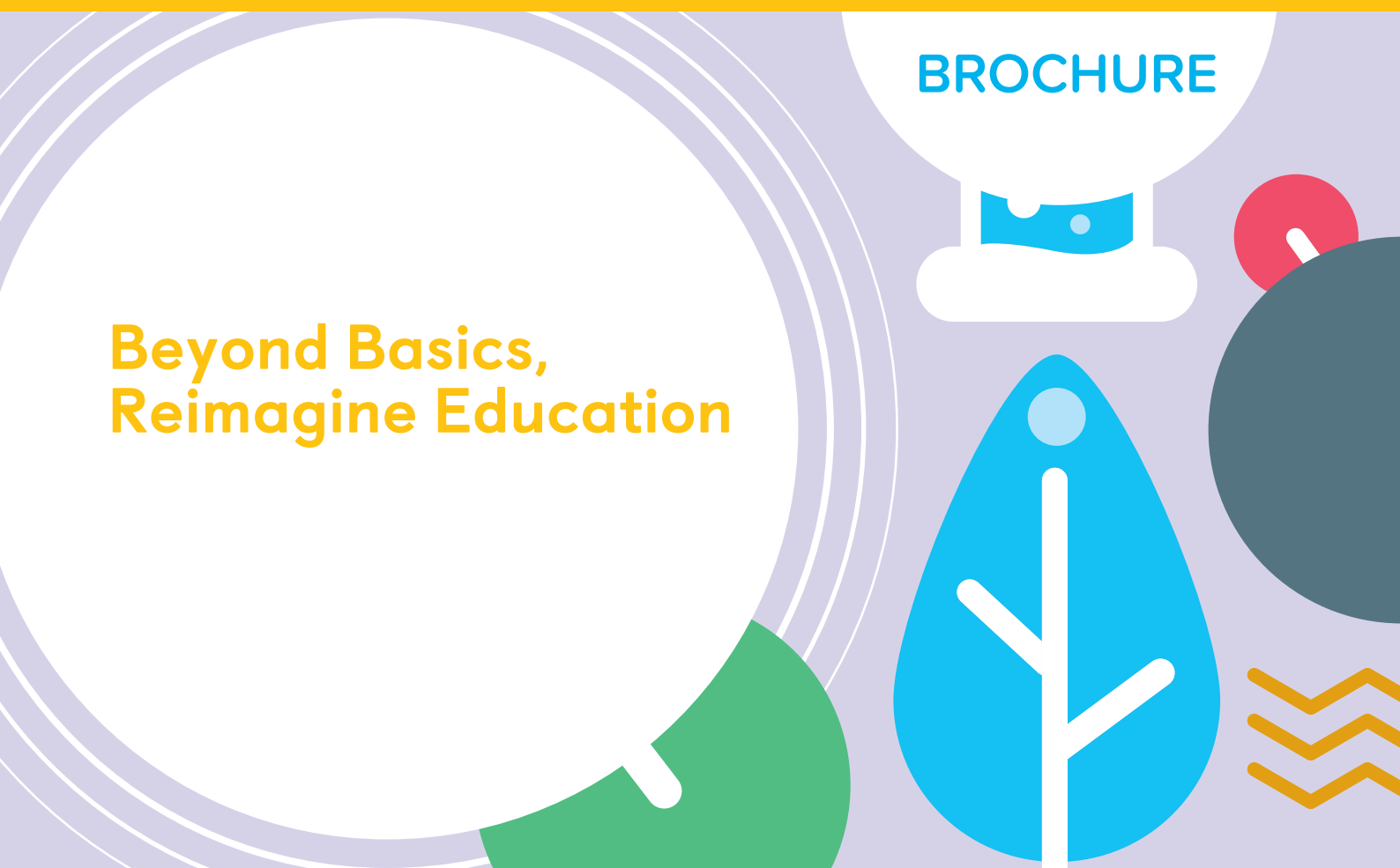


Cambridge Lower Secondary Science

**Beyond Basics,
Reimagine Education**

BROCHURE



Cambridge Lower Secondary Science

Product Introduction

The Marshall Cavendish Education (MCE) Cambridge Lower Secondary Science series is endorsed by Cambridge and meticulously developed to fully align with the Cambridge Lower Secondary Science curriculum (0893). This series is designed as a student-centric solution to mastering scientific concepts, processes, and skills for diverse markets in Asia and the Middle-East, where English may not be the first language.

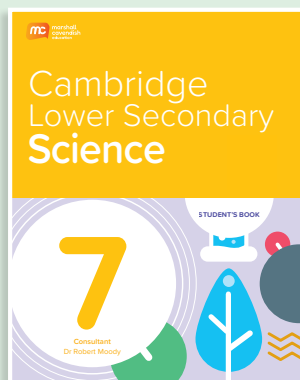
By merging the Cambridge framework with the Singapore methodology, this series ensures that every learner can succeed in Science, regardless of English language proficiency or learning readiness levels. The series also fosters 21st century competencies and environmental awareness, nurturing students to become future-ready global citizens.

The MCE Cambridge Lower Secondary Science series is ideal for schools progressing from Cambridge Primary Science and builds a solid foundation for the upper secondary IGCSE Science courses. Each level includes a Student's Book, Workbook, and Teacher's Guide.

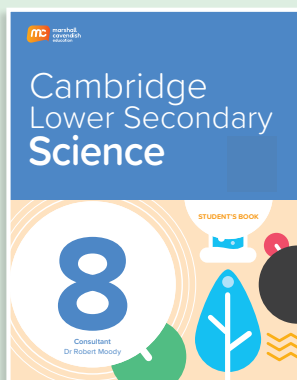
What's in Our Package?

