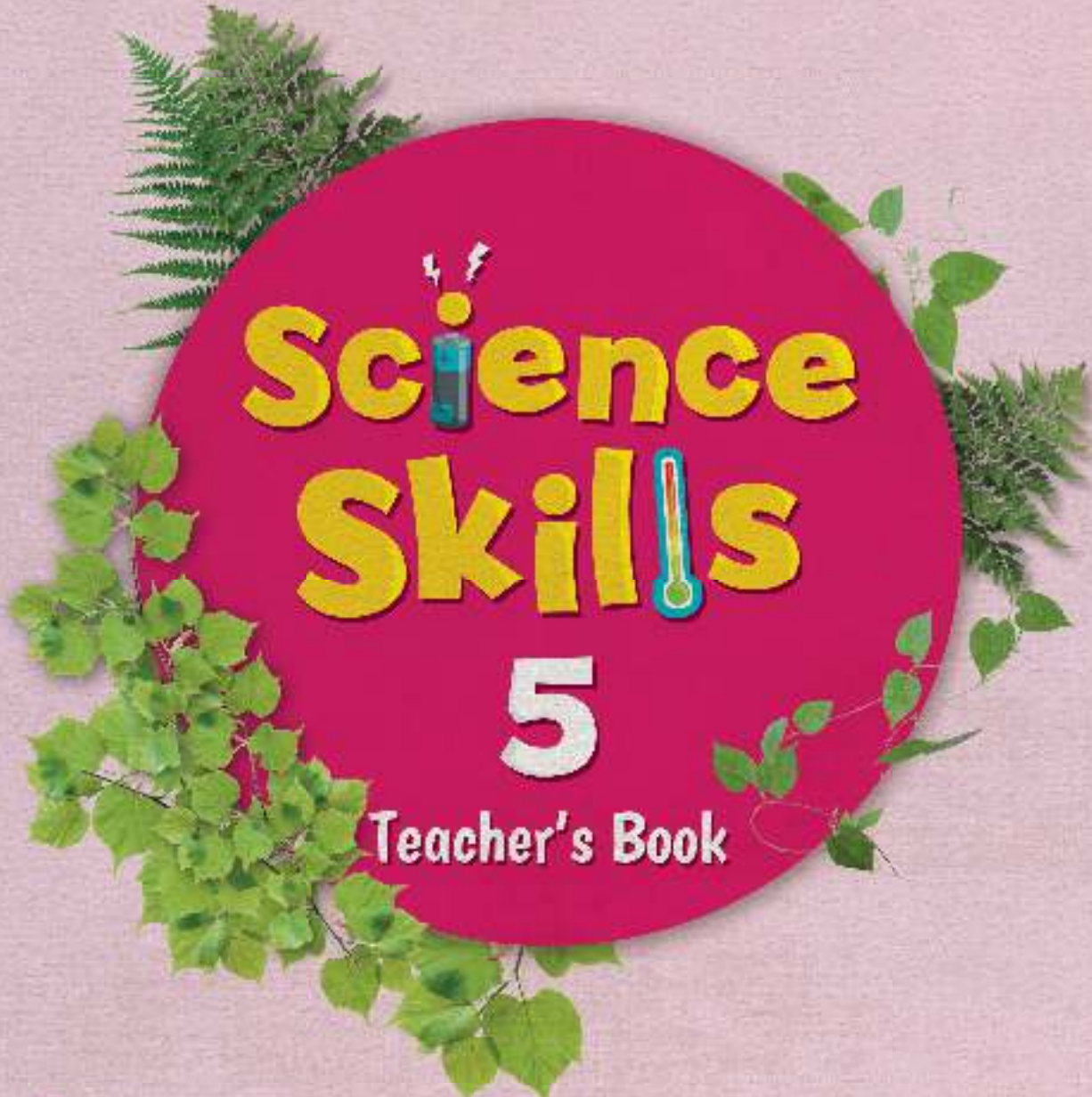




Science Skills

5

Teacher's Book



With
Downloadable
Audio

Experience
Better
Learning



SCIENCE SKILLS 5



Course introduction

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Welcome unit

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Electricity

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Activity Book answers

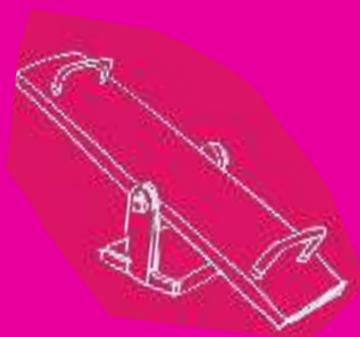
Page 107



WELCOME TO CAMBRIDGE SCIENCE SKILLS

Course objectives

- *Cambridge Science Skills* takes learners on a journey as they discover the wonders of biology, chemistry and physics. Pupils are introduced to topics at a manageable pace, so they can engage with, enjoy and fully assimilate new concepts.
- Pupils learn about and cement their understanding of new concepts through **projects**. There is an *Investigate* project that runs through each unit, in which pupils review and expand upon the concepts presented in the unit. Each individual stage of the *Investigate* project feeds into the project finale, in which pupils present or produce something to demonstrate their understanding of the topic.
- Pupils also engage with Science in a **hands-on** way by conducting **experiments**. This practises **critical-thinking skills** and promotes collaborative learning.
- Pupils learn about new concepts through discovery. In *Cambridge Science Skills*, **learner autonomy** is encouraged through the inclusion of interesting facts and thought-provoking questions. Our aim is for pupils to be inspired by the fun and wondrous world of Science.
- **Collaborative learning** is also encouraged through the *Investigate* projects, which pupils carry out in pairs, in groups and as a class.
- The course provides pupils with the **linguistic support** that they require to study Science in a second language. The course helps pupils develop their speaking, listening, reading and writing skills. The unit projects give pupils practice of a range of skills and sub-skills.
- *Cambridge Science Skills* provides pupils with practice of the **Cambridge English Qualifications for young learners**. Level 5 provides practice of A2 *KEY For Schools* question types.
