



CAMBRIDGE
UNIVERSITY PRESS

CAMBRIDGE Primary Science

Learner's Book 2

Jon Board & Alan Cross

Introduction

Welcome to Stage 2 of Cambridge Primary Science.

Stage 2 has many exciting science topics and we hope you will enjoy the fun activities.

You are going to learn about:

- The environment around you
- How forces make things change
- How and why we use materials
- How humans and animals grow
- Light sources, darkness and the Sun
- Electricity and making circuits.

We know you can do science yourself, so each unit has lots of practical activities and investigations for you to try. We will ask you to talk about what you know already, about what you think will happen in the activities and about what you find out. You will need to ask questions and talk about ways to find the answers. You will need to look at things carefully and sometimes take measurements. You will learn how to draw block graphs and how to make models to learn more in science.

Each unit has a project where you can find out how science is used in the world around you and how the ideas of scientists have changed over time.

We hope you enjoy thinking and working like a scientist!

Jon Board and Alan Cross



Contents

Page	Unit	Science strand	Thinking and Working Scientifically strand	Science in Context
vi	How to use this book			
2	1 Environments and habitats	Biology: Structure and function Biology: Life processes	Scientific enquiry: purpose and planning Scientific enquiry: carrying out scientific enquiry Scientific enquiry: analysis, evaluation and conclusions	Explain how we can use science to help us understand how we affect the world we live in.
2	1.1 Habitats			
7	1.2 Plants in different habitats			
13	1.3 Animals in different habitats			
19	1.4 Rocks and the environment			
27	1.5 How can we care for our environment?			
36	2 Forces and movement	Physics: Forces and energy	Scientific enquiry: purpose and planning Scientific enquiry: carrying out scientific enquiry Scientific enquiry: analysis, evaluation and conclusions	Understand that we all use science and find out who uses science in their jobs.
36	2.1 Forces around us			
42	2.2 Changing shape			
47	2.3 Changing speed			
52	2.4 Changing direction			
59	3 Getting materials right	Chemistry: Materials and their structure Chemistry: Properties of materials Chemistry: Changes to materials	Scientific enquiry: purpose and planning Scientific enquiry: carrying out scientific enquiry Scientific enquiry: analysis, evaluation and conclusions	Explain how we can use science to help us understand how we affect the world we live in.
59	3.1 Natural and made materials			
64	3.2 Properties of materials			
70	3.3 Using the right material			
73	3.4 Testing materials			
78	3.5 Changing materials			

Page	Unit	Science strand	Thinking and Working Scientifically strand	Science in Context
88	4 Humans and animals grow	Biology: Structure and function Biology: Life processes	Scientific enquiry: purpose and planning Scientific enquiry: carrying out scientific enquiry	Understand that we all use science and find out who uses science in their jobs.
88	4.1 Comparing animals			
94	4.2 Growing			
101	4.3 Inheriting characteristics			
106	4.4 Keeping healthy			
112	4.5 Teeth			
123	5 Light	Physics: Light and sound	Scientific enquiry: purpose and planning Scientific enquiry: carrying out scientific enquiry Scientific enquiry: analysis, evaluation and conclusions	Talk about how people's knowledge and understanding of science were different in the past.
123	5.1 Light sources			
130	5.2 Darkness			
137	5.3 The Sun appears to move!			
146	6 Electricity	Physics: Electricity and magnetism	Scientific enquiry: purpose and planning Scientific enquiry: carrying out scientific enquiry Scientific enquiry: analysis, evaluation and conclusions	Explain how an object works using science.
146	6.1 Where do we use electricity?			
152	6.2 Keep safe with electricity			
159	6.3 Making circuits			
170	Science skills			
175	Glossary and index			
185	Acknowledgements			

How to use this book

In this book you will find lots of different features to help your learning.

What you will learn in the topic. →

We are going to:

- describe the place an animal lives as its habitat
- compare different habitats for animals
- make observations and record them in drawings.

Questions to find out what you know already. →

Getting started

- Tell a friend why every living thing needs the right habitat.
- Draw a local habitat where plants live.

