macmillan education
INTERNATIONAL CURRICULUM

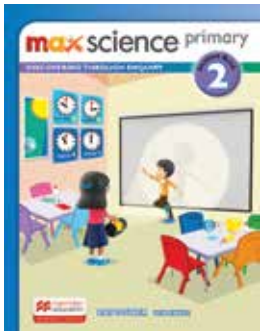
Unlock the power of learning science in English

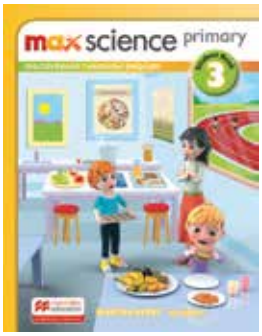
NEW

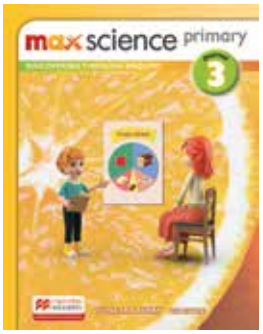
max science primary

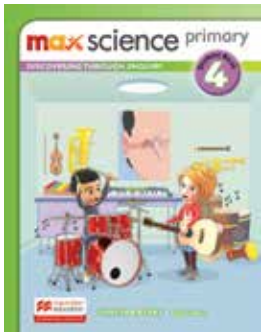
DISCOVERING THROUGH ENQUIRY

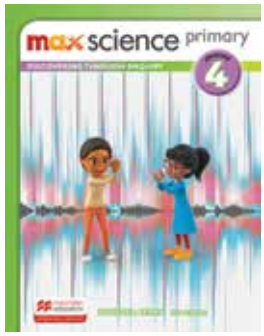
PRIMARY • YEARS 1 – 6

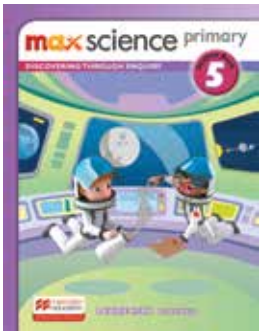


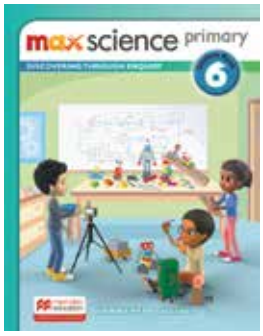












CONTENTS

*"**The Max Science primary: Discovering through Enquiry** learning materials have been written by a skilled group of international science educators who have been guided by best practice in modern science pedagogy. Our guiding philosophy has been to design a course enabling a deeper understanding of science, building confidence in key conceptual areas through a set of thinking, talking and practical tasks where learners work together, are encouraged to share their own thinking and are aware of their own progress in the journey towards understanding. All our supporting text has been written with particular sensitivity and guidance for students whose first language may not be English."*

Bob Kibble, Series Editor

eSamples Tablet Interactive Online IWB Audio

The DNA of Max Science primary

Max Science primary: Discovering through Enquiry is a highly engaging and effective print and digital scheme based on the most successful teaching methodologies used in world science today. Over 6 stages (Years 1 – 6) Max Science primary introduces pupils to the key concepts and topics of primary Biology, Chemistry and Physics with carefully scaffolded resources that build knowledge and confidence throughout the course. The materials take the form of engaging Student Books, Workbooks, Journals and Teacher's Guides. The aim? To encourage curiosity, critical thinking and discussion through a vibrant and stimulating approach to science.

Dissecting Max Science primary

All the content has been written by a highly experienced and knowledgeable author team who share a philosophy of learning grounded in science education research and best practice.

- For Years 1-6, divided into six units of work per year/two units per term
- Supports the development of key scientific skills such as enquiry based learning and critical thinking
- Language support for teachers and learners whose first language may not be English
- Is part of the Macmillan Education International Curriculum 'Promise', meaning that the course includes ongoing assessment, school-home journals, digital resources, tools for independent learning and professional development support for teachers
- 100% match to the Cambridge Primary Science Curriculum Framework

NILE

PART OF THE **INTO** GROUP

Teaching through English: Primary Science Training

The Teaching through English: Primary Science teacher development programme has been designed in conjunction with NILE to support primary maths and science teachers with a specific focus on supporting international and English-medium schools where teachers and learners may not have English as their first language. The course aims to develop teachers' confidence and skills in supporting young learners to understand and apply scientific ideas and concepts in English.