Student's Book

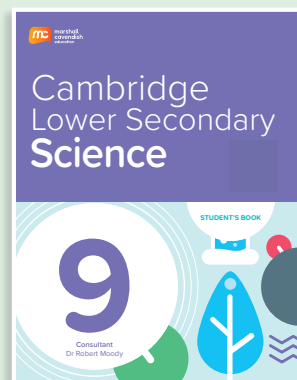
Print and Enhanced eBook



Stage 7
ISBN: 9789815174069



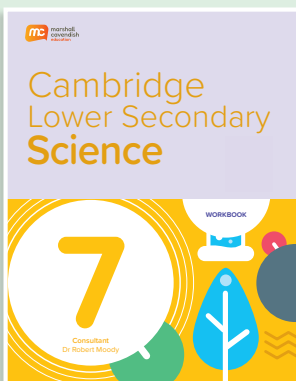
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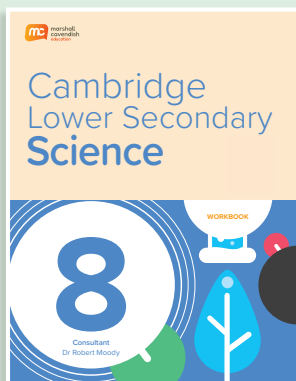
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Workbook

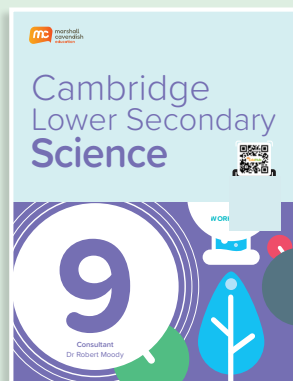
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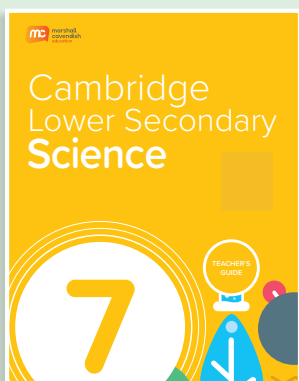
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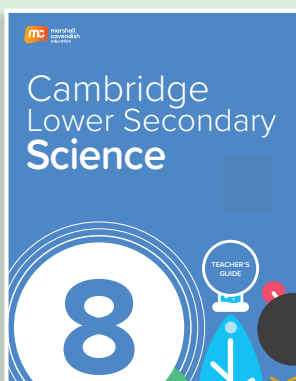
Stage 9
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Teacher's Guide

Annotatable eBook



Stage 7
ISBN: 9789815174120



Stage 8
ISBN: 9789815174137



Stage 9
ISBN: 9789815174144

Additional Digital Resources*

Available on **mcEduHub**

- Student's Book
 - Annotatable Enhanced eBook (tagged with interactive digital resources)
- Workbook
 - Annotatable eBook
- Teacher's Guide
 - Annotatable eBook
 - Scheme of Work (Editable)
 - Common Misconceptions
 - Additional Activities
 - Answers to Student's Book and Workbook Questions
- Lesson-by-Lesson PowerPoint Slides with comprehensive Lesson Plans and Notes (Editable)
- Question Bank (Editable)
- Adaptive Assessment Pathway

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

*THIS SERIES IS PENDING ENDORSEMENT



1. Unique blend of Cambridge framework and Singapore methodology to scaffold the learning of Science

2. Robust support for non-native English learners and other diverse types of learners

3. Unparalleled ease of use and convenience for both students and teachers

4. Nurture students to become future-ready global citizens

Unique blend of Cambridge Framework and Singapore Methodology for Successful Teaching and Learning of Science

This series combines Cambridge International's global standard with Singapore's research-validated methodology — **the '3Cs with an E' pedagogical approach of Capturing Interest, Constructing Understanding, Consolidating Learning, and Enriching Learning.**

It is designed to foster curiosity and equip students with the knowledge and practical skills needed to explore and understand the natural world, while emphasizing sustainability and environmental challenges.

This series engages students with captivating visuals and trigger questions, setting the stage for deep learning. Real-world contexts, interactive videos, animations, simulations, and stepwise presentations make complex concepts accessible and relatable. Worked examples and investigative activities build problem-solving skills, while providing opportunities for continuous self-assessment and reflection.

1st C : Capture Interest with the Big Ideas of the Topic

Chapter Opener

Uses **engaging visuals** and **trigger questions** to pique interest in the topic





Science Watch



Scan this page to watch a video on what a cell is.

Science Watch

Provides access to **interactive videos, animations and simulations** to engage students and reinforce concepts

MCE Cambridge Lower Secondary Science Student's Book

MCE Cambridge Lower Secondary Science Workbook

Chapter 5

Food Chains and Food Webs

Activity 5A Microorganisms Around Us

- Aim** To investigate microorganisms around us
- Materials** Five prepared Petri dishes containing nutrient agar, sterile cotton buds, disinfectant wipes, five resealable plastic bags, disposable gloves, labels, sticky tape
- Skills**
- Use knowledge and understanding to make predictions.
 - Plan an investigation.
 - Understand that not all investigations can be fair tests.
 - Do practical work safely.
 - Present observations and measurements in a suitable form.
 - Make conclusions based on results.
 - Explain how the conclusions are limited in some way.



Microorganisms are found all around us. Humans have used microorganisms for thousands of years in food production. For example, fungi and bacteria are used to make foods such as bread, vinegar, yoghurt, cheese and kimchi.

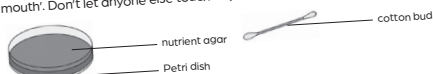
Procedure and Observations

- 1 Work in groups. Your teacher will give each group five prepared Petri dishes with lids. These contain nutrient agar, a jelly on which many microorganisms can grow. Wear disposable gloves unless you need to use your own fingertip for a task.

- 2 Share the tasks given below in your group. Plan who will do each task.

Task 1: Label one of the Petri dishes '1. Control'. Do not open this Petri dish.

