



Oxford
International
Resources

1

Science

Workbook

Second Edition



Primary

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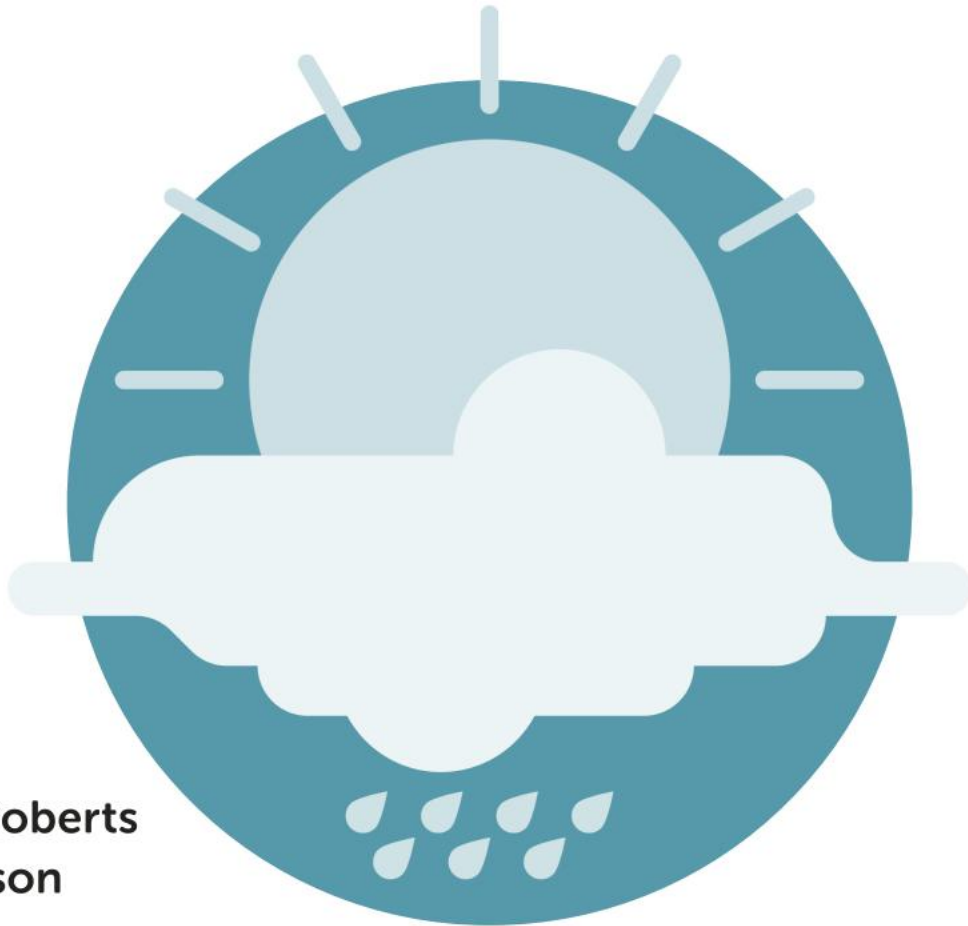


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How to Use this Book

The Workbook for *Oxford International Primary Science* supports the Student Book that children are using in their science lessons for this year.

The Student Book includes some pair, group and whole-class activities, hands-on tasks and write-in tasks to test students' understanding and help them learn. It is important to extend these tasks. This Workbook enables students to build on what they have learned in the Student Book to develop a secure understanding of scientific concepts.

Encouraging students to think about and apply their growing skills and knowledge helps them consolidate their understanding and work scientifically. This helps with confidence. Students also have opportunities to see that science is relevant all around them – both inside and outside the classroom.

Students may find it useful to complete an investigation planning form. This sets out all the stages of the investigation. A proforma is provided in the Teacher's Guide. Find out more at:

www.oxfordprimary.com/international-science

Structure of the book

This Workbook is divided into five units plus a Support for Teachers and Parents section and a Quiz:

Support for Teachers and Parents

Unit 1 Exploring Animals

Unit 2 What is it Made of?

Unit 3 Pushes and Pulls

Unit 4 Making Sounds

Unit 5 Plants and Seasons

Quiz Yourself

What you will find in each unit

There are four types of lessons:

Key words and introduction lessons encourage students to read, spell and use the scientific vocabulary in the unit.