The Science behind the Science

Max Science: Discovering through Enquiry is underpinned by four concepts grounded in science education research and best practice.

The four concepts are:

Social Constructivism	Encouraging the conceptual understanding of really big ideas. Recognising that students will have already formed ideas about why things happen. Listening to one another's ideas. Sharing knowledge. Thinking creatively and working out new and better explanations.
Formative Assessment	Used throughout lessons and topics. Feedback helps learners know how to improve. Uses many methods to assess what learners know, understand and can do e.g. listening to what learners say, looking at drawings, watching learners during activities. Often interactive between learner and teacher e.g. "what do you think if..." Can be very open-ended, meaning learners can go into lots of extra detail. Can have a huge benefit to learning – not just in science!
Cognitive Acceleration	Making neural connections and understanding ideas and concepts, which lead to the 'aha' moment. Getting learners to think rather than just learn information. Sharply focuses on a particular skill or concept. Uses exploration, discussion and challenges. Scaffolds learning so that learners can make rapid progress e.g. provide key words for learners to use when they explain a scientific idea. Provides cognitive conflict e.g. learners believe that plants need sunlight so how do some plants grow under trees in a forest?
The nature of science (scientific enquiry)	Science is just as much a way of working as a body of knowledge. Scientific understanding is based on a collection of **big ideas**. Scientific knowledge and understanding is just our best current explanation of the universe and everything in it.

The Teaching Approach

Lessons are structured around three main components – orientation, exploration and accommodation - to ensure that the time in the classroom is one that is inspiring, accessible and engaging.

- **Orientation:** The 'why' behind activities. This phase gives direction to our learning journey by activating and then building on prior knowledge. What is being found out? Why is it important?
- **Exploration:** The 'hands-on' aspect of the lesson. Exploring, experimenting, investigating and finding out.
- **Accommodation:** The review. A consolidation of the lesson through the acts of explaining and discussing, writing of notes and a questioning of what has been learnt.

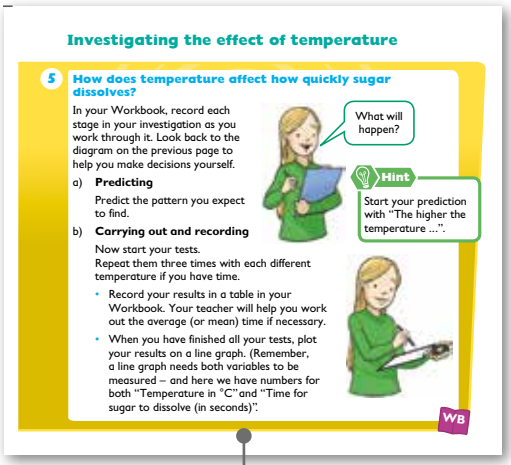
ORIENTATION
- What sort of learning does this orientation task encourage?
- What will learners be doing?
- What might they be saying?

EXPLORATION
- Guided group activity
- Clear structure
- Short, simple task

SCAFFOLDING
Illustration and hint to support learning.

DISCURSIVE ACTIVITY
- Clear images
- Shared ideas
- Formative assessment to close.

ACCOMMODATION
Directs learners to workbook task for this activity.



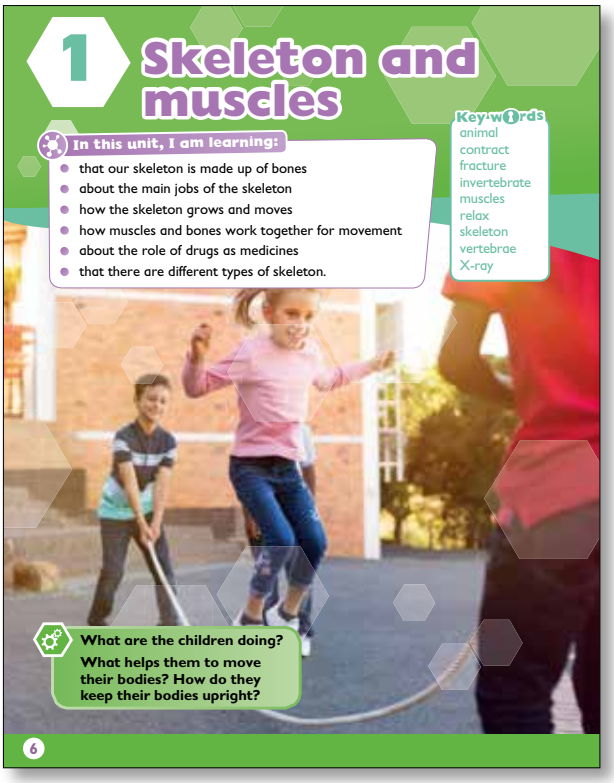
INVESTIGATING
- Planning
- Predicting
- Measuring
- Interpreting

