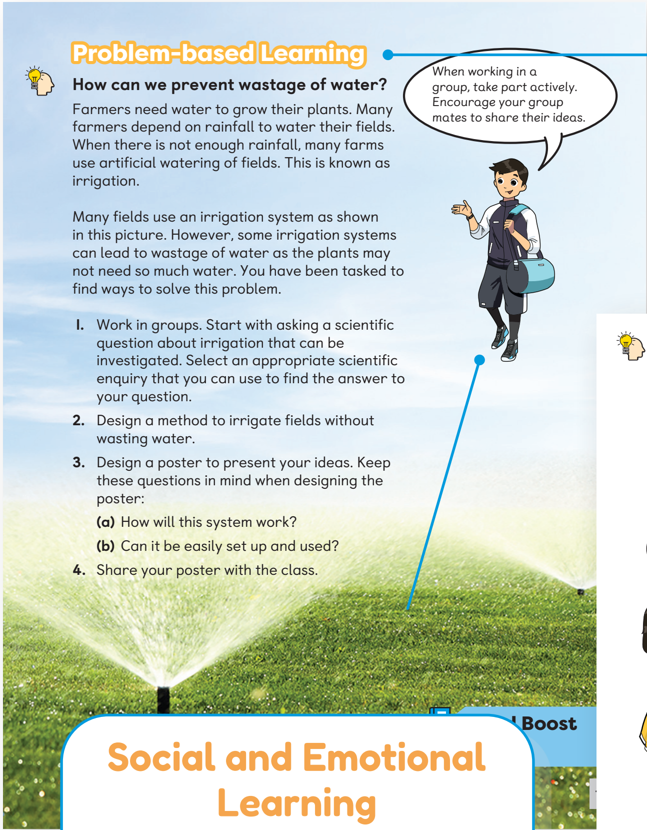
Let's Explore!

In-class activities are based on real-life contexts so learners can ***discover the relatability of the scenarios***, which will ***enhance their understanding*** as they learn facts.



Problem-based Learning

How can we prevent wastage of water?

Farmers need water to grow their plants. Many farmers depend on rainfall to water their fields. When there is not enough rainfall, many farms use artificial watering of fields. This is known as irrigation.

Many fields use an irrigation system as shown in this picture. However, some irrigation systems can lead to wastage of water as the plants may not need so much water. You have been tasked to find ways to solve this problem.

1. Work in groups. Start with asking a scientific question about irrigation that can be investigated. Select an appropriate scientific enquiry that you can use to find the answer to your question.
2. Design a method to irrigate fields without wasting water.
3. Design a poster to present your ideas. Keep these questions in mind when designing the poster:
   (a) How will this system work?
   (b) Can it be easily set up and used?
4. Share your poster with the class.

Problem-based Learning

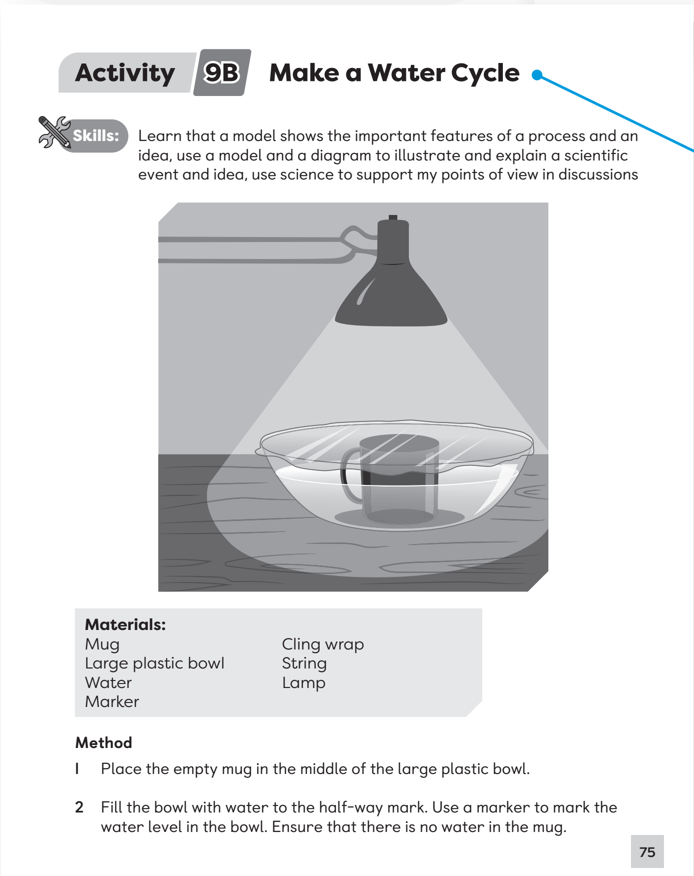
Activities involving real-life problems which require learners to ***apply their knowledge and skills*** to ***propose possible solutions***.