Task 2: Take a sterile cotton bud out of its wrapper. Wipe one end of the bud anywhere inside your mouth. Open the lid of the second Petri dish. Lightly draw a squiggly line on the agar with the end of the cotton bud you wiped inside your mouth. Then close the lid immediately. Immediately place the cotton bud into the disinfectant solution. Label this Petri dish '2. Inside of mouth'. Don't let anyone else touch any of the equipment.



Caution
Only handle samples from your own body.

Note
Agar is a jelly-like substance made from red algae. We add nutrients to agar for growing microorganisms.

Food Chains and Food Webs 45

8.1

What Are Acids?

In this section, you will:

- Understand that acidity is a chemical property.
- Recognise symbols that represent hazardous substances.
- Use knowledge and understanding to make predictions.
- Describe if a prediction was accurate based on results.



Have you ever smelled or tasted vinegar? It has a strong, sharp smell and tastes sour. The sour taste is because of the acid it contains. Lemon juice also tastes sour because of the citric acid in it. What other sour substances have you tasted?

Acids Around Us

You have learnt in Chapter 7 that acidity is a chemical property of a substance. Substances around us contain **acids**. Figure 8.1 shows some examples.



Real-world Contexts and Contextualised Activities
Capture students' interest and draws on prior knowledge

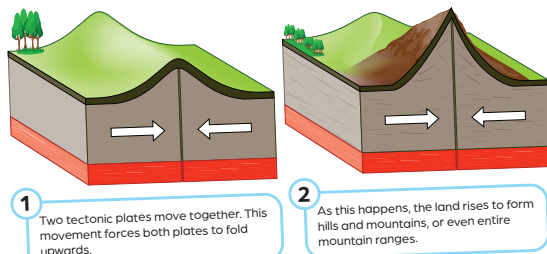
191

2nd C : Construct Understanding of the Key Concepts

MCE Cambridge Lower Secondary Science Student's Book

What Causes Fold Mountains to Form?

Fold mountains form at convergent boundaries where two continental plates meet (Figure 13.9).



1 Two tectonic plates move together. This movement forces both plates to fold upwards.

2 As this happens, the land rises to form hills and mountains, or even entire mountain ranges.

Figure 13.9 How a fold mountain forms

The Himalayas are one of the most famous mountain ranges. They formed when the Eurasian Plate and Indian Plate moved together.

Discover

Model how a fold mountain forms.

- Place two sheets of paper side by side on your desk so that the edges are touching. These represent two tectonic plates.
- Gently push the sheets of paper towards each other. What happens?
- Do you think this is a good model to show how a fold mountain forms? Explain why or why not.
- How would you improve this model?

Test Yourself

- Explain how each of these boundaries form:
 - transform
 - divergent
 - convergent
- How do tectonic plates create earthquakes?
- How are volcanoes formed?
- Tectonic plates can form fold mountains. Explain how.

Stepwise Presentations

Unpack science concepts in a **step-by-step** manner to scaffold learning

Discover

Reinforces concepts through discussion questions or **investigative procedures**

Science Bites

Is Mount Everest in the Himalayas (Figure 13.9) still 'growing'? The Himalayas formed 50 million years ago because of two tectonic plates colliding together. This collision is still happening today and the plates are constantly pushing more material upwards. Scientists believe

How Are Elements Arranged in the Periodic Table?

How are the elements in the **Periodic Table** ordered in a way that makes sense?

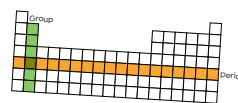


Figure 6.30 Groups and periods of the Periodic Table

Elements in the Periodic Table are arranged in **groups** (columns) and **periods** (rows), as shown in Figure 6.30.

- The mass of the atom increases across a period and down a group.
- Elements in the same group share similar properties.
- Elements on the left of the table are metals and elements on the right are non-metals.

Word Alert

relatively: compared to other similar things

Look at the Periodic Table in Figure 6.33 to see how this classification works.

Worked Example 6A

You are tasked with researching the element calcium. Using the Periodic Table on page 148 (Figure 6.33), answer these questions.

- Is calcium a metal or a non-metal?
- What elements have similar properties to calcium?

Thought Process

We first need to find calcium in the Periodic Table.

- The Periodic Table is arranged with metals on the left (shown in red in Figure 6.31) and non-metals on the right (shown in blue in Figure 6.31). Calcium is located in the second column (group) and fourth row (period).

Figure 6.31 Finding calcium in the Periodic Table

- Elements with similar properties are arranged in groups in the Periodic Table. This means that the elements beryllium (Be), magnesium (Mg), strontium (Sr), barium (Ba) and radium (Ra) have similar properties to calcium because they are in the same group.

Answer

- Calcium is a metal.
- Beryllium, magnesium, strontium, barium and radium have similar properties to calcium.

Worked Example

Guides students in the **thought process** behind answering a question

Science Bites*

Calcium, magnesium, strontium and barium are all used in fireworks to give bright colours to the sparks.



Figure 6.32 Metal salts give fireworks their colour.

3rd C : Consolidate Learning of the Key Concepts

Test Yourself

Prompts **immediate checks on understanding** at the end of each Student's Book section and **reinforces concepts**

Link

Workbook
Activity 6F, Reflection



sugar



copper sulfate



cake



magnesium



ink



brass key



diamond



muddy water

Test Yourself

- What is a mixture?
- Draw a table to compare the general properties of compounds and mixtures.
- Name **two** alloys and give an example of how each is used.
- Which of these are pure substances?

elements	compounds	mixtures
 - Are the substances in mixtures chemically combined?
 - Classify the substances in Figure 6.45 into elements, compounds and mixtures. Present your answers in a table.