Important words to learn. →

litter
material
nature reserve
protect
recycle

A fun activity about the Science you are learning. →

Activity

Find me a habitat

Pretend you are one of the three plants in this activity. Read the information. Then make a poster to say 'Can you find me a habitat like this?' Rice needs a habitat which is warm, with lots of light and water. Rice grows in very wet soil.



An investigation to carry out with a partner or in groups. →

Think like a scientist 1

Plants in different habitats

Go outside and look at different places around your school.

Look for plants growing in different habitats:

- against a wall
- in a shady place
- in a wet place
- in a dry pathway
- under something
- in a plant pot.

This plant is growing on a path.

Its roots have grown down a **crack** to find soil.

Take a **photograph** or draw a picture of a plant and where it is growing. You can **record** your plants and habitats like this.



Questions to help you think about how you learn. →

This is what you have learned in the topic. →

Questions that cover what you have learned in the unit. If you can answer these, you are ready to move on to the next unit. →

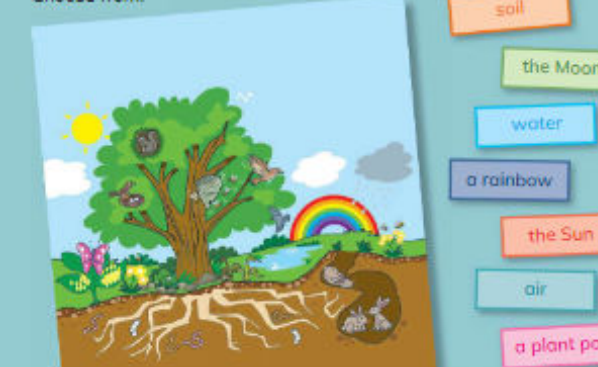
When I am learning about plants, how does it help me to observe real plants?

Look what I can do!

- ☐ I can describe the place an animal lives as its habitat.
- ☐ I can compare different habitats for animals.
- ☐ I can make observations and record them in drawings.

2 Which four things does the tree need in its habitat?

Choose from:



At the end of each unit, there is a project for you to carry out, using what you have learned. You might make something or solve a problem. →

Project: Our school's outdoor environment

Make a small book about the environment of the school grounds.

Think about:

- habitats for plants
- habitats for animals
- where you could put an insect hotel
- ways to improve the outdoor school environment for plants and animals
- where you could put a nature reserve.

Use photographs, pictures and words to tell readers about the school grounds and the animals and plants that live there now.

Make sure you show some good habitats for animals and plants. Think of ways to improve habitats or make new ones.

How would you care for and improve the outdoor spaces around the school?



1 Environments and habitats

> 1.1 Habitats

We are going to:

- explore the environment to find the habitat of a living thing
- talk about different living things in a habitat
- compare two local habitats
- make a model of a habitat
- make observations and record them in drawings.

Getting started

- Each animal needs an **environment** which is a good **habitat** for them.
- The environment is the air, water and land where people, animals and plants live.
- Talk about the animals shown on this page and the environment they need to live in. Draw the environment needed by these animals.

compare label
environment model
habitat local
home

1.1 Habitats

Each living thing needs a place to live.

We call this place the living thing's habitat.

A habitat gives the living thing everything it needs to live.

The plant's habitat is a wall. The wall is its **home**.

The plant has everything it needs to live.

It needs, light, water, soil and air.

It has a very small habitat.

The eagle's habitat is around forests and lakes. Here, the eagle finds everything it needs to live.

It needs food, water, air and a home.

It has a very large habitat.



Questions

Look at the other animals and plants in the picture.

- 1 What is their habitat?
- 2 Can they find all they need?