Look for some food items in your refrigerator. Using the food packaging as a source of information, find out which food group each of the food items belongs to. Sort the food items into the various food groups on a separate piece of paper.

The plate below shows how you can have a balanced diet.

Social and Emotional Learning

With an emphasis on the learners' Social and Emotional Learning, mascots will appear to encourage learners to ***practise social and emotional etiquette*** as they learn how to work with others and manage their emotions.



Activity 9B Make a Water Cycle

Skills: Learn that a model shows the important features of a process and an idea, use a model and a diagram to illustrate and explain a scientific event and idea, use science to support my points of view in discussions

Materials:	
Mug	Cling wrap
Large plastic bowl	String
Water	Lamp
Marker	

Method

1 Place the empty mug in the middle of the large plastic bowl.

2 Fill the bowl with water to the half-way mark. Use a marker to mark the water level in the bowl. Ensure that there is no water in the mug.

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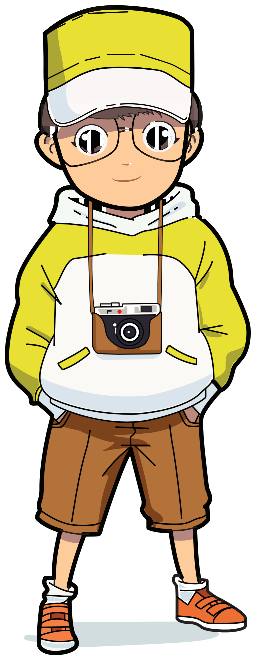
Activity Worksheet

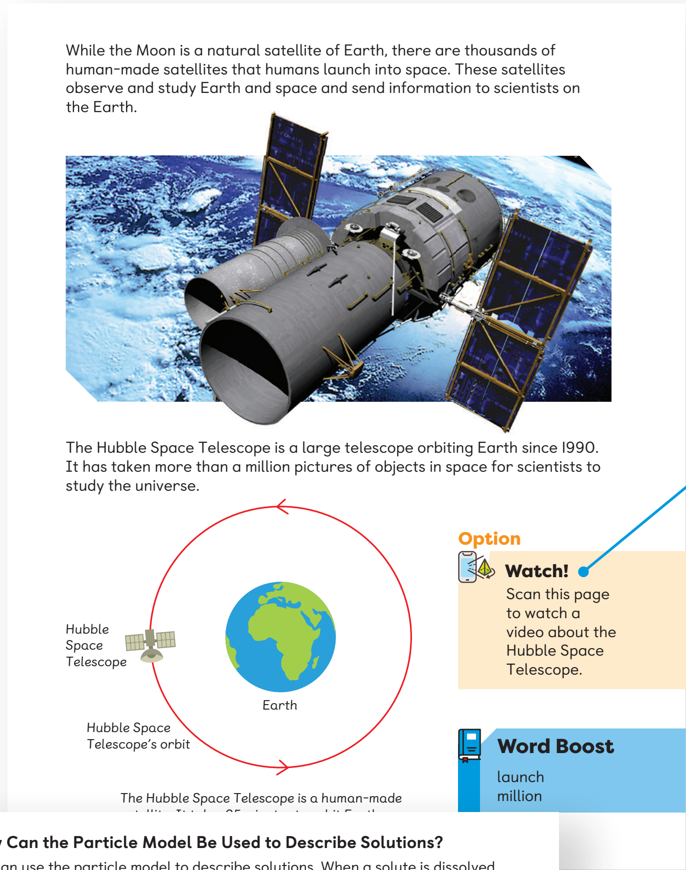
Engaging hands-on activities provide opportunities to ***demonstrate concepts*** pertaining to the topic and allow learners to ***transfer their knowledge to real-life contexts***.