MCE Cambridge Lower Secondary Science Student's Book

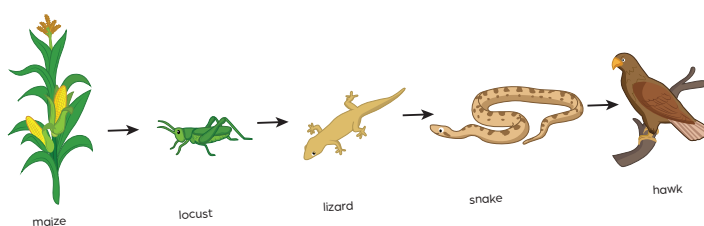
6.47 Examples of elements, compounds and mixtures

MCE Cambridge Lower Secondary Science Student's Book

REVIEW QUESTIONS

- Give the one-word term for each of the meanings **a-d**.
 - a model that shows the feeding relationships between organisms
 - an organism that breaks down dead organisms and animal wastes as it feeds
 - an organism that eats other organisms
 - an organism that makes its own food using energy from the Sun
- State whether each statement is true or false.
 - Producers receive their energy from other organisms.
 - All primary consumers can also be classified as carnivores.
 - Microorganisms form part of any food web by being decomposers.
 - Herbivores can also be classified as prey.
- What is the source of energy for most food chains?
- What are microorganisms?
 - Give an example of a microorganism.
 - Copy and complete the following sentences.
 Microorganisms are important in ecosystems because they _____ dead organisms and _____ the nutrients back into the soil.
- Copy and complete the sentences.
 Decomposers play a vital _____ in food webs. They break down the remains of dead organisms in a food _____. This is how these microorganisms get their own _____ to support their life processes.
 Decomposition also releases _____ salts into the soil, for plants to use for healthy growth. This is important, because plants are the _____ in food webs.

- Study the diagram of a food chain and answer the questions that follow.



- Name the producer in this food chain.
- One of the organisms in the food chain is an herbivore. Name this organism.




Food Chains and Food Webs 123

Review Questions

Helps students **review their understanding of concepts** at the end of the chapter

Reflection

- 1 Tick (✓) to show how confident you are of the concepts. Revise the relevant Student's Book section(s) if needed.

I can now:	 Yes	 Not sure	 No	Student's Book section(s)
Understand the meaning of science.				1.1
Understand important attitudes and skills involved in science.				1.2
Observe safety rules in science laboratories.				1.3
Recognise different types of laboratory apparatus and know how to use them.				1.3
Understand the benefits, negative effects and limitations of science and technology.				1.4

- 2 What concepts are you unsure of? What would you like to know more about in this chapter? Write them down.

Reflections

Allows for **self-reflection** and helps students **identify and address knowledge gaps** as part of **self-directed learners**

Revision Worksheet 1

Write your answers in the spaces provided.

LEVEL
1

- 1 a There are many branches of science. Which branch of science has to do with weather patterns? Tick (✓) the correct answer.

Biology ☐
Astronomy ☐
Meteorology ☐
Physics ☐
Chemistry ☐

- b A scientist realises that her methods are not correct. She accepts advice from another scientist. What important attitudes does she show? Tick (✓) the correct answers.

perseverance ☐
integrity ☐
open-mindedness ☐
curiosity ☐
being co-operative ☐

- c This scientist contributed to the development of modern X-rays and cancer treatments. Tick (✓) the correct answer.

Albert Einstein ☐
Ibn Sina ☐
Rosalind Franklin ☐
Marie Curie ☐
Isaac Newton ☐

- 2 In the science laboratory, it is important to work safely and to use the correct apparatus for the task at hand.

- a Tick (✓) the safe activities in the science laboratory.

Activity	Tick (✓) if the activity is safe
Eating and drinking	
Wearing safety goggles	
Having enough fresh air in the laboratory	
Tasting substances	

Revision Worksheet
Formative assessment
to reinforce concepts

LEVEL
2

- 3 Mariam wants to observe the growth of two identical plants, **A** and **B**. She gives only plant **A** 10 cm³ of liquid fertiliser once a week. She gives plants **A** and **B** 10 cm³ water once a day.

- a What observation should Mariam make?

- b Write a hypothesis for Mariam's observation.

- c Mariam's friend decides to measure the height of her plant to study its growth. What piece of apparatus should she use?

1 E : Enrich Learning with Real-World Applications

SCIENCE TODAY

Science Today

Showcases a **scientific application or discovery** that highlights the relevance of the concept taught

Special Alloys

Titanium alloy is made from titanium, aluminium and vanadium. It is one of the most important and useful alloys around. It is extremely strong, but very light, and it can withstand both very high and very low temperatures. It is also very resistant to corrosion. These properties make the titanium alloy especially useful in aircraft and spacecraft. It is also used in machine parts, sports equipment such as racing bicycles and golf clubs, and body implants such as the hip joint and dental implant shown in Figure 7.30, as it is not toxic.



Figure 7.30 Implants that use the titanium alloy

However, the alloy is expensive to produce. Recently, scientists have found a new way of making the alloy that is less costly. This method uses a 3D printer and titanium powder. Using 3D printing, a smaller amount of titanium is needed to make the alloy.

In 2023, a team of Australian scientists developed another alloy of titanium with similar properties. The alloy contains oxygen and iron, instead of aluminium and vanadium. It is much cheaper to produce. The alloy can also be made stronger and more ductile.



Figure 7.31 Titanium metal and ore from a titanium mine

Robust Support for Diverse Learners and Non-native English Learners

This series is designed to support non-native English speakers and diverse learners by using simple, clear language and offering additional support for complex vocabulary.

Engaging visuals, illustrations, diagrams, and infographics are carefully crafted to be relatable and accessible, ensuring that all students can grasp key concepts. Curated videos and interactive content are tailored to match learners' language levels, making complex scientific ideas understandable and engaging for everyone.

13.4

The Water Cycle

In this section, you will:

- Describe the water cycle.
- Evaluate a model by describing its strengths and limitations.



