

Thinking and Working like a Scientist

SCIENCE

新思维科学

面向 6—18 岁青少年的国际化科学课程

融合科学学习与英语学习

培养科学思维和国际视野





《新思维科学》是一套针对 6—18 岁青少年的国际化科学教材。本套教材覆盖科学教育的主要领域——生物、物理、化学、地球与宇宙，倡导学生像科学家一样思考与做事，旨在激发学生对科技和英语的兴趣，培养学生的科学思维、探究实践能力、科学态度与社会责任感，发展学生的合作能力和跨文化交流能力。教材包括 9 个级别，配套资源完备，包括学生用书、活动用书和教师用书，有效支持教与学。

产品组成

纸质材料



学生用书



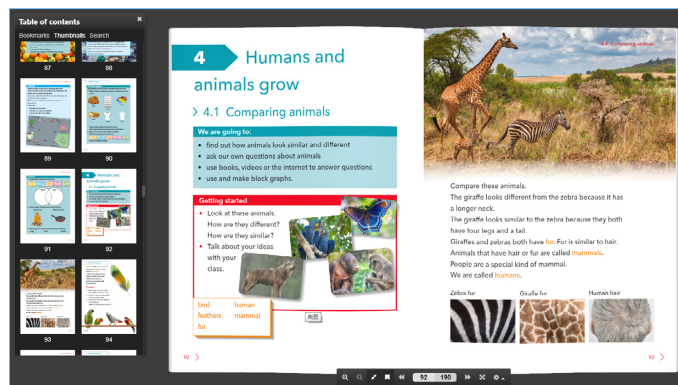
活动用书



教师用书
(暂定封面，2023 年上市)