Activities build on the work in the Student Book. These help with developing language skills, developing scientific enquiry skills, applying mathematical knowledge and securing understanding rather than just recall. The Support for Teachers and Parents notes on pages 6–11 give you advice on how to help students with each activity.


What I have learned encourages students to talk about what they have learned, reflect on what went well and revisit any areas they need to check. This encourages a growth mindset.


Investigate like a scientist enables students to apply what they have learned in practical contexts.


What you will find in the lessons

Icons show the nature of each task:


 **Discuss:** Students are encouraged to discuss and communicate scientific ideas and approaches. They can work in pairs or small groups for discussion tasks.


 **Investigate:** Students are encouraged to plan, ask questions and record results for each investigation. They are asked to observe closely, make predictions and compare their results with others. Sometimes you will use different equipment, which is available in school. You may also ask students to carry out a test in a different way, to make sure they are safe.

 **Language support:** This icon highlights activities that provide language support through writing frames or word banks. Students are encouraged to write, read and record short answers.

 **Hints and tips:** Students are encouraged to think about tips to make investigations safer or more effective.

 **Stretch zone:** Students are encouraged to extend their understanding.

 **Mindful moments:** Students are encouraged to think about and reflect on what they have learned. This supports students' well-being.

 **What went well:** Students are encouraged to talk about what went well in each module to secure their understanding.

Student Book

Throughout the Workbook, you will find links to the Student Book. Students can refer to information in the Student Book to help them complete activities.

Teacher's Guide

The Teacher's Guide that accompanies this book provides lesson notes and answers for each page.

Support for Teachers and Parents

1 Exploring Animals

What students will learn

This unit helps students to understand more about themselves and the variety of common animals.

Students will:

- identify examples of animals that are herbivores, omnivores and carnivores
- learn that all living things depend on each other
- learn to group animals into vertebrates and invertebrates, and the five classes: fish, amphibians, reptiles, birds and mammals
- learn the main parts of animals and use observation skills to compare and contrast them
- learn the basic parts of the human body and how each is associated with each sense.

Key words

amphibian, bird, carnivore, fish, herbivore, mammal, omnivore, reptile, senses

Scientific enquiry skills

This unit helps students to develop and practise the following scientific enquiry skills.

Scientific enquiry skill	Page
Observe	13, 14, 16, 17, 23, 25, 26
Compare	13, 15, 16, 17, 18, 19, 20
Notice patterns	14, 15, 18, 27
Record	12, 14, 18, 19, 22, 24, 26, 29
Carry out tests	19, 28, 29
Group/classify	14, 15, 16, 17, 18, 20
Use secondary sources	19, 20, 24, 27

Ways to help

- Place key words on a word wall. Add to them during the unit.
- Measure objects using students' hands and then a ruler.
- Encourage students to look around them and ask questions about what they see.
- Collect pictures of different animals for students to observe and sort.

Helping with activities

The following guidance gives you advice on how to help students with each activity.

Sorting groups

Talk about the objects in the picture. Ask students how the objects are different and which ones are similar. Discuss the possible groupings students could use.

Find the vertebrates

Help students to identify the animals with bone inside their bodies – vertebrates. The others are invertebrates.

Group the animals

You can help students by explaining that at each stage of the key a decision is made and this determines which branch of the key to follow.

Types of vertebrates

Encourage students to look very carefully at the animals in the pictures. Ask them about the various features they can see and then ask them to identify each animal.

What eats what?

Help students by pointing out that they should observe the animals in the picture carefully. Remind them about the differences between the vertebrate classes.

What do pets eat?

Once students have done their survey of pets, ask them to record their findings in the table. They then decide whether each pet is a carnivore, herbivore or omnivore.

Unusual vertebrates

Encourage students to look at the main features used to classify the vertebrate groups and then apply these to each animal.

Living on an icy planet

Help students by pointing out that no matter how unusual the surroundings, they can apply the same rules as they apply to animals in their region.

Faces

Encourage students to carry out the tasks a few times for each part, as this repetition will help to consolidate learning.