- **Mixed-ability assessment** provides teachers with support for pupils of different levels within the same class. They focus on lower- and higher- order thinking skills, as well as critical thinking.
- *Cambridge Science Skills* aims to help pupils develop the following key competences: linguistic competence; mathematical competence and basic competences in science and technology; digital competence; learning to learn; social and civic competences; initiative and entrepreneurship; and cultural awareness and expression.



Course components

Pupil's Book: each unit includes a project, experiments, mixed-ability assessment and practice of the Cambridge English Qualifications for young learners.



Activity Book: each unit includes activities that consolidate and expand upon the concepts introduced in the Pupil's Book, practice of the Cambridge English Qualifications for young learners and a bilingual glossary.



Class audio: provided through Presentation Plus, as well as being available to download at www.cambridge.org/scienceaudio.



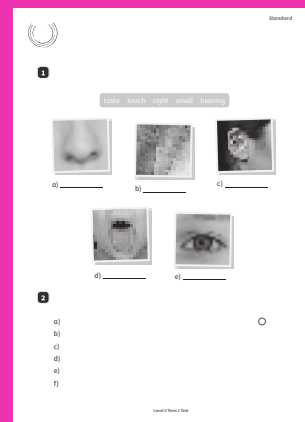
Teacher's Book: includes useful suggestions for activities at each stage of the lesson, answer keys, audio scripts and track numbers for the audio.



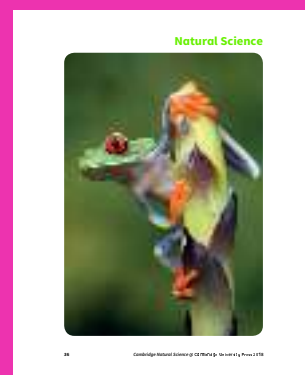
Science Skills Presentation Plus:

includes an interactive, digital version of the Pupil's Book with a variety of features to help pupils cement their understanding of key concepts:

- flashcards in digital format
- answer keys
- audio with scripts available
- mixed-ability tests
- documentary videos for each unit to engage the pupils in a visual way and allow them to see Natural Science in action!



Classroom materials: include posters and a full bank of flashcards to be used across levels. The posters consolidate learning by helping pupils engage with Science vocabulary and concepts in the classroom.



WELCOME UNIT

PAGES 4–5

Objective

Pupils will be encouraged to ask questions about everyday surroundings, seek answers to those questions and understand the scientific method as a means of problem solving.

Key vocabulary

conclusion, experiment, hypothesis, prediction, problem, question, result, science, scientific method, scientist, solve

Warm up

- Elicit answers to the question: *What is Natural Science?* Create a word cloud on the board.