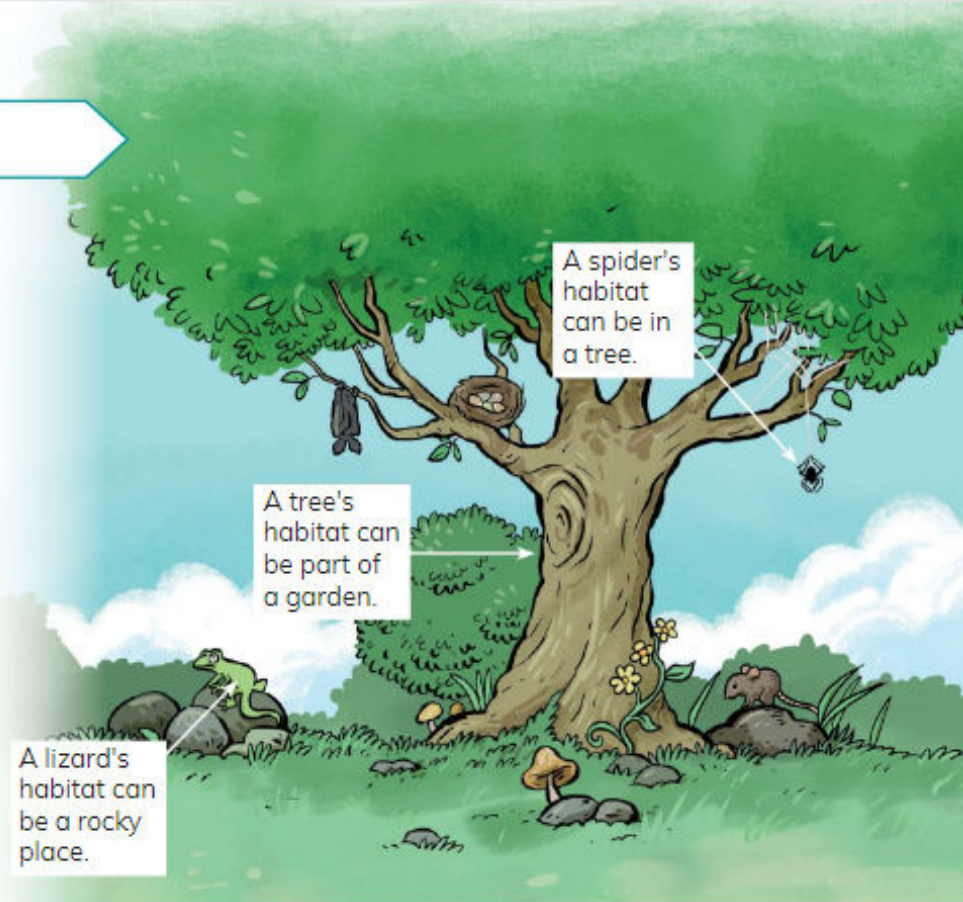


Your **local** environment has different habitats for different animals and plants.

What living things and their habitats are in this picture?

Plants grow in a habitat but they cannot move from place to place.

Animals can move in their habitat.



Activity

Habitat for a frog

A habitat for a frog might be a wet area, stream or pond.

Imagine you are a frog. What would you want to find in your habitat?

Now draw the habitat for a frog.

Label your drawing to say what each thing is.

Would this habitat be a home for other animals and for plants?

Draw these other living things in your picture.



Think like a scientist 1

A habitat for fish

You will need:

a cardboard box, card, paper, scissors, coloured pens, glue

This tank is a habitat for fish.

Why do we call this tank a habitat?

Use a box to make a **model** of a habitat for fish.

You must give the fish everything they need.

What will you include?



Think like a scientist 2

Looking at habitats



Look at these two habitats. **Compare** them. How are they different?

Why are there more plants and animals in one habitat than in the other?

Go outside to observe your local environment.

Continued

Talk about what the habitat is like in one place.

What plants grow? What animals might live here?

Now go to a different habitat in your local environment.

What plants grow? What animals might live here?

Draw the two habitats and show that they are different.

Add labels to your drawings.

Talk to your friends about why these habitats are different.

How am I doing?

Think of a local environment where we find habitats for different animals and plants.

Share your ideas with a friend.

When I learn about the world, does it help me to compare different things?

Look what I can do!

- ☐ I can explore the environment to find the habitat of a living thing.
- ☐ I can talk about different living things in a habitat.
- ☐ I can compare two local habitats.
- ☐ I can make a model of a habitat.
- ☐ I can make observations and record them in drawings.

> 1.2 Plants in different habitats

We are going to:

- describe the place a plant lives as its habitat
- describe different plants in a habitat
- compare different habitats for plants
- observe plants and record what we see in drawings and tables.

Getting started

- Tell a friend why every living thing needs the right habitat.
- Draw a local habitat where plants live.