Drawing faces

Help students by talking to them about the main features of the face – eyes, mouth and nose in particular.

Challenge: body parts

Encourage students to talk about the parts of the body before they start to label their body outline. Remind them to tick each word as they draw the outline of their hand.

Body parts game

Make a set of body part cards for each group of students. You can use pieces of card or sticky notes.

Name the senses

Help students by pointing out the word box at the top. Explain it is there to help them with the spelling. Read through the words with them.

Animal senses

Encourage students to use their observation skills to study the animals carefully. Talk to them about the different features linked to senses.

Sense of smell

Encourage students to sit very quietly and still for the activity. After the activity ask them to talk about any pattern they saw in the raised hands.

Sense trail

Help students to look for the various objects and make sure you have placed some around the room prior to the activity. They are warned not to taste anything without your permission so you may wish to have some safe and available foods for them to try.

What I have learned about exploring animals

Help students to reflect on each statement and to decide how well they know this aspect of the unit.

Investigate like a scientist: Make a model head

Remind students to think about their investigations and tests as they are doing them and to change their plans and ideas if things are not working.

2 What is it Made of?

What students will learn

This unit helps students to understand more about materials and their properties. Students will:

- distinguish between an object and the material from which it is made
- identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock
- describe the simple physical properties of a variety of everyday materials
- compare and group together a variety of everyday materials on the basis of their simple physical properties.

Key words

fabric, glass, material, metal, paper, plastic, rock, water, wood

Scientific enquiry skills

This unit helps students to develop and practise the following scientific enquiry skills.

Scientific enquiry skill	Page
Observe	34, 35, 36, 38, 39, 40, 41, 42, 44, 46, 47
Compare	36, 38, 39, 40, 41, 42, 45, 46, 49
Notice patterns	40, 41
Record	32, 35, 36, 40, 42, 43, 44, 47
Carry out tests	37, 38, 39, 40, 46, 49
Group/classify	33, 35, 36, 45, 47, 48, 49

Ways to help

- Encourage students to practise spelling and using key words.
- Set out a range of objects made from different materials.
- Remind students that they need to look at materials but also touch them.
- Ask students questions about the materials they use.
- Keep linking materials to their properties.
- Ask students why objects are made from certain materials.
- Play games by asking students to suggest materials that would be useless for certain jobs.
- Encourage students to test materials by feeling and stretching them.
- Allow students time to consider the 'stretch' activities, as these are more demanding.

Helping with activities

The following guidance gives you advice on how to help students with each activity.

I spy

Take the first turn in the game so you can demonstrate how it works. Stress the first letter of the word of the object.

Different materials game

Set out some examples of each material in an easy to find place. Leave some more hidden.

Label properties

You can pre-make the labelled sticky notes if students find the writing too difficult at this stage.

Hard and soft materials

Make sure the modelling clay is soft and easy to shape at the start as this will make a good contrast with the very hard clay after drying.

Which material is best for making a raincoat?

Before students start, discuss what they already know and remember about the different materials. This will help in their predictions.

Make a waterproof cover

Make sure students select an object that will not be damaged if it becomes wet. Have a large bucket of water available so they can test their designs.

Which materials can stretch?

Explain the table and stress that the right-hand column shows the length of the material after it has been stretched.

Floating and sinking

Make sure you have some heavy and light wooden objects in the room for students. Have a large bowl of water or a sink available. Students can find their own round objects for the second test.

Is metal best?

Set out a range of metal objects such as tools, ornaments, picture frames, containers, nails and screws so students can find a reasonable range of examples.

Useful metal objects

Encourage students to use their imagination when imagining a material other than a metal being used for the hammer.

Metal or non-metal?

Remind students that metals can be stretched, twisted and bent without breaking. Non-metals often break.

Properties of metals and non-metals

Remind students to use the words in the word box to help them and tell them that they can use some of the words more than once.

Making a model bridge and testing it

Encourage students to fold the card into different shapes and to try using more than one layer of card.

More useful metal objects

Show some objects made from aluminium, copper, gold, silver and steel. Allow students to discuss the one object they have chosen to talk about and encourage them to link the object, the material and its use.

Soft or hard?

Explain how to use the sorting hoops and place one or two objects in as a demonstration first.