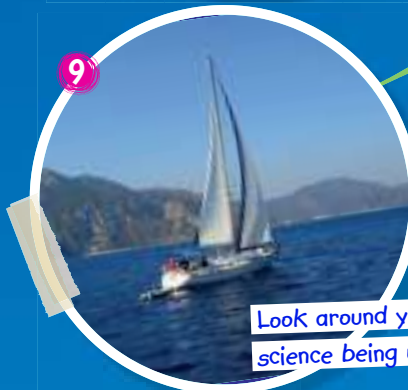
Main concepts

- Read about the scientific method. Elicit questions pupils wonder about. Question examples: *I wonder how we could keep the classroom warmer? How does an eraser work? What would happen if there was no sunlight?*
- Choose a question to work through the scientific method together, explaining each step.

Natural science is the study of the physical world, which helps us to understand the things around us.

WHAT IS NATURAL SCIENCE?

Science helps us understand how the world works. It helps us solve problems and can make life easier.



Look around you. Where is science being used?



Which photo is being described? Listen and guess.

4

A2 Key for Schools
Listening Part 1
Hairdresser

Pupils' own answers. Focus on classroom objects, activities and pupils' bodily functions.

Learn more

- Refer to the table of contents in the Pupil's Book. Pupils think of a question they want answered during the school year. They write it on a piece of paper and decorate it. Display the questions around the classroom. At the end of the year, allow pupils to reflect on their question and write the answer.

Tip

Introduce concepts over one or two lessons. Spend time getting pupils excited about science and the upcoming experiments. Emphasise the omnipresence of science in our daily lives.

Track 01

Page 4, *What is Natural Science?*

Track 02

Page 4, *What is Natural Science?*

Listening activity

Do you ever wonder how something works, why something happens or how changing something would make a difference? Scientists use the **scientific method** to understand the world around us. It always starts with a **question**.

I wonder why / how ...? How does ... work?

What would happen if ...?

Scientists then decide how to answer the question by thinking of an **experiment**. Before carrying out the experiment, they guess what will happen. This guess is called a **prediction** or a **hypothesis**.

Scientists draw **conclusions** from their observations and the **results** of their experiments. These conclusions help us to understand the world we live in.

1. Bungee jumping – applying the laws of physics for safety
2. Rock band – using sound energy to entertain people
3. Architect – applying the laws of physics and engineering
4. Chef – using chemistry to make tasty food

5. Scientist – using knowledge of biology and ecosystems
6. Children playing – using mechanical energy and physics to score goals
7. TV set – using technological inventions to provide entertainment
8. Hairdresser – using chemistry to dye hair
9. Sailboat – using wind energy to move

1

LIVING THINGS

Learning objectives

By the end of this unit, pupils will have achieved a greater understanding of the following concepts:

- the characteristics of living things
- the internal organisation of living things
- how living things are classified into kingdoms.

Competences

This unit covers the following competences:

- Linguistic competence
- Mathematical and basic competences in science and technology
- Digital competence
- Learning to learn
- Social and civic competencies

Key vocabulary

Cell structure: animal cell, cell, cell membrane, cell wall, chloroplast, cytoplasm, nucleus, plant cell, rigid, structure, vacuole

Organisation: cell, function, individual, multicellular, organ, organism, structural, system, tissue, unicellular

Classification: alga, Animal, bacteria, bacterium, classify, dichotomous key, Fungus, living, identify, invertebrate, kingdom, Monera, Plant, Protist, protozoon, taxonomist, vertebrate

Other: hypothesis, nutrition, specialised

Cambridge English Qualifications practice

You will find **A2 Key for Schools** activity types in the following exercises:

Pupil's Book, Page 13 – Listening Part 2

Pupil's Book, Page 17, Activity 1 – Reading and Writing Part 4

Activity Book, Page 3, Activity 4 – Reading and Writing Part 4

Activity Book, Page 6, Activity 8 – Reading and Writing Part 1

Activity Book, Page 7, Activity 10 – Reading and Writing Part 5

Throughout this unit, you will find the following **A2 Key for Schools** vocabulary:

animal, believe, bird, belong, blood, body, collect, dangerous, heart, improve, interesting, scientist, wild, wonderful