数字资源

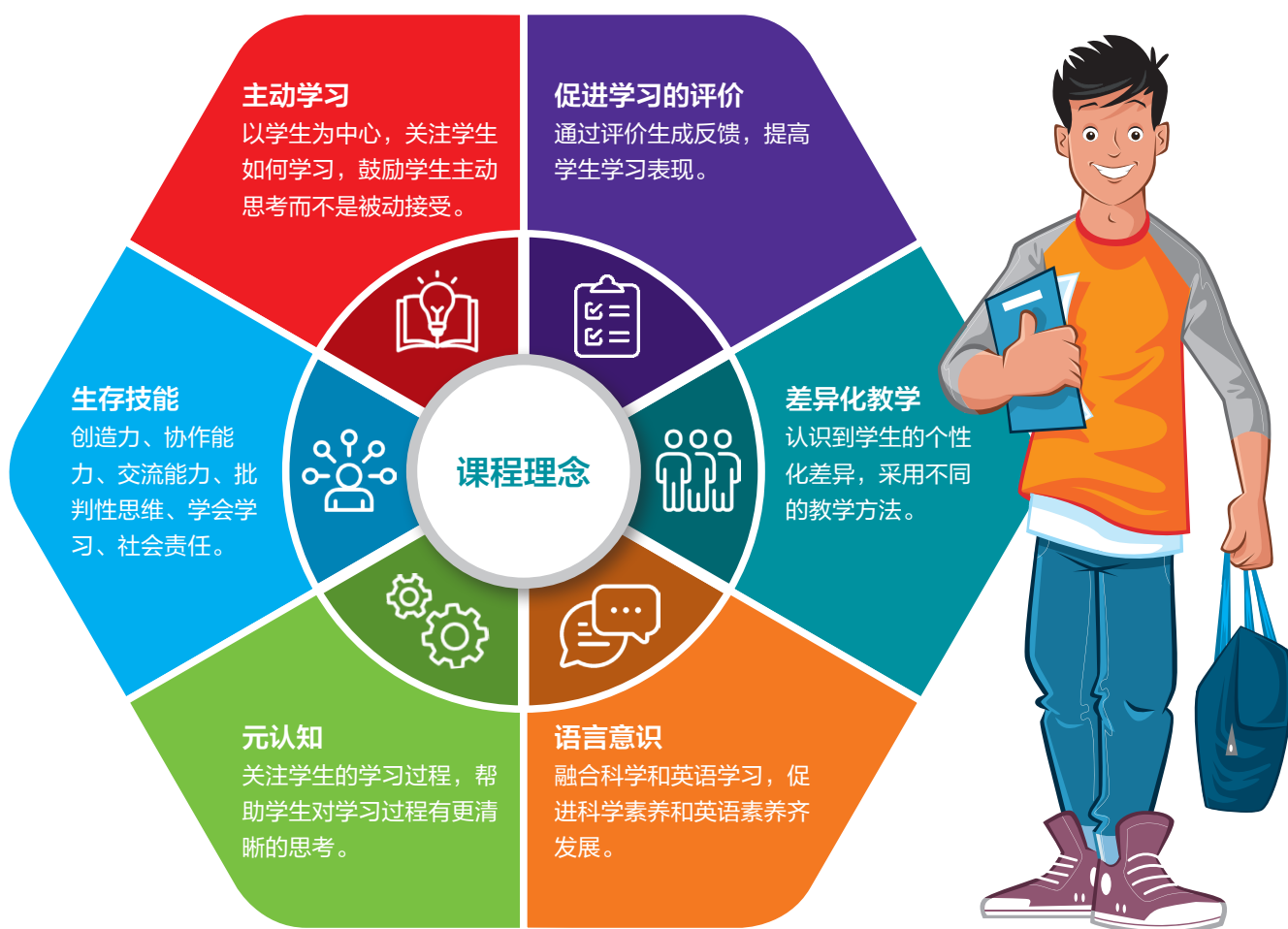
学生用书和活动用书配套电子书可以通过封底二维码从外研阅读平台免费获取



- 学年初诊断测试、单元测试、学年中测试、学年末测试及答案
- 学生用书及活动用书问题答案
- 语言练习题

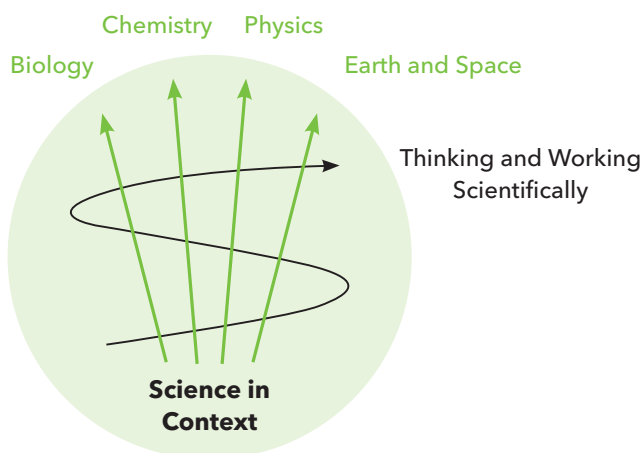
.....





课程特色

- 融合科学学习和英语学习，促进科学素养、英语素养齐发展
- 聚焦科学大概念，覆盖科学教育主要领域，科学安排进阶路线
- 倡导像科学家一样思考与做事，培养科学思维，强化探究实践
- 配套完备资源，教学测评研一体化解决方案，有效支持教与学



开课建议

建议年级：一至十二年级

建议课时：1~6 级每周 1~2 课时，7~9 级每周 3~5 课时



学生资源

学生用书

学生课上开展科学实践和语言实践活动的核心资源，包括丰富多彩的探究实践活动。


4

设置丰富多彩的问题和活动，帮助学生建构科学概念，培养科学技能

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

How plants get water

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.**

17 >

1

明确学习目标

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

- For each process, write down the changes of state. The first one has been started for you.
 - Melting: solid to _____
 - Condensing: _____
 - Freezing: _____
 - 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

列出核心词汇进行语言准备

2

通过问题或活动激活已知，激发思考，为接下来的学习做好准备

5

设置探究任务，鼓励主动学习，引导学生解决科学问题，培养科学思维

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 |
|---|--|---|
| <input type="checkbox"/> I cut a piece of the inside layer of onion that was about 1 cm square. | <input type="checkbox"/> I was able to spread the piece of onion flat in the drop of water. | <input type="checkbox"/> I put the cover slip over the onion without getting any air bubbles. |
| <input type="checkbox"/> I saw onion cells down the microscope. | <input type="checkbox"/> 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.

10 >

6

帮助学生对自己学习效果进行自我或互相评价

7

提出问题，引导学生对学习过程进行反思

8

归纳要点，帮助学生回顾所学



2 Sound

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.