When it rains, rivers get fuller and flow towards the sea. The place where a river meets the sea is called the mouth. What happens when it rains a lot? What stops the sea from overflowing when it rains?

What Happens in the Water Cycle?

What do you remember about the water cycle from previous years? The **water cycle** describes the continuous movement of water on Earth and in the atmosphere. The rain that falls on you today could have been part of the ocean yesterday!

The water cycle involves four main processes (Figure 13.17).

Condensation

The water vapour cools as it rises into the atmosphere, and changes into tiny droplets of water. This process is called **condensation**. Tiny droplets of water collect in the atmosphere to form clouds.

Evaporation

The Sun heats up water in lakes, rivers, the ocean, and on land, changing it. The water evaporates, changing it into water vapour, which rises in the air. This process is called **evaporation**.

Infographics

Break down concepts into **bite-sized information** that is easier to visualise and understand

Figure 13.17 How the water cycle works

How Can the Composition of the Air Change?

Have you ever heard a weather forecaster say the day will feel warmer because it is very humid?

Humidity is the amount of water vapour in a given volume of air. It changes from time to time and from place to place. This is because warmer air contains more water vapour than colder air. The amount of water vapour is usually lower at night and on cooler days. It is higher on warm days, particularly after wet weather (Figure 13.12). Do you think that more water will evaporate from the Earth's surface when it is hotter or colder? Explain why.

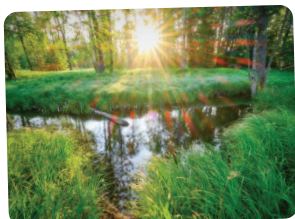


Figure 13.12 The temperature (hot or cold) of the Earth's surface affects the amount of water that can evaporate.

Natural emissions can change the composition of air.

- A volcanic eruption releases huge amounts of ash into the air. It also releases carbon dioxide, water vapour, sulfur dioxide and other gases into the air.
- All living things carry out respiration and give off carbon dioxide into the air (Figure 13.13).

Figure 13.13 Carbon dioxide is added to the air naturally when plants and animals respire.



Word Alert

Offers **language support** by providing **brief definitions of words** that may be challenging for non-native English learners

Word Alert

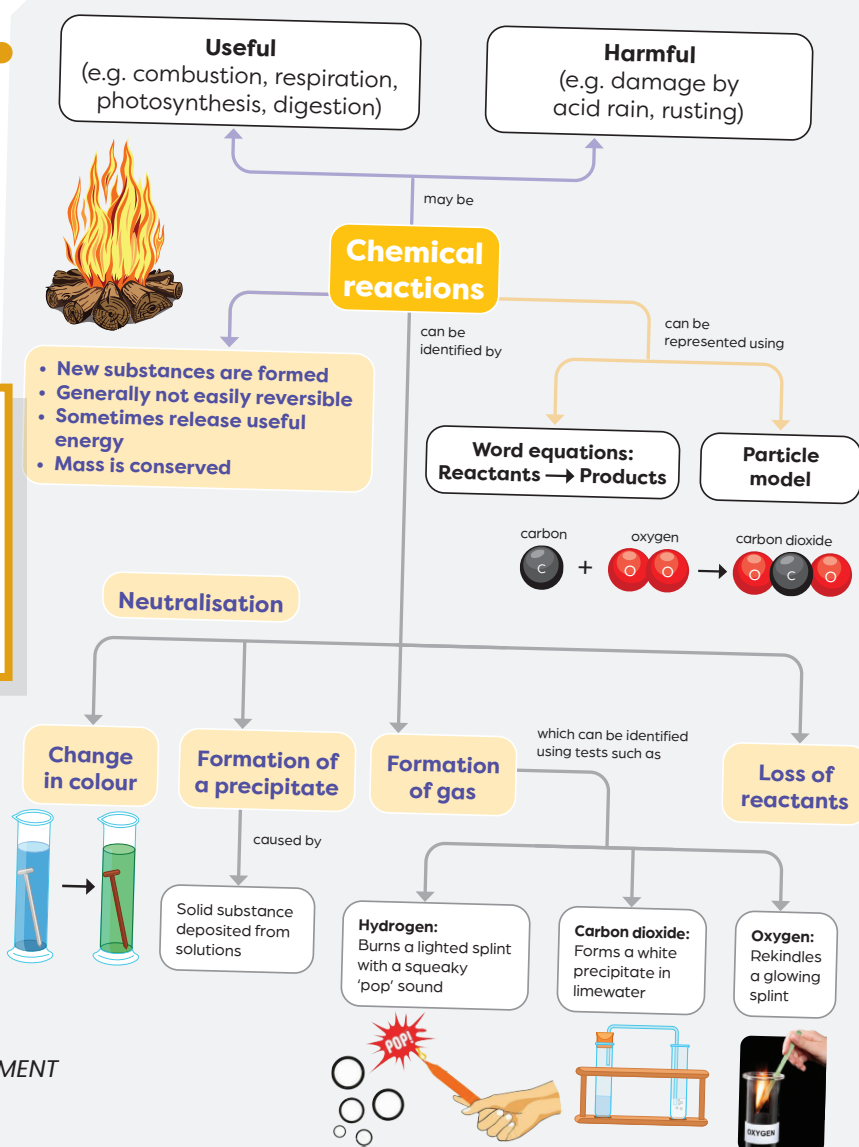
emission: something (like a gas) that is released into the air

MCE Cambridge Lower Secondary Science Student's Book

Let's Map It

Summarises the **relationships between key concepts** in the chapter through a visual concept map

LET'S MAP IT



Provides Unparalleled Ease of Use and Convenience for Both Students and Teachers

To enhance learning and streamline teaching, the series offers a comprehensive suite of resources. Interactive digital resources, including videos, animations, and simulations, is easily accessible on MCEduhub. Users can also scan physical pages using the MCEduHUB app to view resources on mobile devices.