Throughout this unit, you will find the following **B1 Preliminary for Schools** vocabulary:

avoid, disease, energy, exception, individual, ordinary, provide, support





Materials needed for *Find out more*

- balloons
- shoe boxes

Materials needed for other activities

- A4 card
- art materials for posters
- counters
- creative materials for cell structures
- dice
- examples / photos of living and non-living things
- plasticine
- non-living objects with characteristics of living things
- photos of different organisms from the five kingdoms
- pre-made body organisation game cards, one per pupil
- sticky notes

Explore

The *Explore* project encourages pupils to research an organism of their choice and to describe their chosen organism in detail. Pupils will present their research to their classmates and produce a page, which will contribute to a class book. The different *Explore* stages focus on the following skills:

- producing accurately labelled diagrams
- using bullet points to convey scientific facts succinctly
- autonomous research
- preparing an information poster
- giving a presentation.

Other resources

- Interactive activities
- Flashcards: *Living things*
- Song: *Cells, tissues, organs, systems*
- Video documentary: *Living or non-living?*

UNIT 1

PAGES 6–7

Objective

Pupils will be introduced to the five kingdoms of classification and prior knowledge of living and non-living things will be activated.

Key vocabulary

Animal, bacteria, Fungus, kingdom, living, Monera, organism, Plant, Protist

Warm up

- On the board write: *bread mould, elephant, grass, green algae and rock*. Compare and contrast these items as a class. Ask: *Which ones are living? Which ones are non-living? How do we know?*
- In teams of four, pupils list as many living and non-living things as they can in three minutes.

Main concepts

- Stimulate previous knowledge by asking pupils to name the five kingdoms of living things, if they can, and give examples. Write the kingdoms on the board. Pupils ask and answer the questions in pairs. Refer to the linguistic support in the speech bubbles and explain that they will be looking at kingdoms later in the unit.
- Discuss and identify the characteristics of living things. Check understanding by asking pupils to classify photos and give reasons for choices.



1

LIVING THINGS

Look and discuss...

Which kingdom is each organism from?
Which kingdom is missing?

Life has done extremely well here on Earth. Scientists estimate several million species live on our planet!

I think this organism belongs to ...

1


2


3


Yes, I think so, too. / I'm not sure about that.

4


Plant 1, 7; Animal 2, 8, 9;
Fungus 3, 5; Protist 4, 6;
missing kingdom: Monera

6



5

Song

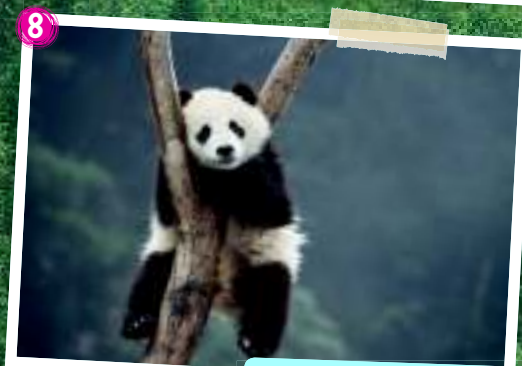
Cells, tissues, organs, systems



6



7



8

DOCUMENTARY

Living or non-living?

Can you name the seven characteristics of living things?

Explore

Make a *Book of Life*. You will:

- learn about different types of cells.
- research information and take notes about an interesting organism.
- organise facts and share information with others.
- present the information you have collected.

Movement; respiration; reproduction; growth; sensitivity (or response); nutrition (or use of energy); excretion

For next lesson... modelling clay, creative materials for cell structures

Learn more

- *The Search for Life* game: Pupils are extra-terrestrials who must find living food to eat. Pupils move in small groups through different stations, correctly identifying living things from non-living things. They should review the seven characteristics and focus on properly forming questions with the auxiliary verb *do / does*.
- Refer back to the warm-up activity and the list of living and non-living things on the board. Did pupils classify them correctly? Can they classify them into kingdoms?

Song

This song focuses on body organisation. It can be used on page 11. You could try using an action activity with the song.

Documentary

The documentary explores the characteristics of living and non-living things. It can be used after discussing the seven characteristics of living things. You could try having pupils call out *living* or *non-living*, and the characteristic with the video.

Tip

Show different non-living objects that have characteristics of living things and discuss these as a class (for example, melting ice and moving toys).