

Thinking and Working like a Scientist

SCIENCE

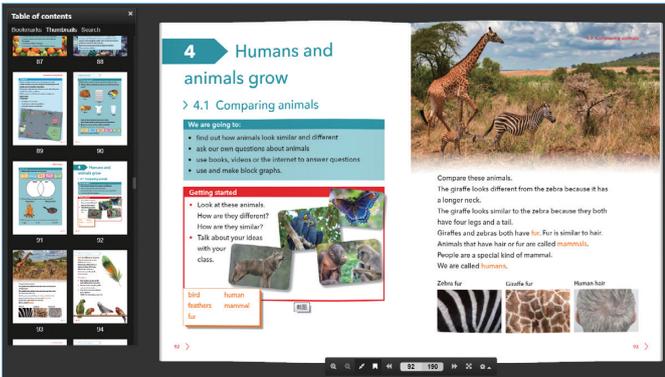
新思维科学

For learners aged 6-18
Content and language integrated learning
Scientific and global thinking

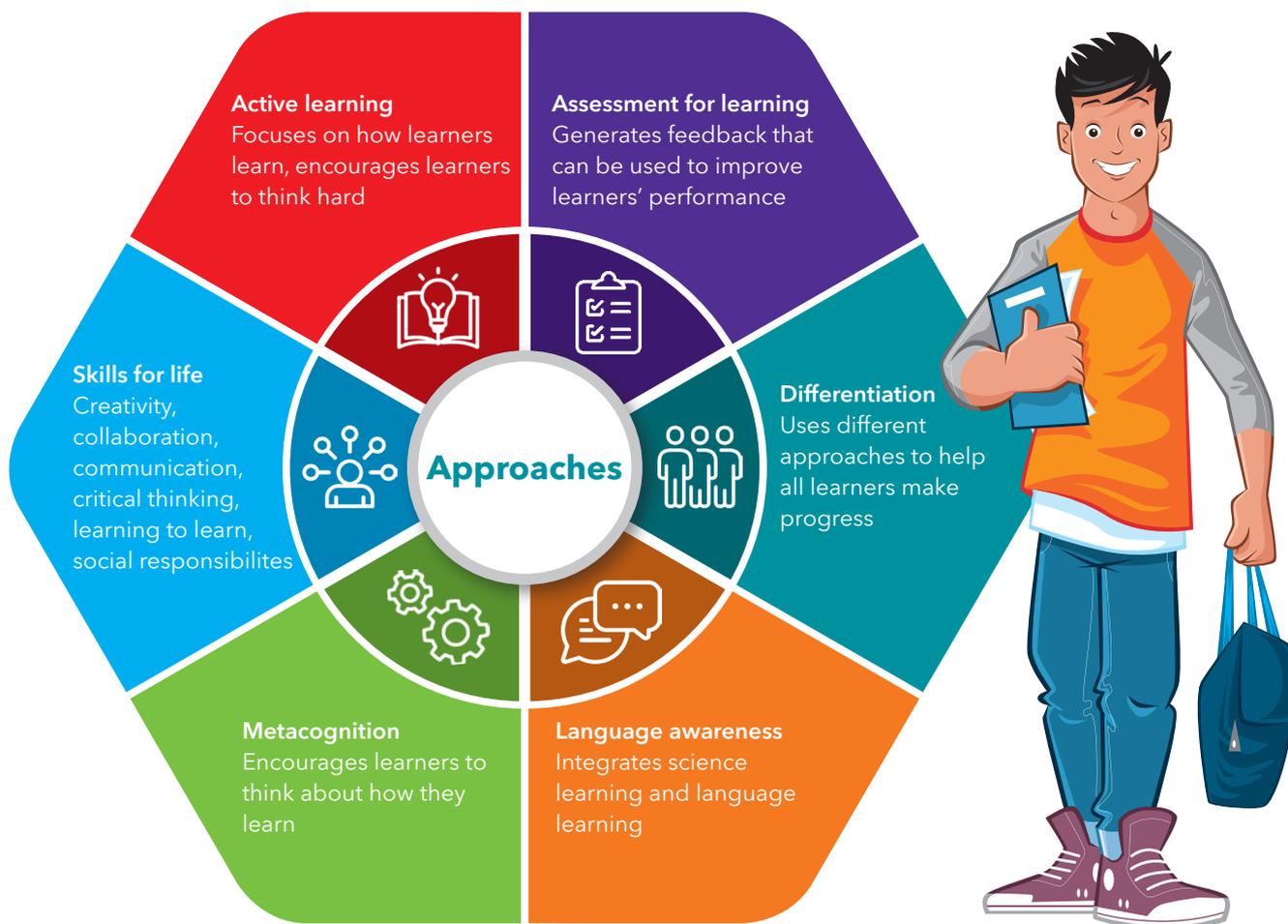




FLTRP Science is an international course for learners aged 6-18. The course integrates content learning and language learning, covers the four main areas of biology, chemistry, physics, and earth & space, encourages the learners to think and work like scientists. FLTRP Science offers full support for learners and teachers through various materials including Learner's Book, Workbook and Teacher's Resources.

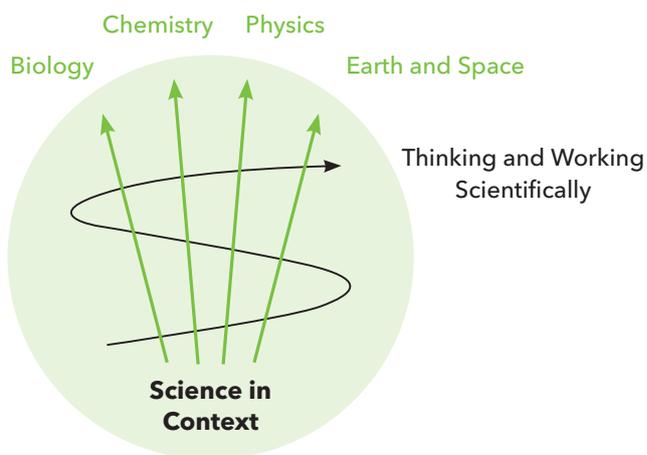
Components			
Paper	 Learner's book	 Workbook	 Teacher's book (2023)
Digital	Digital versions can be accessed via FLTRP's website and APP of Unistudy 		<ul style="list-style-type: none"> • Diagnostic, end-of-unit, mid-point, end-of-year tests and answers • Answers to learner's book and workbook questions • Language worksheet





Features

- Content and language integrated learning
- Coverage of four main areas of science
- Thinking and working scientifically
- Materials to support learning, teaching and assessment



Number of learning hours

Stage 1-6: 1-2 hour per week

Stage 7-9: 3-5 hours per week





Learner's resources

> Learner's book

A variety of investigations, activities and questions to help learners develop scientific skills.

4

Opportunity to practice and develop the new skills and knowledge that learners learn in each topic

1

What learners will learn in each topic

2.3 Explaining changes of state

> 2.3 Explaining changes of state

In this topic you will:

- use the particle theory to explain what happens when matter changes between states
- use a model to illustrate the particle theory.

Getting started

1 For each process, write down the changes of state. The first one has been started for you.

- Melting: solid to _____
- Condensing: _____
- Freezing: _____

2 For each statement, decide if it applies to a solid, a liquid or a gas. Some may apply to more than one state of matter.

particles in regular rows	can be poured	can be compressed
particles spread out	has a fixed volume	can change its shape
cannot be compressed	has a fixed shape	

Check with a partner. Are you correct?

Key words

attractive force
expand
heat energy transferred

3 Important topic-specific words

2 Questions or activities that help learners think and talk about what they already know about this topic

1.4 Plants need water

Activity

Healthy plants?
What could we do to help these plants grow?
What do you think will happen to these plants?
Tell other people what you **predict**.



A
If plants do not have enough water, they can die.



B
If plants have too much water, they can die.

Think like a scientist 1

Do plants get water through their leaves or roots? Let's do a test!