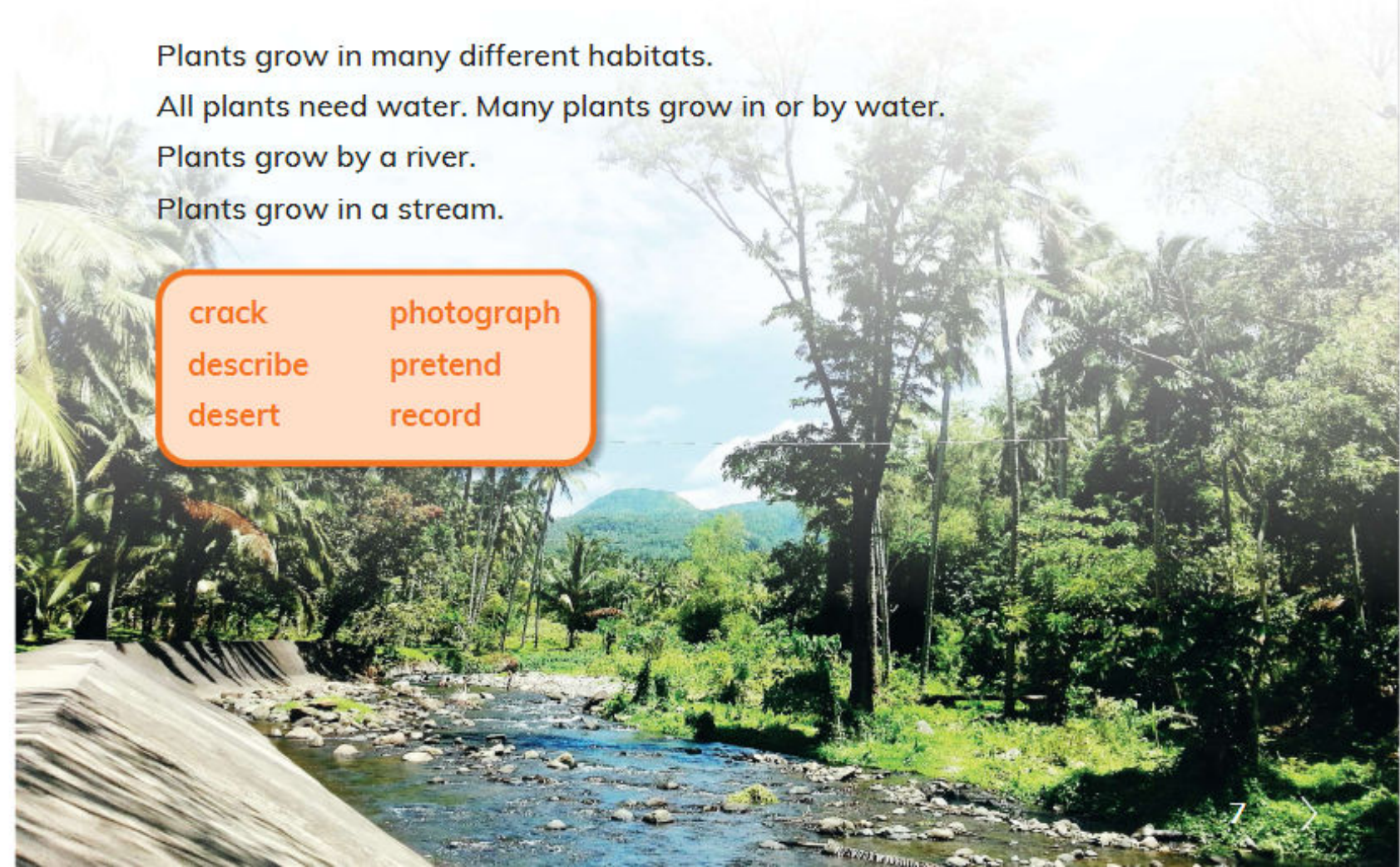
Plants grow in many different habitats.

All plants need water. Many plants grow in or by water.

Plants grow by a river.

Plants grow in a stream.

crack	photograph
describe	pretend
desert	record



Some plants live in hot **deserts**.
It is very dry here.

Question

- 1 How can these plants live with very little water?

Think like a scientist 1

Plants in different habitats

Go outside and look at different places around your school.