Student Books

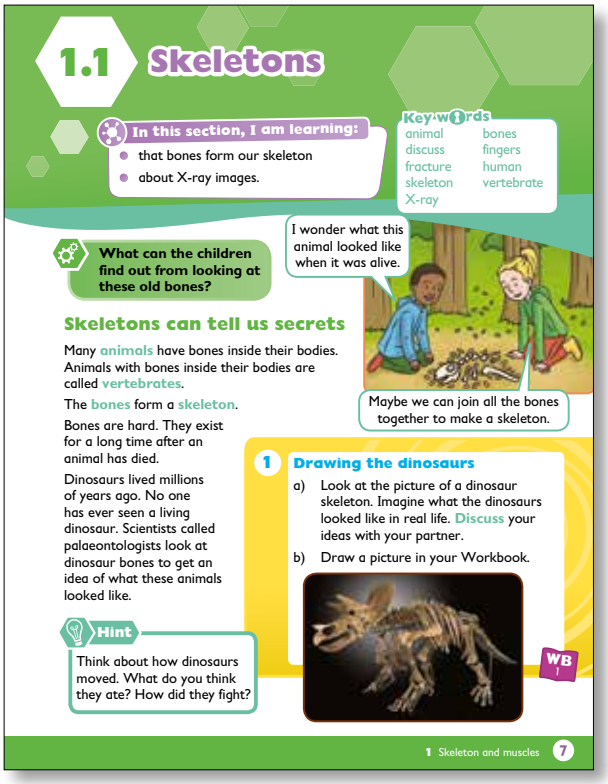
Student Books 1 – 6

Print and Digital formats available

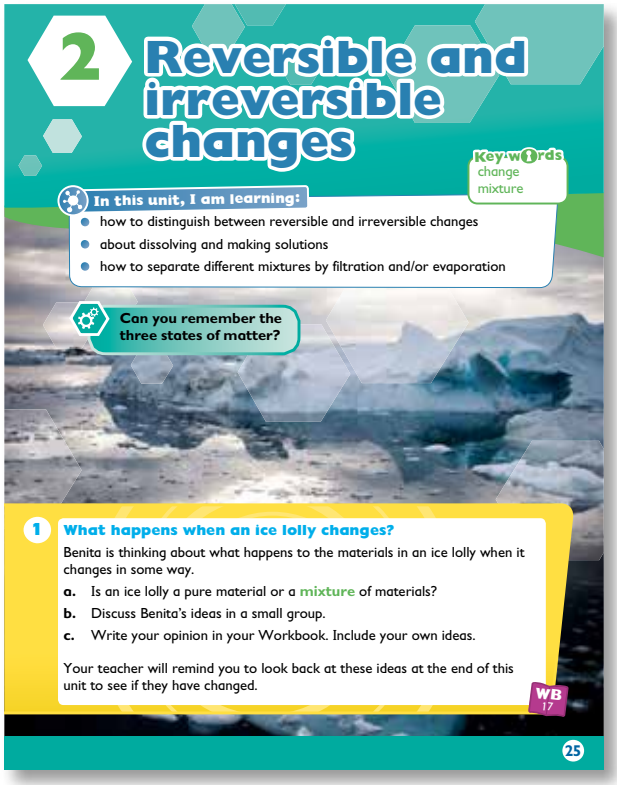
Written and designed by leading science educators, these books form the basis for active, enquiry-based classroom learning. They are in full colour throughout and match the requirements for the Cambridge Primary Science curriculum framework. Each topic is introduced through engaging activities designed to stimulate creative scientific thinking. Whole class teaching is focused on firmly embedding the concepts through active individual, pair and group activities and carefully scaffolded learning. Units end with checklists and consolidation sections to ensure learners understand the key concepts.