You will need:
two plants, a plastic bag, string, a watering can

Zara pours water onto the leaves of one plant. She puts a plastic bag around the leaves of the other plant and waters the roots.
Predict what will happen.
Now try this science investigation.
Observe what happens.
Draw the plants before and after the investigation.
Make sure you wash your hands after touching the plants.

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Investigations for learners to practice and develop practical skills, to promote active learning and deep understanding

1 Cells

Continued

Questions

- Suggest why the cells from the onion do not look green.
- Describe any difficulties you had with this activity. How did you solve them?

Self-assessment

Think about how you did this task. For each of these statements, rate yourself.

😊 if you think you did it very well, with no help	😐 if you did it quite well, or needed some help	😞 if you didn't do it all, or needed a lot of help
--	--	---

- I cut a piece of the inside layer of onion that was about 1 cm square.
- I was able to spread the piece of onion flat in the drop of water.
- I put the cover slip over the onion without getting any air bubbles.
- I saw onion cells down the microscope.
- I focussed the microscope so that I could see the cells really clearly.

Write down one thing that you did really well in this activity.
Write down one thing that you will try to do much better next time. How will you do this?

Summary checklist

- I can name all the structures in a plant cell, and describe what they do.
- I can make a model of a plant cell, and discuss its strengths and limitations.
- I can use a microscope to look at plant cells.

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6

Opportunity to either assess learners' own work or another learner's work

7

Questions asking learners to think about their learning

8

List summarizing the important ideas that learners have learned in the topic



Project

Making musical instruments

These people are playing music.

What musical instruments are they using?

You can make your own musical instrument.

This is a drum.

You can make a drum with a metal can, a balloon and a rubber band.



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End-of-unit group project involving producing something or solving a problem

10

Questions looking back at some of the content learners learnt in this unit, helping teachers check their learners' progress

Check your progress

1 Write one word or two words to describe each of the following:

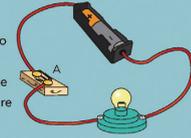
- A device for closing or opening a circuit.
- A device in a circuit for holding a lamp in place.
- Something that pushes electricity around a circuit.

2 Which of the following materials are insulators of electricity?

gold cork plastic aluminium

3 In the circuit alongside:

- What does component A do?
- What must you do to this circuit to turn the lamp off?
- If you added a second lamp to the circuit, would the lamps glow more brightly or more dimly?
- If you added another 1.5 V cell to the circuit, would the lamps glow more brightly or more dimly?



4 Arun's mother asked him to fix the iron because it was not working.

Arun got an electric shock!

What had Arun forgotten to do?

Danger



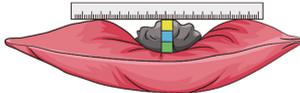
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Science skills

How to draw a block graph

Zara and Marcus have done a fair test to find out which cushion is the softest.

They used a ruler and some bricks to measure how soft each cushion was.



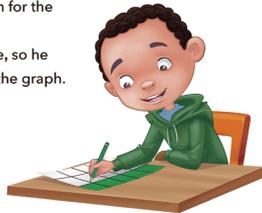
Here are their results.

Cushion	Numbers of bricks
green	5
red	3
blue	2

They used their results to make a block graph.

Marcus fills in the block graph for the green cushion.

The number of bricks was five, so he colours five of the blocks on the graph.



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Summary of important science skills in this book

12

Definitions and index of key words for language support

Glossary and index

air	the material that is all around us that we breathe to stay alive	104
alive	something that is living	7
animal	a living thing that eats other living things	7
answer	what you try to find out when you ask a question	14
ask	use a question to find out	14
astronaut	a person who travels in outer space	67
attract	pull towards something	137
bend	change the shape of an object so it becomes curved, folded and not straight	58
blonde	hair that is yellow	101
body	the whole part of a human or other animal	93
breathe	to take in air using your mouth and nose	104
cell	a source of energy or power for a circuit	129
change	become different	38
compare	look at two or more things to find out how they are similar or different	37
compress	change the shape of an object by pushing or crushing it	58
damage	make something broken or hurt	31
danger	something that can cause us harm, for example, very loud sounds	33

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Workbook

Questions for learners to practice what they have learnt in class. 3 tiered sections for each topic.