The Adaptive Assessment Platform provides detailed student reports, enabling teachers to monitor individual progress, identify weaknesses, and prescribe timely interventions, especially for those needing extra support. Teachers can also assign customized questions for tests, assignments, or exams, tailoring assessments to meet students' needs.

MCE Cambridge Lower Secondary Science Teacher's Guide

3.3 Specialised Cells

Common Misconceptions

Misconception	Correct concept	How to address the misconception
Multicellular organisms are made of only one type of cell.	There are many specialised cells within multicellular organisms, each having a different function.	Ask: Do you think the cells in your tongues are the same as the cells in your eyes? Explain that there are many kinds of specialised cells and that they will learn about a few of them in this section.
All cells have a similar size and shape. OR All plant cells are rectangular in shape and all animal cells are circular.	Cells vary a great deal in size and shape. Many plant cells are rectangular, but there are also other shapes. There are also other specialised cells that students will learn about in other stages. Animal cells also have other specialised shapes depending on their functions.	Ask: Think of all the different parts of your body and how many special functions different parts of their bodies carry out. Do you think all cells do the same job? Discuss some of the many different types of cells and their functions. Explain that cells are shaped in a way that helps them carry out their function. For example, a neurone or nerve cell is long and thin and has branched endings to connect to other neurones. Red blood cells are disc-shaped with a dimple on both sides. Show pictures of examples of differently shaped cells.

Answers to Student's Book Questions

Test Yourself, Student's Book p. 61

- This statement is false. Multicellular organisms are made of many types of cells.
- Disc-shaped with a dimple
 - This gives it a greater surface area for carrying oxygen.
- The cilia are tiny hairs that (together with mucus) trap dust and other particles from the air we breathe in.
- It absorbs water and mineral salts from the soil.
 - The extension increases the surface area of the cell for absorbing water and mineral salts.

Answers to Workbook Questions

Activity 3D, Workbook p. 29

- (Answer varies.) No, not all sources are equally reliable or objective. Some sources have more detailed and more accurate information. Some sources have biased information.
- It is important to look for who the author is, when the article was written and whether it is a credible scientific source. Scientific sites are the most reliable sources of information, and have unbiased information.

Additional Activity

Ask students to research two more types of specialised cells, one animal and one plant. They should find information about how each cell is adapted to carry out its function.

Teacher's Guide

Highlights **Common Misconceptions** for teachers to address in class

Answers to Student's Book and Workbook Questions provided facilitate the marking of students' work

Additional Activity ideas are available for students to carry out in class or at home

Scheme of Work (Editable)

Provides a chapter overview which outlines the curriculum content and supports lesson planning

CHAPTER 3 Cells

Scheme of Work

Suggested time frame: 8 periods (1 period is approximately 40 minutes.)

Teaching sequence	No. of periods	*Learning Objective(s) – Biology, Chemistry, Physics, Earth and Space	*Learning Objective(s) – Thinking and Working Scientifically	* Learning Objective(s) – Science in Context	Resources and material(s)
3.1 Cells – The Basic Units of Life	2	<ul style="list-style-type: none"> 7Bs.01 Understand that all organisms are made of cells and microorganisms are typically single celled. 	<ul style="list-style-type: none"> 7TWS.02 Decide what equipment is required to carry out an investigation or experiment and use it appropriately. 	<ul style="list-style-type: none"> 7SIC.01 Discuss how scientific knowledge is developed through collective understanding and scrutiny over time. 	<ul style="list-style-type: none"> Student's Book, pp. 49–51 Workbook, Activity 3, pp. 23–24 Teacher's Guide, pp. 38–39 PPT Slides 1–18 1 microscope per group 1 strand of human hair per student


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MCE Cambridge Lower Secondary Science Teacher's Guide

Chapter Trigger

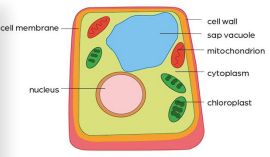
How did this water get so acidic?
How can we reduce the acidity of the water so that aquatic life is not harmed?

- Are acids always harmful?
- What does acidic or alkaline mean?
- What is the difference between acids and alkalis?



3.2 Cell Structure

Discover



to carry out the Discover activity on Student's Book p. 59.

Thinking and Working Scientifically strand of the curriculum, inform students that

LESSON 1A (1 period; 40 min)

Capture Interest (10 min)

- Ask students what they see in the picture.
- Highlight to students that the picture shows a highly acidic river. Ask the students how they think the river became so highly acidic. Invite students to share their answers. (Teaching strategy: Using questions)
- Mention that this is the Animas River in Colorado. It became acidic due to the waste pollution from mines. Go through the first paragraph on Student's Book p. 190.
- Ask:
 - How can we reduce the acidity of the water so that aquatic life is not harmed? (Answer: Prevent waste from being thrown into the river)
 - Is this type of mining sustainable? Why do you say so? (Answer: No, because it will harm the environment.)
 - What do you understand by environment sustainability? (Answer: Answers vary.)
- Explain to students that they will look at ways to reduce the acidity of water in this chapter.
- Have students scan Student's Book p. 190 using the MCE Cambridge app to watch a video about how climate change is changing the acidity of oceans. Discuss the following questions:
 - Are the oceans becoming more acidic or alkaline? (Answer: They are becoming more acidic)

Citric acid turns red litmus paper blue.