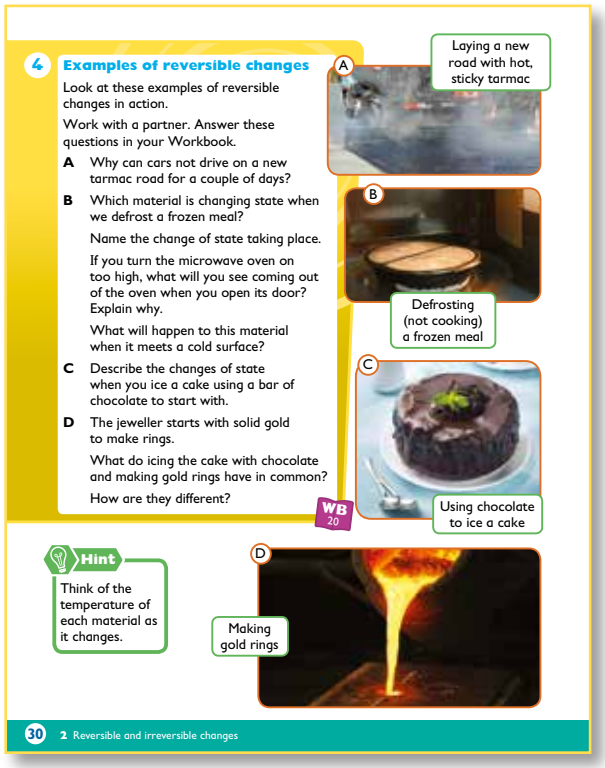
Student Book 4



Student Book 4



Student Book 6

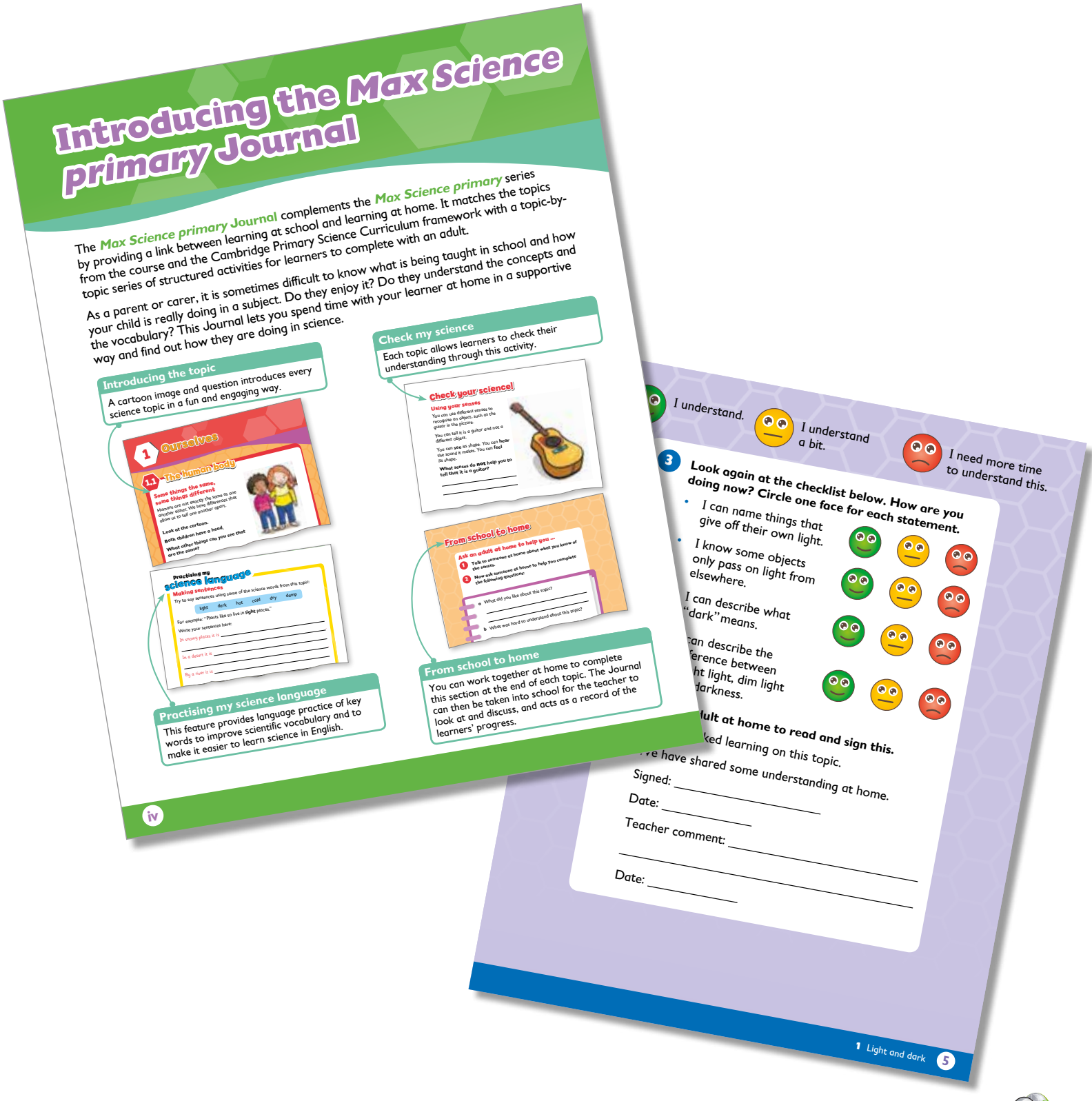


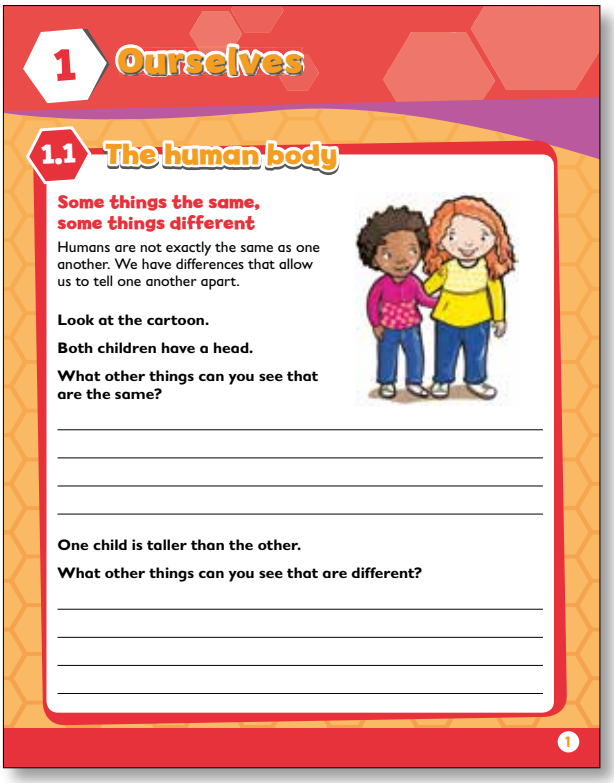
Student Book 6

Journals

Journals 1 – 6

The Journals provide a unique way to engage parents in their child's learning as well as providing the opportunity to consolidate their classroom learning at home through reflective practice. They are packed full of engaging practical activities