Delivers a Fun and Engaging Hybrid Learning Experience

This series offers an exciting and engaging hybrid learning experience with its convenient and easy-to-use bank of digital resources. The eBooks allow annotations to be saved to capture submitted answers, in addition to the Student's Book that is tagged with interactive digital resources to enhance learning.

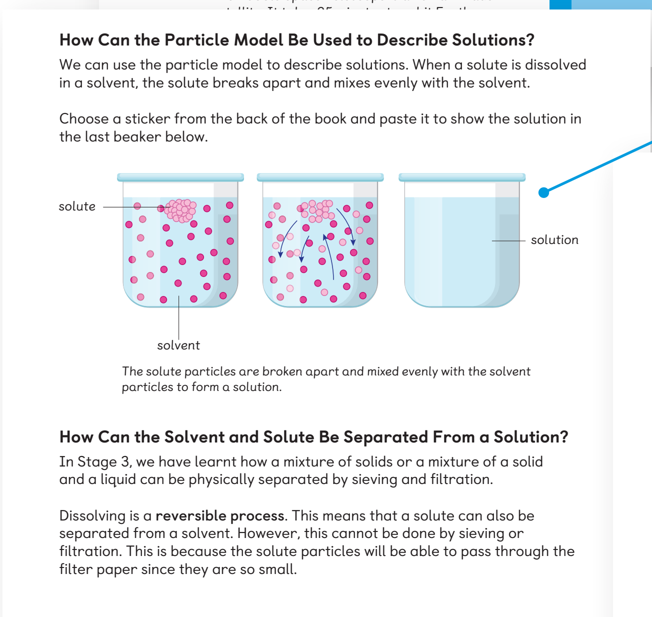
Spark excitement and fun learning in science lessons by engaging learners with vibrant visuals, videos, quizzes, and sticker activities. With both print and digital learning resources available to support online and face-to-face learning, this series delivers outstanding learning experiences.

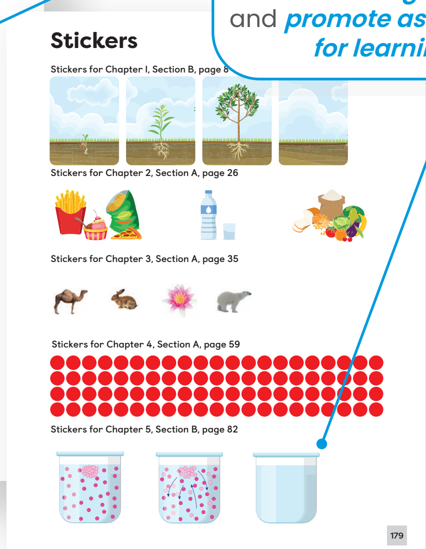


Watch!

Learning comes alive with the relevant ***videos* and quizzes****, which ***excite and engage learners***. These can be projected in class by educators or launched using smart devices by scanning the page using the MCE Cambridge app.

**These digital resources will not go through the Cambridge International Education endorsement process.*





Sticker Activities

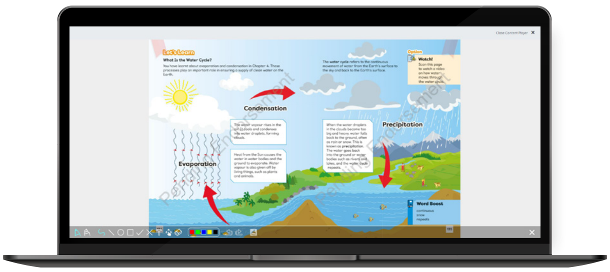
Sticker activities ***elevate the learning experience*** through ***interesting hands-on engagement*** and ***promote assessment for learning***.