17

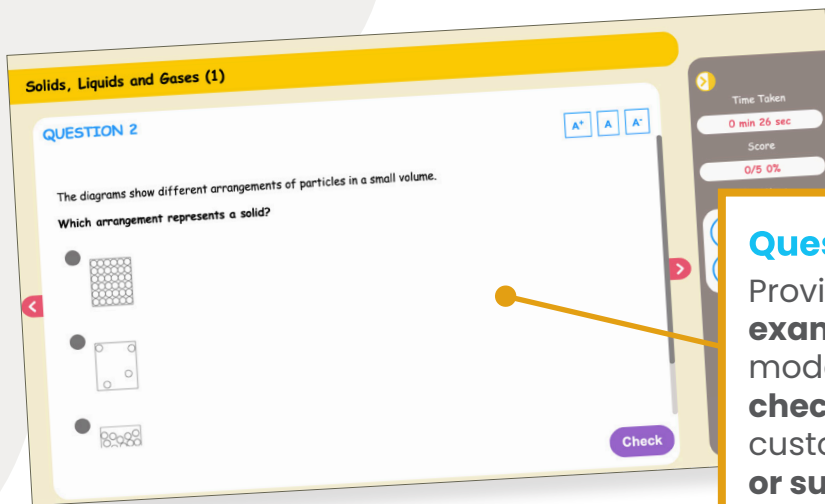


True False

Lesson-by-Lesson PowerPoint Slides (Editable)

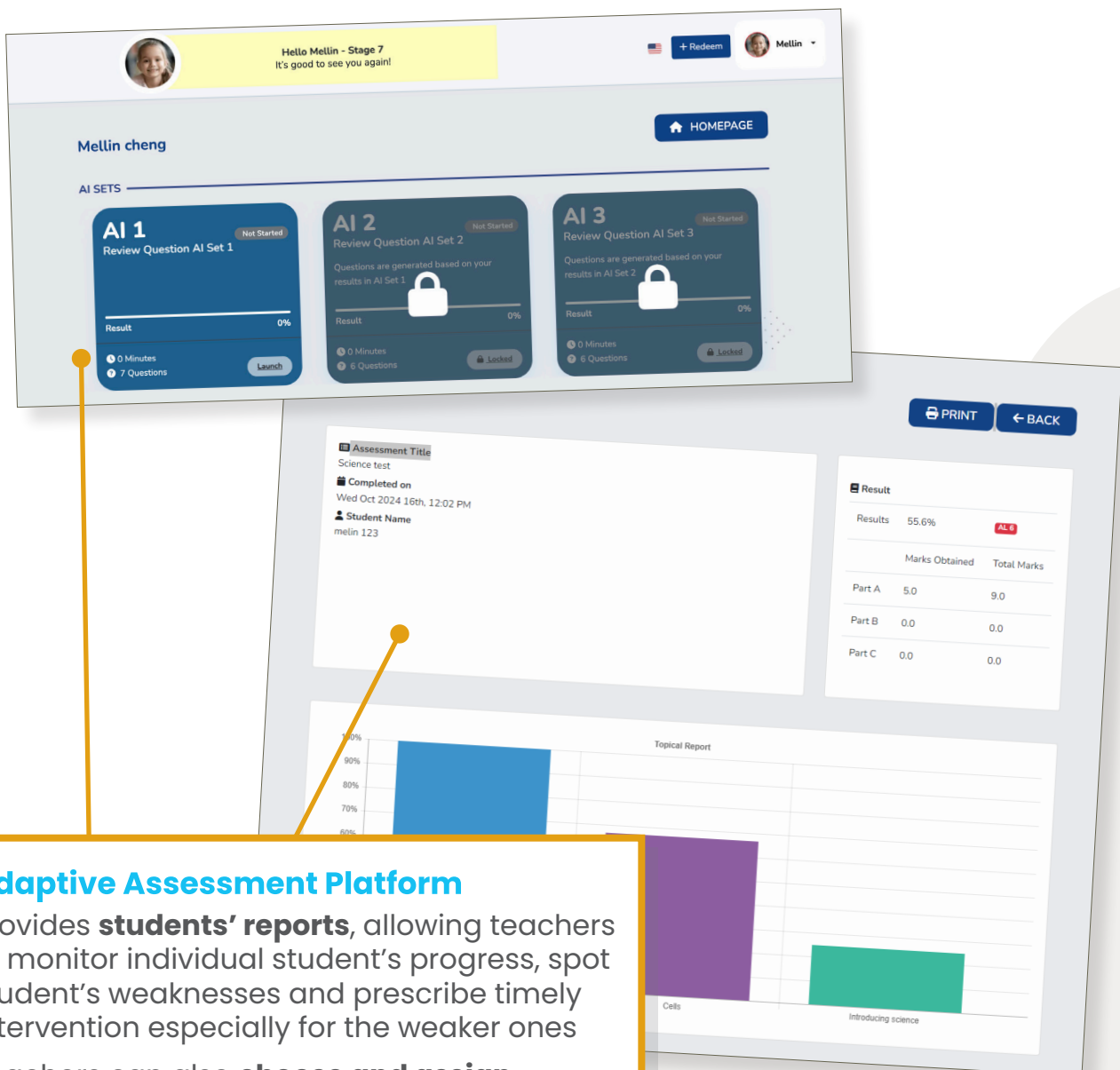
Come with **suggested teaching ideas** and **differentiated instruction** for teachers to deliver lessons effortlessly and effectively

Kahoot! quizzes are included in the slides to maximise student engagement and provide formative assessment



Question Bank (Editable)

Provide a depository of editable **exam-style questions** that are modelled after the **Cambridge check point exams** for teachers to customize worksheets for **formative or summative assessment**