that not only back up the scientific concepts introduced in the classroom but also show how science is all around us all the time.




1 Ourselves

1.1 The human body

Some things the same, some things different

Humans are not exactly the same as one another. We have differences that allow us to tell one another apart.

Look at the cartoon.

Both children have a head.

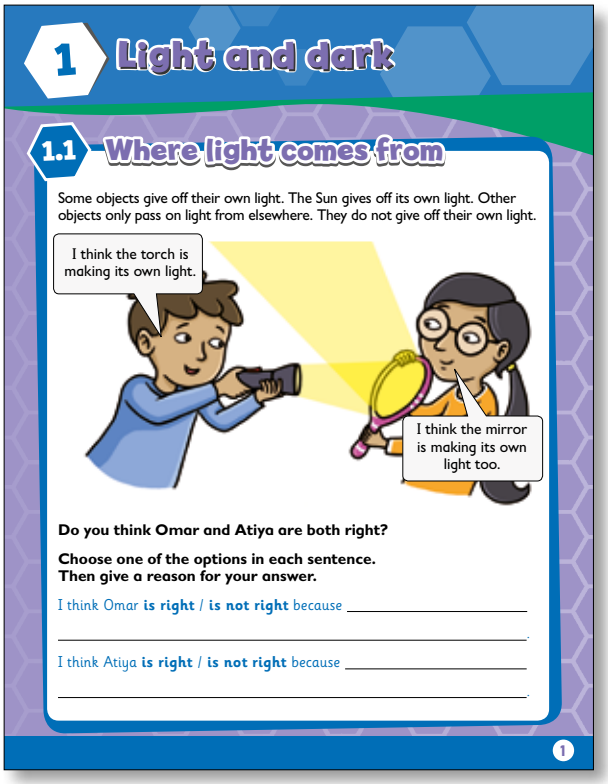
What other things can you see that are the same?