1 Plants are living things

1.1 Alive or not alive?

Focus

1 Look at these pictures. Draw each one in the correct group in the table.

Tier 1: Focus

For extra support; helps learners to master the basics

Practice

These are the seven rules to tell if something is a living thing.

2 Look at the things in the table. Use the rules to decide if they are alive or not.

	Moves	Needs water and food	Grows	Makes waste	Needs air	Can sense	Has young	Alive
A goat	✓	✓	✓	✓	✓	✓	✓	✓
A cat								
The Moon								
A tree								
A dolphin								
An ant								

Tier 2: Practice

For all learners; helps learners to become more confident in using that they have learnt

Challenge

1.1 Alive or not alive?

1 Complete these sentences using your answers from the table. Pick one thing that is alive and one thing that is not alive.

A I know _____ is alive because _____.

B I know _____ is not alive because _____.

Look at the pictures below.

Tier 3: Challenge

For more confident learners; encourages further learning and extension basics

Digital

Digital versions of Learner's book and Workbook can be accessed via FLTRP's website and APP of Unistudy.

Table of contents

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4 Humans and animals grow

4.1 Comparing animals

We are going to:

- find out how animals look similar and different
- ask our own questions about animals
- use books, videos or the internet to answer questions
- use and make block graphs.

Getting started

- Look at these animals. How are they different? How are they similar?
- Talk about your ideas with your class.

bird feathers mammal fur

human mammal

4.1 Comparing animals

Compare these animals. The giraffe looks different from the zebra because it has a longer neck. The giraffe looks similar to the zebra because they both have four legs and a tail. Giraffes and zebras both have fur. Fur is similar to hair. Animals that have hair or fur are called **mammals**. People are a special kind of mammal. We are called **humans**.

Zebra fur Giraffe fur Human hair

Teacher's resources

(2023)

> Teacher's book

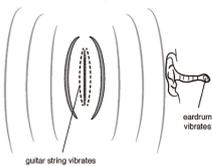
Everything teachers need to deliver the course, including Teacher's Book and digital resources.

Unit plan:
topics in the unit
• learning hours
• learning content
• available resources

> SCIENCE 1: TEACHER'S RESOURCE

BACKGROUND KNOWLEDGE

Sound
A sound is produced when an object moves in a way that causes a vibration in the air around it. You call the object a sound source. Air is a mixture of different gases which are all made up of tiny particles called molecules. When an object such as a guitar string is plucked, it vibrates against these air particles and makes them vibrate too. This vibration travels as a sound wave in the air, much like ripples spreading from a splash in water. The vibration spreads out and the waves become smaller as they move away from the source. Quieter sounds produce smaller vibrations and louder sounds produce larger vibrations. Unlike circular ripples on the surface of water, a sound wave in air will spread out in all directions as a sphere.



Sound waves travel much more quickly than waves in water. Sound waves travel so fast that it usually seems as if you hear the sound at exactly the same time as it is made. However, with a large enough distance between the sound source and the listener, a delay becomes noticeable. Thunder is the sound of a lightning flash, but there is a delay between seeing a flash of lightning and hearing the thunder because light travels faster than sound.

Hearing sound

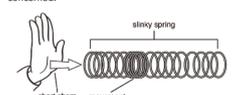
The human ear has evolved to detect sound waves in the air. The ear flap (pinna) is shaped to collect the wave and direct it down the ear canal to the eardrum. The sound wave vibrates the eardrum,

which is a thin layer like a tiny drum skin. This can be damaged by vibrations that are very large (loud sounds). From the ear drum, the vibrations are passed by three small bones into an organ called the cochlea. The cochlea is full of liquid and has many special hair cells that connect to nerve cells. The liquid in the cochlea vibrates and moves the hairs, sending signals to the nerve cells which detect the pitch and volume of the vibration and send messages to the brain. The cochlea also detects and controls your balance.



In this unit, be sensitive to any learners who have a hearing difficulty. These learners will need support and will benefit from observing visual representations of sound travelling, such as ripples on the surface of water, or the backwards and forwards movement of a slinky spring.