Adaptive Assessment Platform

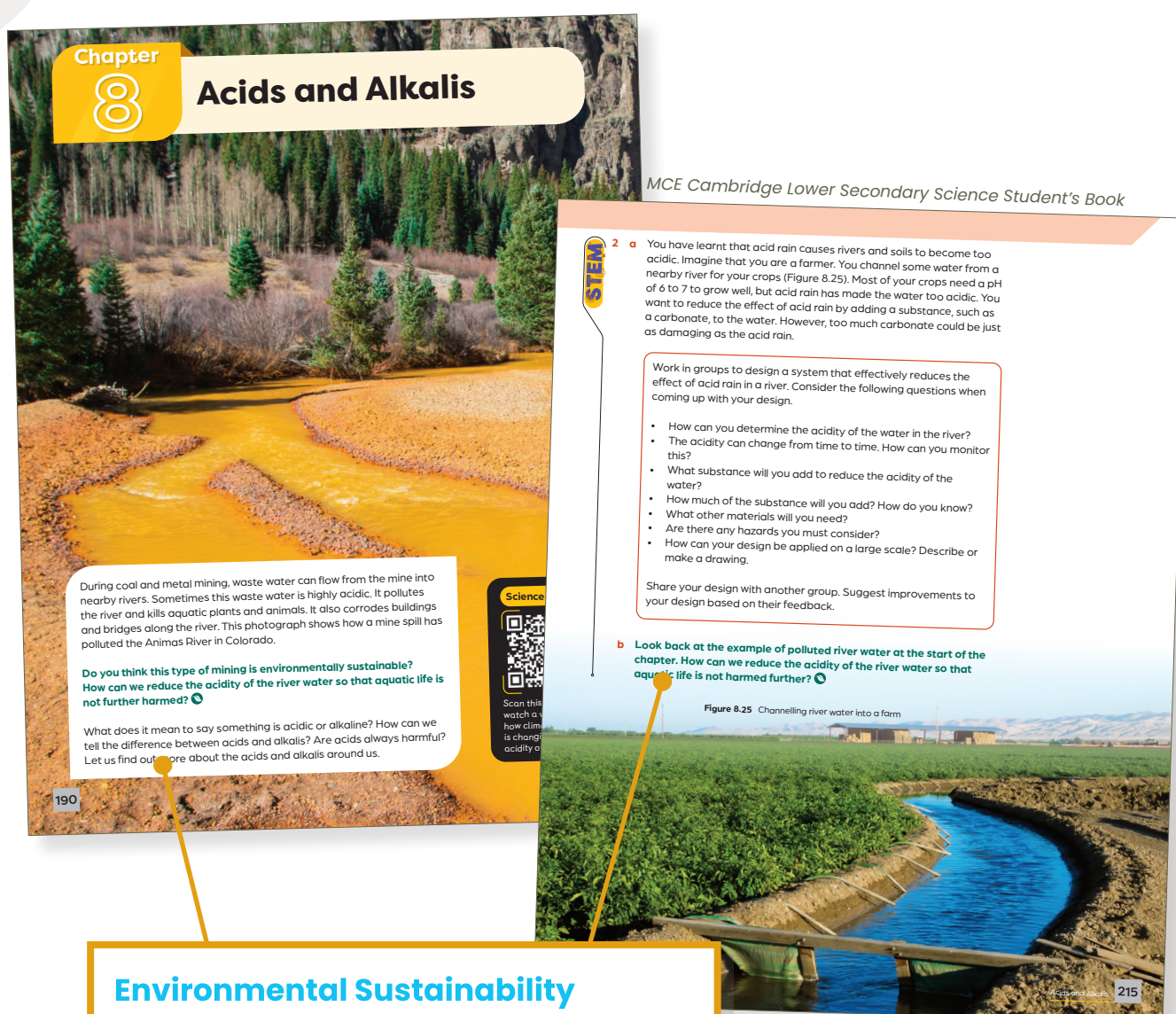
Provides **students' reports**, allowing teachers to monitor individual student's progress, spot student's weaknesses and prescribe timely intervention especially for the weaker ones

Teachers can also **choose and assign questions** to students as part of a test, assignment or for exam purposes

Enables Students to Become Future-ready Global Citizens

Learners are empowered to develop critical thinking skills essential for addressing future challenges and making informed decisions about real-world issues, including environmental sustainability. By presenting real-world contexts and questions, this series raises students' awareness of sustainability and encourages them to consider the impact of their choices.

Additionally, STEM-focused questions are designed to enhance 21st-century competencies and problem-solving abilities, equipping students to tackle complex challenges with confidence and creativity.



Environmental Sustainability

Is brought into focus through the chapter opener and revisited for discussion within the chapter. This allows students to gain a **deeper appreciation of environmental issues** to become responsible future-ready, global citizens

MCE Cambridge Lower Secondary Science Student's Book

Challenge Yourself

Questions that stretch students and encourage them to apply **critical thinking skills**

CHALLENGE YOURSELF**STEM**

- 1** Imagine you are the manager of a bank or a top-secret research facility. Security is very important – you do not want anyone breaking in to steal your money or your secrets! You want an alarm to alert you in some way if an intruder tries to open any windows or doors.

Your task is to design a system using an electrical circuit that lets you know if anyone tries to enter your building. It can be as simple or complex as you like. The topics covered in this chapter should help you.

Work in groups. Discuss what your system needs to do. Use the following questions to help you. You can use the Internet or other sources to help you with your research.

- How will you detect whether a door or window has been opened?
- Do all doors and windows need to be installed with alarms?
- Can you do this with a single circuit?
- What will happen if a door or window is opened? Will an alarm sound? Will a security light switch on? Perhaps there is a way of directly linking the alarm to the police station.

Now imagine you are a spy. Test how effective your classmates' models are by seeing if you can find a way to break into their building.

- Is there a way to avoid triggering the alarm?
- Can you suggest any improvements to the system?

Use these questions to help you give feedback on another group's security system diagram.

- How well does your system work?
- Do you think your system could be successfully scaled up to secure a building?
- What would you change if you were to do the project again?
- What are the strengths of your system?
- What are the weaknesses of your system?
- How well does your system represent real life?

- 2** Look back at the question asked at the start of the chapter. How can we use electricity sustainably without wasting it? 

STEM Questions

Hone problem-solving skills and **21st Century Competencies** as they design solutions to a real-life problem



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