1


2


3


4


5


40 >

9

开展项目式学习，让学生运用所学知识和技能，解决实际生活中的科学问题或者制作一些科学作品，培养问题解决和协作能力

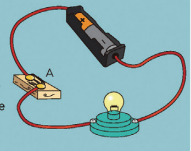

10

通过一系列问题测试学生对这一单元主要内容、核心概念和核心语言的掌握情况

6 Electricity

Check your progress

- 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.
- Which of the following materials are insulators of electricity?
gold cork plastic aluminium
- 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?
- 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?


154 >

Science skills

Science skills

How to draw a block graph

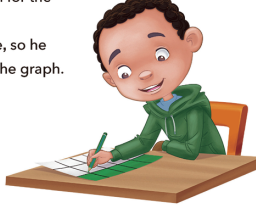
Zara and Marcus have done a fair test to find out which cushion is the softest.
They used a ruler and some bricks to measure how soft each cushion was.



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.



174 >

11

年末回顾、提炼本学年的重要科学技能

12

附核心词汇释义和索引，提供语言支持

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 |

149 >



活动用书

学生用书配套评价资源，帮助学生复习、巩固、拓展课内所学，习题分为难度逐次递增的三个级别，支持差异化教学。



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.

第一级：难度一般

帮助掌握基本知识
适合基础较薄弱的学生

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 | | | | | | | | |

第二级：难度居中

提升运用知识的信心
可布置给所有的学生

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.

第三级：难度较高

鼓励深入思考和拓展
适合水平较高的学生

电子资源

学生用书和活动用书配套电子书可以通过封底二维码从外研阅读平台免费获取。

Table of contents

- 87
- 88
- 89
- 90
- 91
- 92
- 93
- 94

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 human mammal fur

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

教师资源

(2023 年出版)

教师用书

辅助教师备课、授课，开展教学评价的重要资源，包括提供详细教学指导的纸质教师用书和配套数字资源。

单元教学建议：

- 建议学时
- 教学内容概览
- 配套教学资源

本章资源

> 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 | | | |

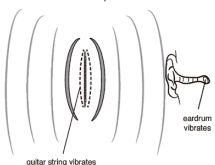
25 >

> 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.

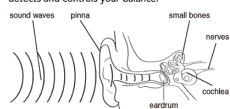


Sound waves travel much more quickly than waves in water. Sound waves travel so fast that it usually seems as if you hear the sound at exactly the same time as it is made. However, with a large enough distance between the sound source and the listener, a delay becomes noticeable. Thunder is the sound 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

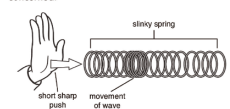
The human ear has evolved to detect sound waves in the air. The ear flap (pinna) is shaped to collect the wave and direct it down the ear canal to the ear drum. The sound wave vibrates the ear drum,

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.

背景知识

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

107 >

教学技巧

26 >



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. |
| 1TWSa.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, mouse. 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 say what we think will happen
record: 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. |

20 >

每课教学建议:

- 学习内容
- 教学目标
- 学业要求

语言支持 (含生词教学建议)

常见错误概念及解决方法



教学设计

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', 'renewed 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.

CROSS CURRICULAR LINKS

This topic has links with geometry in maths. You could use this topic to teach the difference between clockwise and anticlockwise and to introduce that a right angle is a quarter turn. The first quarter phase of the Moon happens when it is one quarter of the way around its orbit. The last quarter happens when the Moon is three quarters of the way around.

Homework ideas

- 1 Ask learners to observe the Moon and record their observations in a table. See Think like a scientist 2: Making a Moon diary above.
- 2 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

35IC.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.

131 >

1 LIVING THINGS

Starter ideas

1 Water for plants (5–10 minutes)

Resources: Learner's Book picture of plants growing in different places.

Description: Ask the learners about what they can observe on the picture. Can they say why there are few plants in the dry looking areas? 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?' 'What do you observe about 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?

Ask the learners to look at the next picture of plants growing in different places.

Ask if they have seen plants locally living locally. Where?

Ask five 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.