Your lessons may reveal a genuine problem with a child's hearing, beyond just their misconceptions about sound, which is presently undiagnosed. Keep this possibility in mind in all your teaching. Be prepared to consult senior colleagues if you are concerned.



In addition, all learners including those with hearing difficulties can be encouraged to use their sense of touch to feel the vibrations produced by different musical instruments and other sounds.

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Teaching skills
Practical support,
guidance and
examples

> 2 Sound

Unit plan

Topic	Approximate number of learning hours	Outline of learning content	Resources
2.1 Sound sources	2+	Exploring sources of sound, including some that use electricity	Learner's Book: Activity: Sound sources in school Think like a scientist: Find that sound! Workbook: Topic 2.1 Digital Classroom: Song – What's that sound?
2.2 Loud and quiet	2+	Investigating sounds that are loud and quiet	Learner's Book: Activity 1: Grouping loud and quiet sounds Activity 2: Make sounds louder and quieter Think like a scientist: Do big ears help us hear? Activity 3: Take care of your ears! Workbook: Topic 2.2
2.3 Sound moves	3+	Investigating how sound gets quieter as it moves away from the source	Learner's Book: Think like a scientist: Does sound change as it moves? Activity: Near and far sounds Workbook: Topic 2.3 Worksheets 2.3A, 2.3B, 2.3C Digital Classroom: Animation – Sounds move
Across unit resources			
Learner's Book: Project – Making musical instruments Check your progress quiz			
Teacher's resource: Language worksheets 1 and 2 Diagnostic check			
Digital Classroom: End-of-unit quiz			

2 SOUND

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Background knowledge
Prior knowledge required
to access the unit

TEACHING SKILLS FOCUS

Forces are all around, but you often take them for granted, for example, when opening a door. An important part of these lessons will be making learners aware of movement and forces in their lives.

Language awareness

Build from observation to understanding

Throughout this unit, ask learners to observe and talk about movement they observe and what force was applied to start that movement. For example, pressing on a cycle pedal to push the wheels around. Using the words will strongly reinforce the learning. Be aware that learners may not perceive tiny forces to be forces at all, for example, turning the page of a book; so ask learners to say what they are doing, and what forces they are using.

Use games to practise vocabulary

Encourage learners to think about as many different types of movement as possible. Ask these questions: 'How do you move?' 'How do other animals move?' 'How does water move?' 'How does a flag move?' 'How does a windmill move?' Play a game by whispering an action to one learner, for example, running. This learner has to demonstrate the movement to the class and others have to say what the movement is. You could put a learner in charge of the game or ask learners to invent their own game about movement. This, like most of the activities in this unit, is a useful assessment for learning activity because the learners' involvement will show you whether they understand and can use the vocabulary.

Where possible, insist that learners point to the thing that is providing the push or pull, for example, a rubber band being pulled and then used to pull a toy car. Grouping objects as ones that are pushed, ones that are pulled and ones that can be both pushed and pulled, is a great way to get learners thinking about how movement is started.

Differentiation

Support less confident learners

Support less confident learners by providing real examples and pictorial prompts alongside written examples of vocabulary as key words which you often use in sentences. These learners may need to physically hold and use items to understand what is happening. Learners may find the completion of tables challenging, so you may need to adapt the tables. For example, where other learners write words in the table, some may be allowed to draw a picture. Providing the record sheet in poster form to be filled in as a group will also help. Try to avoid doing things like tests and experiments for the learners. Support learners, but insist that learners do things themselves. This will also help their thinking.

Challenge more confident learners

Challenge more confident learners by giving greater independence and asking learners to explain what they see. Ask learners to add to statements with 'because...', which will encourage learners to try to explain. Insist that learners use science vocabulary in explanations. For example, 'the box slid further when you gave it a bigger pushing force'.

Curricular links

There are very strong links here to Physical Education, where learners move in different ways. Focus on the many ways learners and the games equipment can move. Make a point of emphasising the vocabulary of movement and that movement is caused by a pull or push force. For example, your legs work when your feet push against the floor to make you walk.