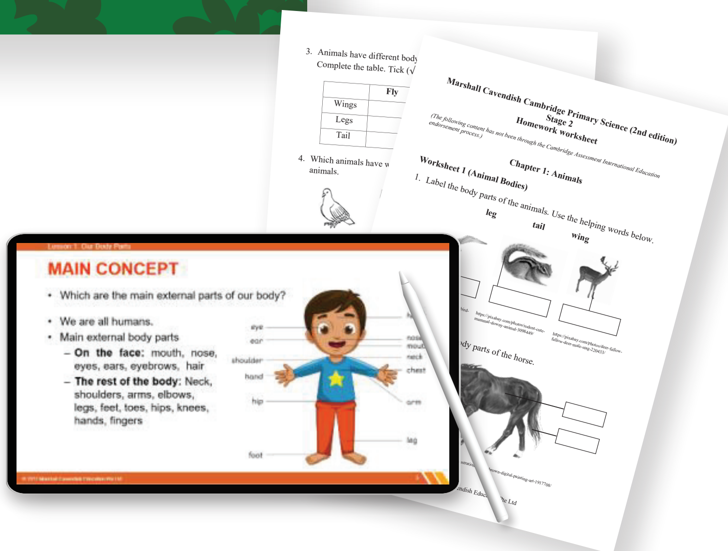
Vibrant Visuals

Vibrant and rich colours are used throughout the Student's Book to deliver a ***joyful look and feel***.

Dynamic and Engaging Mascots

The mascots will appear frequently ***to interact with the learners*** and ***present concepts in an engaging manner***.





Annotatable eBooks*

Answers annotated in the eBooks can be ***saved and accessed by educators.*** The Student's eBooks contain ***digital resources*** tagged to the Watch feature which learners can access in their own time or through in-class activities. The flexibility in usage of digital resources enables ***hybrid teaching and learning.***

Additional Digital Resources*

Digital teacher's resources, such as lesson PowerPoint slides and homework worksheets, will help educators ***save time on lesson planning*** and ***effectively deliver exciting and fun science lessons.*** They are editable, allowing educators to ***customise and plan their lessons for the various learning needs.***

These digital resources will not go through the Cambridge International Education endorsement process.

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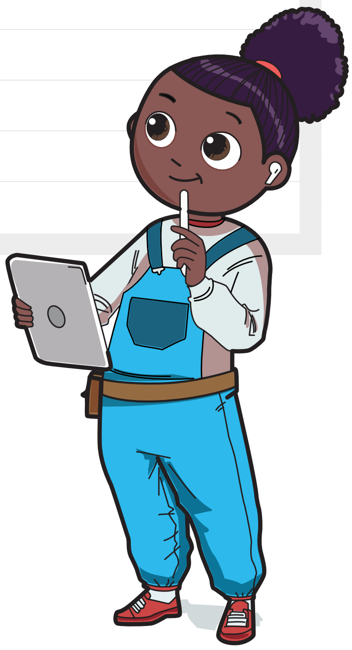

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SCIENCE Ahead International Lower Secondary

Grade 7 – 9 | Age 13 – 15

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The series makes use of vibrant photographs, clear infographics, inquiry questions, activities, and case studies to deliver an engaging and enjoyable science learning experience.

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To find out more, scan here!

The titles in this series are endorsed by Cambridge International Education to support the syllabus for examination from 2023.

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MCE makes world-class educational content more accessible through a seamless experience that integrates both print and digital resources. We provide holistic and end-to-end solutions customised to the school's requirements, with professional development to help educators implement the curriculum.

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Series architecture

- Student's Book (Stages 1-6)
- Activity Book (Stages 1-6)
- Teacher's Guide (Stages 1-6)
- eBook (Stages 1-6)*
- Additional Digital Resources*

**These resources will not go through the Cambridge International Education endorsement process.*

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