21 >

作业设计

活动记录单使用建议

章末项目教学指导

电子资源

- 课程介绍材料
- 课程理念详解
- 活动记录单
- 语言练习题
- 学年初诊断测试、单元测试、学年中测试、学年末测试及答案
- 学生用书及活动用书答案

SCIENCE 3 UNIT 1: 1.1 PLANTS ARE LIVING THINGS

Name _____ Date _____

Worksheet 1.1B

Alive or not alive?

Look at each object.
Complete the table on the next page to say whether each thing is alive or not alive.
Use the diagram on this page to help.
The first one has been done for you.

Cambridge Primary Science 3 – Jon Board & Alan Cross © Cambridge University Press 2021

SCIENCE 4 UNIT 1: 1 LIVING THINGS

Name _____ Date _____

Language worksheet 1

Vocabulary building

1. Draw a line to match each word with its meaning. The first one has been done for you.

| Word | Meaning |
|----------|---|
| Skeleton | The bones in your chest |
| Bones | The bones in your back |
| Skull | The bone that joins your leg to the upper part of your body |
| Rib cage | The hard, strong frame that supports our body |
| Spine | The bone that moves when we eat or talk |
| Hip | Hard parts that form the skeleton |
| Jaw | The bones of the head |

2. Write the correct word for each of these descriptions.

- Something that gives support and shape from the inside.
- An object or drawing that helps us understand how something works, or what something looks like, that we can't see in real life.

Cambridge Primary Science 4 – Fiona Baxter & Liz Dillel © Cambridge University Press 2021

APPROACHES TO LEARNING AND TEACHING

Active learning

What is active learning?

Active learning is a teaching approach that places student learning at its centre. It focuses on how students learn, not just on what they learn. We, as teachers, need to encourage learners to 'think hard', rather than passively receive information. Active learning encourages learners to take responsibility for their learning and supports them in becoming independent and confident learners in school and beyond.

Research shows us that it is not possible to transmit understanding to learners by simply telling them what they need to make sure that we challenge learners' thinking and support them in building active learning encourages more complex thought processes such as evaluating, which foster a greater number of neural connections in the brain. Although some of their own meaning from information received passively, others will not. Active learning encourages learners to build knowledge and understanding in response to the opportunities we provide.

What is an active learning approach?

Active learning is a teaching approach that places student learning at its centre. It focuses on how students learn, not just on what they learn. We, as teachers, need to encourage learners to 'think hard', rather than passively receive information. Active learning encourages learners to take responsibility for their learning and supports them in becoming independent and confident learners in school and beyond.

Research shows us that it is not possible to transmit understanding to learners by simply telling them what they need to make sure that we challenge learners' thinking and support them in building active learning encourages more complex thought processes such as evaluating, which foster a greater number of neural connections in the brain. Although some of their own meaning from information received passively, others will not. Active learning encourages learners to build knowledge and understanding in response to the opportunities we provide.

What are the challenges of incorporating active learning?

When putting active learning into practice, they often make the mistake of thinking 'I want to design that about the learning. The most important thing is to put the learner at the centre of our planning. A task can be quite simple but still get the learner to identify. Sometimes a complicated task does not actually help to develop the learners' at all. We need to consider carefully what we want our learners to learn or understand and activate this learning.

For learning and teaching series, courtesy of Cambridge University Press and National Education: cambridge.org/approacheslearning

支持体系



SCIENCE 3: UNIT 5 TEST

Name _____ Date _____

End-of-unit 5 test

The End-of-unit tests have been written by the authors. These may not fully reflect the approach of Cambridge Assessment International Education.

1. Sunil is measuring the weights of some objects.

Sunil puts his results in a table.
Write the results for the bananas and the shoe in the table.

| Object | lunch box | bananas | shoe |
|------------|-----------|---------|------|
| Force in N | 15 | | |

2. Jake measures the weight of some other objects. Here are his results.

| Object | book | headphones | jumper |
|------------|------|------------|--------|
| Force in N | 7 | 2 | 12 |

Jake makes a bar chart of his results.