Reflection

Use ideas like the ones above with your class, then reflect on the effect on learners. Consider whether you can use or adapt the approach for other science lessons, or for other subjects. Are there things in other subject lessons which you could use, or adapt, in science lessons?

6 FORCES

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SCIENCE 1: TEACHER'S RESOURCE

1.4 Plants need water

LEARNING PLAN

Learning objectives	Learning intentions	Success criteria
1Bp.03 Know that plants need light and water to survive.	To learn about how plants need water.	Learners know about how plants need water.
1TWSp.02 Make predictions about what they think will happen.	To predict what will happen in an investigation.	Learners can predict what will happen in a science investigation.
1TWSc.05 Collect and record observations and/or measurements by annotating images and completing simple tables.	To record observations in tables.	Learners can record observations in tables.
1TWSa.01 Describe what happened during an enquiry and if it matched predictions.	To see if what happened was what we predicted.	Learners can say if what happened was what they predicted.

LANGUAGE SUPPORT

Support the development of language by demonstrating how to use the science vocabulary, particularly in sentences. Take care that the learners hear new terms to form these correctly. Test this by asking the class to repeat a word to you like 'predict'. Use this technique. Give the learners these instructions. Say it back to me like a mouse, whisper like this, moon. Now say it back to me like a lion, like this, predict! and so on, in a spooky voice, like a frog, etc.

predict: when we draw or write a note of something we have observed

table: a grid where we record things

explain: when we give a reason for something

practical: a 'hands on' activity

Common misconceptions

Misconception	How to identify	How to overcome
That each plant needs a lot of water every day.	Talk to learners about the amount of water plants need, perhaps whilst watering a plant.	Refer to plants outside which do not get rainfall each day. Show that soil in a plant pot can stay moist for several days.
That water enters the plant through the leaves.	Ask learners to tell you how the water gets into the plant.	Remind learners about the roots and that one of the jobs of the roots is to get water from the soil.

Topic learning plan:

- learning objective
- learning intentions
- success criteria

Language support
Ideas for teaching new vocabulary

Common misconceptions



Clear section structure
Selection of teaching ideas

Plenary ideas

1 Reflection (5 minutes)
Description: Ask learners to name the five types of scientific enquiry: research, pattern seeking, observing changes over time, fair testing and identification and classification. Then ask learners to think about Think like a scientist 2: Making a Moon diary. Ask 'Which types of scientific enquiry did you use to make your Moon diary?' Explain, if necessary, that observing changes over time was the method used.

2 Phases of the Earth (10 minutes)
Resources: Search the internet for photos of 'The Earth from the Moon', 'crescent Earth' and 'gibbous Earth'.
Description: Explain to learners that if they were standing on the Moon looking at the Earth, they would be able to see that the Earth also has changing phases. Show photographs taken from the moon of a gibbous and crescent Earth.
> **Assessment ideas:** Ask learners to name the phases shown in the photographs of the Earth from the Moon.

Homework ideas

- Ask learners to observe the Moon and record their observations in a table. See Think like a scientist 2: Making a Moon diary above.
- Use photos from the internet to show learners how the phases of the Moon can be modelled using card, modelling clay, biscuits and even grains of rice. Ask learners to make their own model and bring it in to school to show the class.

Topic worksheets

Worksheets 6.3A, 6.3B and 6.3C
Learners who need support could use Worksheet 6.3A, which gives the name of each Moon phase in the correct position.
Most learners can use Worksheet 6.3B to cut and stick the phases of the moon into the correct order.
Some learners could be challenged to use Worksheet 6.3C to explain why the Moon appears to change shape.

PROJECT GUIDANCE: RESEARCH AN ASTRONAUT

351C.03 Know that everyone uses science and identify people who use science professionally.
Read with learners the project in the Learner's Book. This explains the science that different astronauts have done in space.
Show learners the picture of the astronaut poster in the Learner's Book.

Ask learners to make their own posters of a chosen astronaut. Learners could use books, the internet or videos to research facts about their astronaut or to research astronauts that are not included in the Learner's Book.