One child is taller than the other.

What other things can you see that are different?

1

Journal Book 1


1 Light and dark

1.1 Where light comes from

Some objects give off their own light. The Sun gives off its own light. Other objects only pass on light from elsewhere. They do not give off their own light.

I think the torch is making its own light.

I think the mirror is making its own light too.

Do you think Omar and Atiya are both right?

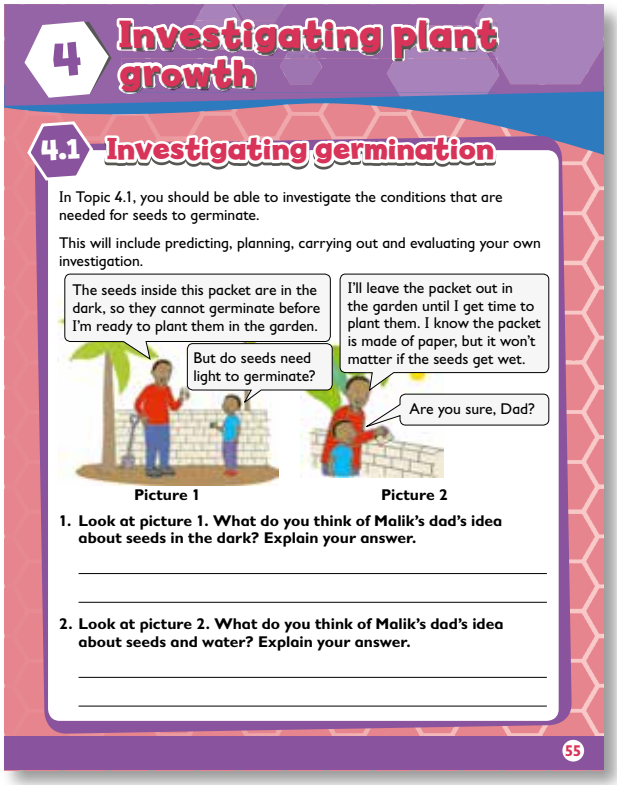
Choose one of the options in each sentence. Then give a reason for your answer.

I think Omar **is right** / **is not right** because _____

I think Atiya **is right** / **is not right** because _____

1

Journal Book 2


4 Investigating plant growth

4.1 Investigating germination

In Topic 4.1, you should be able to investigate the conditions that are needed for seeds to germinate.

This will include predicting, planning, carrying out and evaluating your own investigation.

The seeds inside this packet are in the dark, so they cannot germinate before I'm ready to plant them in the garden.

But do seeds need light to germinate?

I'll leave the packet out in the garden until I get time to plant them. I know the packet is made of paper, but it won't matter if the seeds get wet.

Are you sure, Dad?

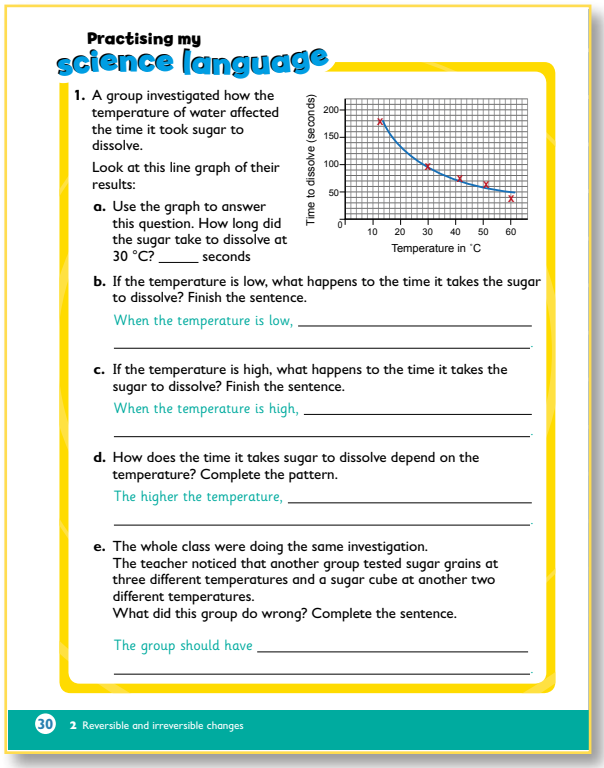
Picture 1 Picture 2

1. **Look at picture 1. What do you think of Malik's dad's idea about seeds in the dark? Explain your answer.**