Making music

Collect a range of metal and non-metal objects for students to test. Make sure the metal objects are thin and preferably hollow.

What I have learned about materials

Help students to reflect on each statement and to decide how well they know this aspect of this unit.

Investigate like a scientist: Testing designs

Remind students to think about their investigations and tests as they are doing them and to change their plans and ideas if things are not working.

3 Pushes and Pulls

What students will learn

This unit helps students to understand more about the forces of push and pull. Students will:

- explore pushes and pulls
- understand that pushes and pulls are forces
- learn what makes things speed up, slow down or change direction.

Key words

fast, move, pull, push, slow, stop

Scientific enquiry skills

This unit helps students to develop and practise the following scientific enquiry skills.

Scientific enquiry skill	Page
Observe	52, 53, 54, 56, 57, 58, 60
Compare	54, 58, 59, 61, 62, 63, 64, 65
Notice patterns	58, 59, 63
Record	53, 55, 56, 60, 61, 62, 63, 64
Carry out tests	52, 53, 55, 58, 59, 65
Group/classify	60, 62
Use secondary sources	62, 64

Ways to help

- Write the key words onto cards and place them onto a wall.
- Encourage students to say the word 'push' or 'pull' as they make things move.
- Show students everyday examples of pushes and pulls.
- Help students to use pushes and pulls.
- Explain that bigger pushes and pulls have a bigger effect on objects.
- Use examples of pushes and pulls that students will find relevant, e.g. sports.

- Let students move as many objects as possible and see that they change direction and speed when pushes and pulls are used.
- Encourage students to predict what effect pushes and pulls will have before they try them.
- Allow students to talk to each other about pushes and pulls to share ideas.

Helping with activities

The following guidance gives you advice on how to help students with each activity.

Using your body

Encourage students to kick the ball gently around the room but to also drag the ball back with their feet so they are using pushes and pulls.

Toy car

Show students how to start the toy car and ask them to suggest how it can be stopped before you let them work in their pairs or small groups.

Looking at flags

If there are no examples of flags in your area, you can show film from YouTube so that students see many examples.

Making bunting

Point out to students that they are also using pushes and pulls to make the bunting and to hang it up.

Making a sailing boat

Demonstrate making the boat to students and select large bottle tops or lids so they float and are stable in the water.

Making boats move

Show students the baster and show how the bulb is squeezed to make air come out of the end. Point out that this is a push force.

More pushes and pulls

Encourage students to move carefully around the room to search for pushes and pulls. Leave some toys and sports equipment out so they can try these.

Examples of pushing and pulling

Encourage students to use their observation skills and then to share their experiences of pulling hard.

Fast and slow

Help students to understand that they should speak slowly or quickly by saying some of the words you use to introduce the task very slowly and some very quickly.

Swing

Consider taking students out to a nearby park to investigate actual swings.

Making a toy car move

Collect different types of model cars so students can investigate small and large ones.

Design and build a moving vehicle

Talk to students about their designs before they start so they can think through what they are going to do and make sure they have all of the equipment they need.

What I have learned about pushes and pulls

Help students to reflect on each statement and to decide how well they know this aspect of this unit.

Investigate like a scientist: Playing with pushes and pulls

Demonstrate the task by doing the first example yourself – turn the paper over and if it says ‘push’, then push the ball.

4 Making Sounds

What students will learn

This unit helps students to understand more about sound and how to make and measure sounds.

Students will:

- name some of the sources of sounds
- find out what happens to sounds when we move about
- understand that our ears hear sounds.

Key words

loud, quiet, sound, voice

Scientific enquiry skills

This unit helps students to develop and practise the following scientific enquiry skills.

Scientific enquiry skill	Page
Observe	71, 75, 76, 77, 79
Compare	68, 70, 71, 72, 74, 75, 76, 78, 80, 81, 83
Notice patterns	70, 72, 75, 76, 78
Record	68, 69, 70, 71, 74, 75, 79, 80
Carry out tests	70, 72, 75, 76, 77, 78, 80
Group/classify	74, 76
Use secondary sources	72, 74, 75, 78, 80, 81

Ways to help

- Read out all of the key words and ask students to say which ones they have heard of before.