Starter ideas

1 Water for plants (5–10 minutes)

Resources: Learner's Book picture of plants growing in different places.
Ask if they have seen plants locally living locally. Where?
Description: Ask the learners about what they can observe on the picture. Can they say why there are few plants in the dry looking area? Ask them to talk in pairs about where the water for these plants comes from.
Learners may think that no plants can live in a dry area. Show them pictures of plants that are adapted to live in very dry conditions. You do not need to go into detail about how these adaptations work at this stage.

2 Planting seeds (15 minutes)

Resources: Two flower pots, compost, water, large seeds, for example, sunflower, beans, labels.
Description: Ask learners to assist you planting seeds by taking two pots and adding compost. Get learners to talk about what they are doing. Explain that you'll ask them to put seeds in both but only water one pot. Ask learners to complete this and then label the pots, water one and make predictions about what will happen in the coming days.
Safety: Always wash hands after handling either compost or seeds.

Main teaching ideas

1 All plants need water (10 minutes)

Learning intention: To learn about how plants need water.
Resources: Learner's Book, if possible, a wilted plant.
Description: This is a class discussion activity. Try to ensure that all learners contribute to the discussion. Try to find out if learners understand what has happened to the wilted plant, and why it has happened. Use questions like these: 'What has happened to this plant?' 'What do you observe about the plant?'
Ask the learners to look at the picture of the wilted plant in the Learner's Book and a real one if you have it. Can they describe what they observe and explain what has happened to the plant? Ask them to read what the children are saying on the page. Do they agree? Can they explain?

1 LIVING THINGS

Ask the learners to look at the next picture of plants growing in different places.
Where?
Ask few learners to make a drama. One child is a plant in a dry place, another one is in a cooler place that gets rain. The three others are rain clouds who visit the cooler place, they hold hands high and wriggle fingers to 'rain' on the plant. This plant is happy and grows strongly. Only one 'cloud' visits the dry area with a little rain, this plant looks a little sad and only grows slowly.

> **Differentiation ideas:** Listen to the responses and contributions of different learners, and identify learners who are quiet, lack confidence or make errors and need more support, and ones who use language accurately, make suggestions, ask questions, and so need more challenge.
Begin and support with questions about what they observe. Here are some examples: 'What do you observe?' 'What has happened?' Move onto to questions to elicit explanations. Here are some examples: 'Why is that?' 'What has affected this plant?' Move to questions about the future like these: 'What should we do?' 'If we do this, what will happen?'

2 Activity: Healthy plants?

(10–15 minutes)
Learning intention: To learn about how plants need water.
Resources: Learner's Book, a potted plant, a plastic bottle of fresh water.
Description: Ask learners to look at the healthy plant you have brought to the class and picture B (the over-watered plant) in the Learner's Book. Ask learners to talk with a friend about the difference and what may be wrong with the plant in picture B. Explain that the sick plant has had too much water. Ask learners to describe what it looks like and predict what will happen if it still has too much water. Agree that plants need 'the right amount' of water and that as carers of plants we should test the soil to check it is moist and only water as a plant gets dry.

Homework ideas

Topic worksheets ideas

Project guidance



Unit framework

63 units in four areas

Stage	Biology	Chemistry	Physics	Earth and Space
1	1 Living things 5 Humans	3 Materials in my world	2 Sound 6 Forces	4 The Earth
2	1 Environments and habitats 4 Humans and animals grow	3 Getting materials right	2 Forces and movement 5 Light 6 Electricity	
3	1 Plants are living things 4 Staying alive	2 Mixing materials	3 Light and shadows 5 Forces and magnets	6 The Earth and the Moon
4	1 Living things 2 Energy 4 Earth and its habitats	3 Materials	2 Energy 5 Light 6 Electricity	4 Earth and its habitats 5 Light
5	1 Life cycles of flowering plants 4 The digestive system 6 Seasons and adaptations of plants and animals	3 States and properties of matter	2 Sound 5 Forces and magnetism	6 Seasons and adaptations of plants and animals
6	1 The human body 4 Food chains and food webs	2 Materials: properties and changes	5 Forces and electricity 6 Light and the solar system	3 Rocks, the rock cycle and soil 6 Light and the solar system
7	1 Cells 4 Grouping and identifying organisms 7 Microorganisms in the environment	2 Materials and their structure 5 Properties of materials 8 Changes to materials	3 Forces and energy 6 Earth physics 9 Electricity	2 Materials and their structure 6 Earth physics
8	1 Respiration 4 Ecosystems 7 Diet and growth	2 Properties of materials 5 Materials and cycles on Earth 8 Chemical reactions	3 Forces and energy 6 Light 9 Magnetism	5 Materials and cycles on Earth 6 Light 9 Magnetism
9	1 Photosynthesis and the carbon cycle 4 Maintaining life 7 Genes and inheritance	2 Properties of materials 3 Forces and energy 5 Reactivity 8 Rates of reaction	3 Forces and energy 6 Sound and space 9 Electricity	1 Photosynthesis and the carbon cycle 6 Sound and space