2. **Look at picture 2. What do you think of Malik's dad's idea about seeds and water? Explain your answer.**

55

Journal Book 5


Practising my science language

1. A group investigated how the temperature of water affected the time it took sugar to dissolve.

Look at this line graph of their results:

a. Use the graph to answer this question. How long did the sugar take to dissolve at 30 °C? _____ seconds

b. If the temperature is low, what happens to the time it takes the sugar to dissolve? Finish the sentence.

When the temperature is low, _____

c. If the temperature is high, what happens to the time it takes the sugar to dissolve? Finish the sentence.

When the temperature is high, _____

d. How does the time it takes sugar to dissolve depend on the temperature? Complete the pattern.

The higher the temperature, _____

e. The whole class were doing the same investigation. The teacher noticed that another group tested sugar grains at three different temperatures and a sugar cube at another two different temperatures. What did this group do wrong? Complete the sentence.

The group should have _____

30 2 Reversible and irreversible changes

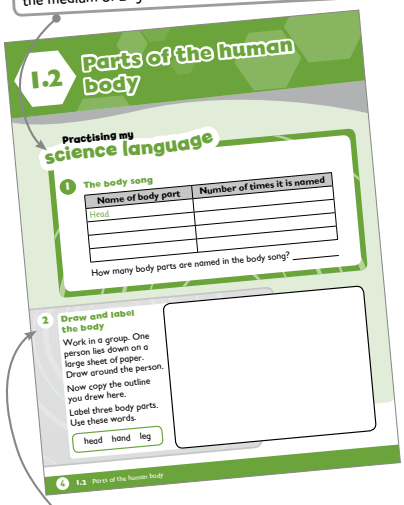
Journal Book 6

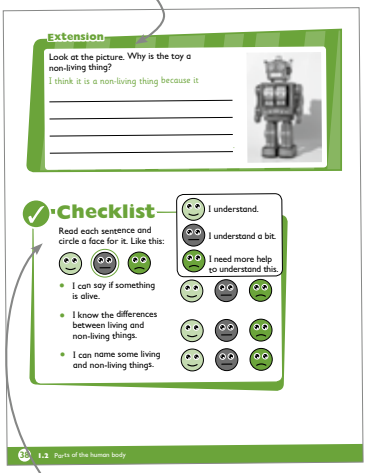
Introducing the *Max Science primary* Workbook

The **Max Science primary Workbooks** accompany the **Student Book** for class and home use. All the numbered activities and extension activities found in the Student Book are expanded with clear answer spaces and support. Instructions carefully show if activities are to be done independently, in pairs or in groups.

Practising my science language
Supported activities focus on improving scientific literacy to make the learning of science through the medium of English more accessible.

Extending understanding
Extension questions encourage learners to go a bit further to improve the depth of understanding.





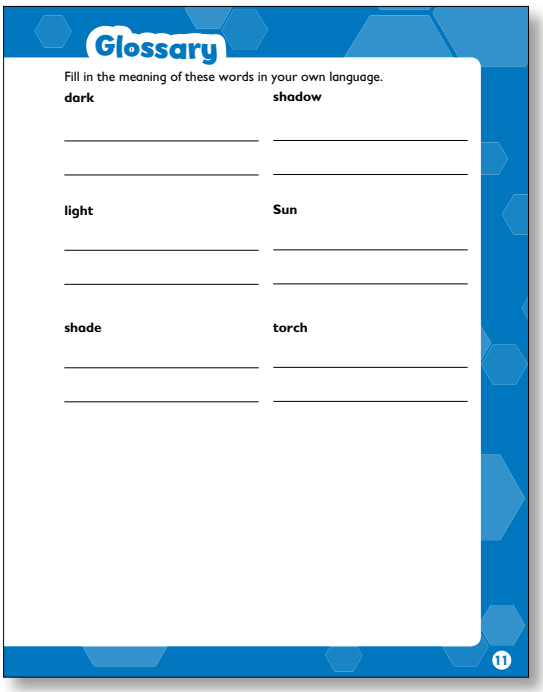
Exploring science further
Numbered activities from the Student Book are expanded with example answers for guidance. Learners can record their scientific progress, insights and results.