Cambridge Primary Science 3 – Jon Board & Alan Cross © Cambridge University Press 2021



课程体系

共 63 个单元，覆盖生物、化学、物理、地球和宇宙四大方向

| 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 2 Sound 4 The digestive system 6 Seasons and adaptations of plants and animals | 3 States and properties of matter | 2 Sound 5 Forces and magnetism | 4 The digestive system 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 |



书目信息

访问 <https://zengzhi.fltrp.com/kx/tskc/xswkx/xgzy/> 或扫描下方二维码获取试读样张

| 书名 | 定价 (元) | 试读样张 | 书名 | 定价 (元) | 试读样张 |
|----------------------------------|-----------|---|----------------------------------|-----------|---|
| 新思维科学学生用书 1 978-7-5213-3745-7 | 137 |  | 新思维科学活动用书 1 978-7-5213-3743-3 | 68 |  |
| 新思维科学学生用书 2 978-7-5213-3744-0 | 137 |  | 新思维科学活动用书 2 978-7-5213-3742-6 | 68 |  |
| 新思维科学学生用书 3 978-7-5213-3768-6 | 137 |  | 新思维科学活动用书 3 978-7-5213-3772-3 | 68 |  |
| 新思维科学学生用书 4 978-7-5213-3767-9 | 137 |  | 新思维科学活动用书 4 978-7-5213-3766-2 | 68 |  |
| 新思维科学学生用书 5 978-7-5213-3748-8 | 137 |  | 新思维科学活动用书 5 978-7-5213-3747-1 | 68 |  |
| 新思维科学学生用书 6 978-7-5213-3754-9 | 137 |  | 新思维科学活动用书 6 978-7-5213-3746-4 | 68 |  |
| 新思维科学学生用书 7 978-7-5213-3760-0 | 244 |  | 新思维科学活动用书 7 978-7-5213-3757-0 | 117 |  |
| 新思维科学学生用书 8 978-7-5213-3753-2 | 244 |  | 新思维科学活动用书 8 978-7-5213-3752-5 | 117 |  |
| 新思维科学学生用书 9 978-7-5213-3759-4 | 244 |  | 新思维科学活动用书 9 978-7-5213-3758-7 | 117 |  |



地区负责人联系方式

| | | | | | | | |
|-----|--------------------|----|--------------------|----|--------------------|----|--------------------|
| 北京 | 郭老师 16601301383 | 陕西 | 郭老师 16601301383 | 辽宁 | 林老师 18600716767 | 广东 | 王老师 15797677480 |
| | 宋老师 18601325106 | | 杨老师 18810321522 | | 赵老师 13501371382 | | 任老师 13810798469 |
| | 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 | 浙江 | 林老师 18600716767 | | 何老师 13671109590 |
| 河南 | 张老师 18610987711 | 湖北 | 王老师 15797677480 | | 高老师 13522651808 | 安徽 | 王老师 15797677480 |
| | 吴老师 13501165643 | | 李老师 13466657350 | 吉林 | 林老师 18600716767 | | 孙老师 18910949060 |
| | 楚老师 18513741949 | | 葛老师 18610080856 | | 刘老师 15801252967 | 上海 | 田老师 18612250968 |
| 重庆 | 田老师 18612250968 | 云南 | 田老师 18612250968 | 广西 | 郭老师 16601301383 | | 孙老师 18611924920 |
| | 崔老师 18910789405 | | 姬老师 13001010786 | | 杨老师 18611461863 | 海南 | 张老师 13718835282 |
| | 孔老师 18800029209 | | 王老师 13810293893 | 湖南 | 郭老师 16601301383 | | 叶老师 18611124689 |
| 贵州 | 王老师 15797677480 | 四川 | 田老师 18612250968 | | 叶老师 18611124689 | 宁夏 | 张老师 13718835282 |
| | 姬老师 13001010786 | | 孔老师 18800029209 | 甘肃 | 张老师 18610987711 | | 鲍老师 18600367912 |
| | 王老师 13810293893 | | 官老师 18623021125 | | 鲍老师 18600367912 | 新疆 | 张老师 18610987711 |
| 内蒙古 | 郭老师 16601301383 | | 许老师 13811513345 | 青海 | 张老师 18610987711 | | 陈老师 13311067661 |
| | 蔺老师 13501131820 | | 陈老师 13501350654 | | 陈老师 13311067661 | | 李老师 13911891430 |

SCIENCE
新思维科学

面向 6—18 岁青少年的国际化科学课程
融合科学学习与英语学习
培养科学思维和国际视野