Catalogue

Visit <https://zengzhi.fltrp.com/kx/tskc/xswkx/xgzy/> or scan the codes to get samples

Title	Price (RMB)	Sample	Title	Price (RMB)	Sample
Learner's book1 978-7-5213-3745-7	137		Workbook1 978-7-5213-3743-3	68	
Learner's book2 978-7-5213-3744-0	137		Workbook2 978-7-5213-3742-6	68	
Learner's book3 978-7-5213-3768-6	137		Workbook3 978-7-5213-3772-3	68	
Learner's book4 978-7-5213-3767-9	137		Workbook4 978-7-5213-3766-2	68	
Learner's book5 978-7-5213-3748-8	137		Workbook5 978-7-5213-3747-1	68	
Learner's book6 978-7-5213-3754-9	137		Workbook6 978-7-5213-3746-4	68	
Learner's book7 978-7-5213-3760-0	244		Workbook7 978-7-5213-3757-0	117	
Learner's book8 978-7-5213-3753-2	244		Workbook8 978-7-5213-3752-5	117	
Learner's book9 978-7-5213-3759-4	244		Workbook9 978-7-5213-3758-7	117	



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	叶老师 18500189729		叶老师 18500189729		杨老师 13601238684		李老师 13560092924
福建	张老师 13718835282	江西	林老师 18600716767	河北	张老师 18609839297	天津	蓝老师 13609744598
	邓老师 13911353095		孙老师 18910949060		王老师 15797677480		龚老师 15910728919
	赖老师 13860192311		陈老师 15600181118		杜老师 13401106682		张老师 13718835282
黑龙江	林老师 18600716767	山东	张老师 13718835282	山西	张老师 18610987711	江苏	马老师 18612891986
	刘老师 18611612627		安老师 18600576455		陈老师 18201002861		田老师 18612250968
	张老师 15945161183		陆老师 13811076805		林老师 18600716767		何老师 13671109590
河南	张老师 18610987711	湖北	王老师 15797677480	浙江	高老师 13522651808	安徽	王老师 15797677480
	吴老师 13501165643		李老师 13466657350		林老师 18600716767		孙老师 18910949060
	楚老师 18513741949		葛老师 18610080856		刘老师 15801252967		田老师 18612250968
重庆	田老师 18612250968	云南	田老师 18612250968	广西	郭老师 16601301383	上海	孙老师 18611924920
	崔老师 18910789405		姬老师 13001010786		杨老师 18611461863		张老师 13718835282
	孔老师 18800029209		王老师 13810293893		郭老师 16601301383		叶老师 18611124689
贵州	王老师 15797677480	四川	田老师 18612250968	湖南	叶老师 18611124689	宁夏	张老师 13718835282
	姬老师 13001010786		孔老师 18800029209		张老师 18610987711		鲍老师 18600367912
	王老师 13810293893		官老师 18623021125		鲍老师 18600367912		张老师 18610987711
内蒙古	郭老师 16601301383	四川	许老师 13811513345	甘肃	张老师 18610987711	新疆	陈老师 13311067661
	蔺老师 13501131820		陈老师 13501350654		陈老师 13311067661		李老师 13911891430
				青海		西藏	