Look for plants growing in different habitats:

- against a wall
- in a shady place
- in a wet place
- in a dry pathway
- under something
- in a plant pot.

This plant is growing on a path.

Its roots have grown down a **crack** to find soil.

Take a **photograph** or draw a picture of a plant and where it is growing.

You can **record** your plants and habitats like this.



Continued

I found this plant growing in the . . .

Here is a drawing of my plant.

It has some soil? yes/no

It has water? yes/no

It has light? yes/no

This habitat was . . .

How am I doing?

Look at the records made by your friends.

Talk about the different habitats where you found plants growing.

Environments where plants don't grow

Different plants like different habitats.

This means that in most parts of planet Earth we find plants growing.

The pictures show places where plants don't grow.



Questions

- 1 Why are there no plants in these environments?
- 2 Think of another environment where plants cannot grow.

Activity

Find me a habitat

Pretend you are one of the three plants in this activity.

Read the information.

Then make a poster to say 'Can you find me a habitat like this?'

Rice needs a habitat which is warm, with lots of light and water. Rice grows in very wet soil.



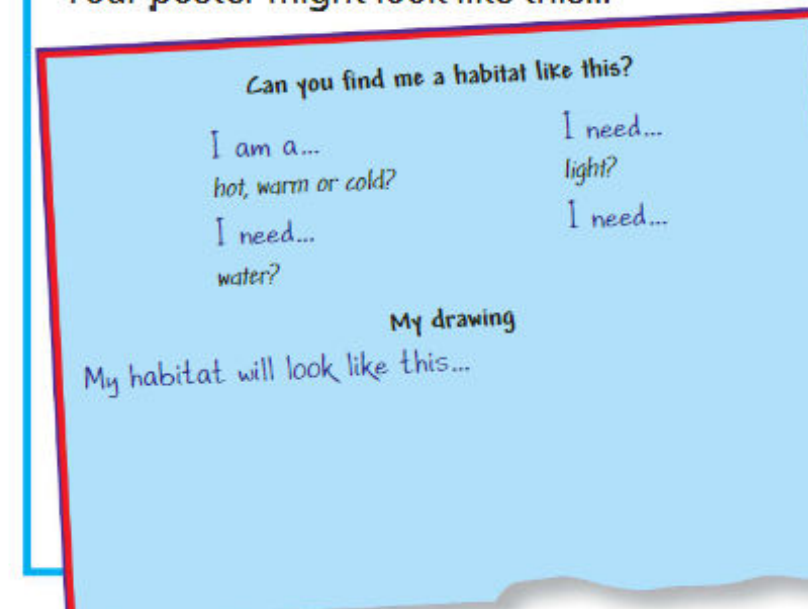
Continued

Pond weed needs a habitat underwater in a pond, lake or river. It needs light. It must not get very cold.



Cactus needs a habitat which is very hot. It needs light. It needs very little water.

Your poster might look like this...



Think like a scientist 2

Finding all the plants in a habitat

You will need: a magnifying glass

Look at all the different plants which grow in a habitat.

Draw them growing in their habitat.

Continued

Use a table like this.

Drawing of the plant in its habitat	drawing of a leaf
	does it have flowers?
	drawing of a flower

Did you find plants growing on a path?

Why do plants find a path a difficult place to grow?

How am I doing?

Pretend that you are a tree.

Describe to a friend the habitat you want to live in.

Are there other types of plants in your habitat?

Does your friend agree?

When I am learning about plants, how does it help me to observe real plants?

Look what I can do!

- ☐ I can describe the place a plant lives as its habitat.
- ☐ I can describe different plants in a habitat.
- ☐ I can compare different habitats for plants.
- ☐ I can observe plants and record what I see in drawings and tables.

> 1.3 Animals in different habitats

We are going to:

- describe the place an animal lives as its habitat
- compare different habitats for animals
- make observations and record them in drawings.

Getting started

- Look out of the classroom window. Talk to a friend about animals you see on the ground, in the trees or in the sky. Do you see birds, insects, animals with fur?
- Choose an animal. Describe its habitat.
- Where will it sleep?
- Where will it find food and water?
- Will it be alone?

attract
clues
droppings
egg
hide
insect
scare
table
tracks