Assessing progress
End of topic checklists provide opportunities for recording what learners have learnt so far.

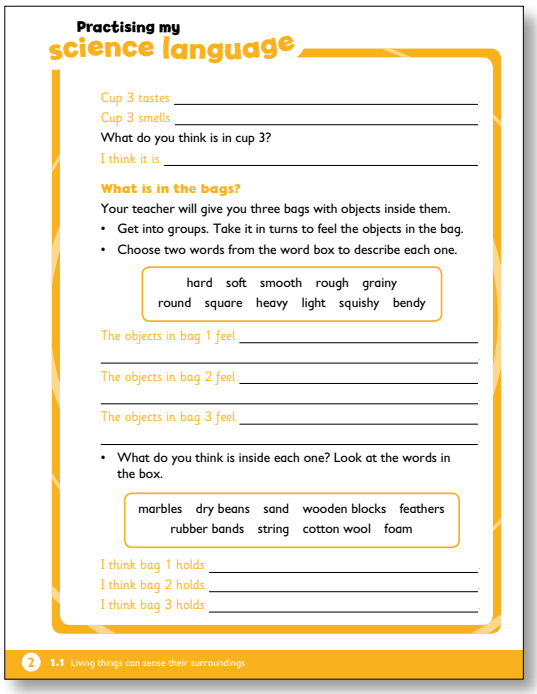
Workbooks

Workbooks 1 – 6

Workbooks are designed for extended practice and consolidation in class or at home, where the learners are able to express and record the development of their scientific thinking through carefully thought out games, quizzes, questions and activities. The workbook pages are clearly cross-referenced with the corresponding stage in the student books.



Workbook 2



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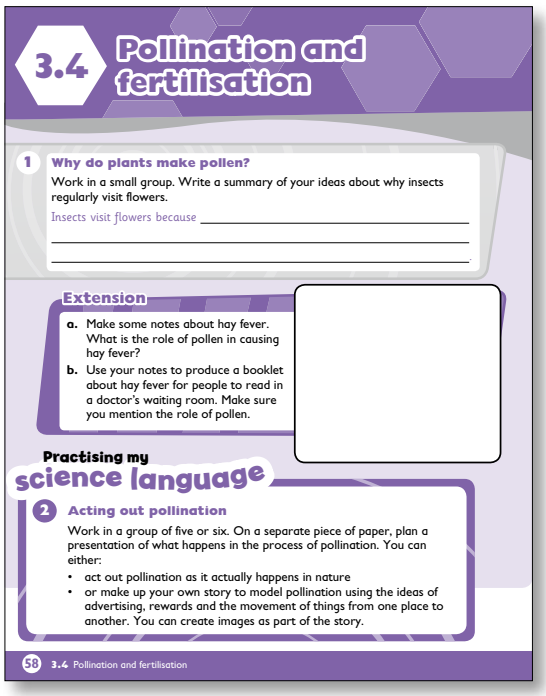
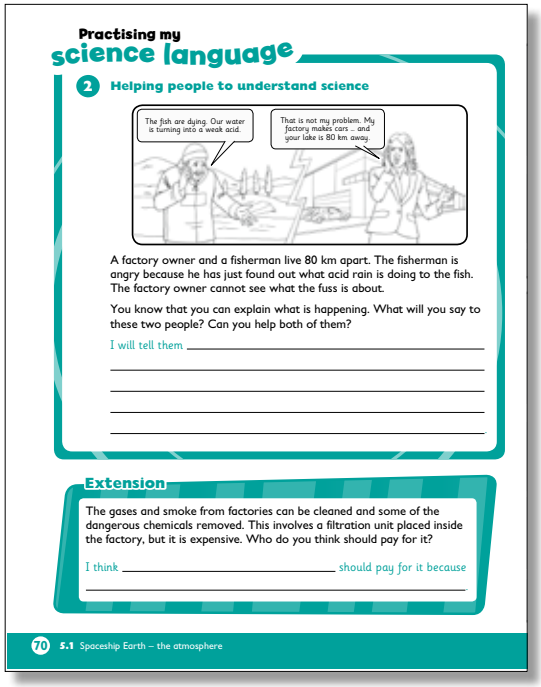


Workbook 5

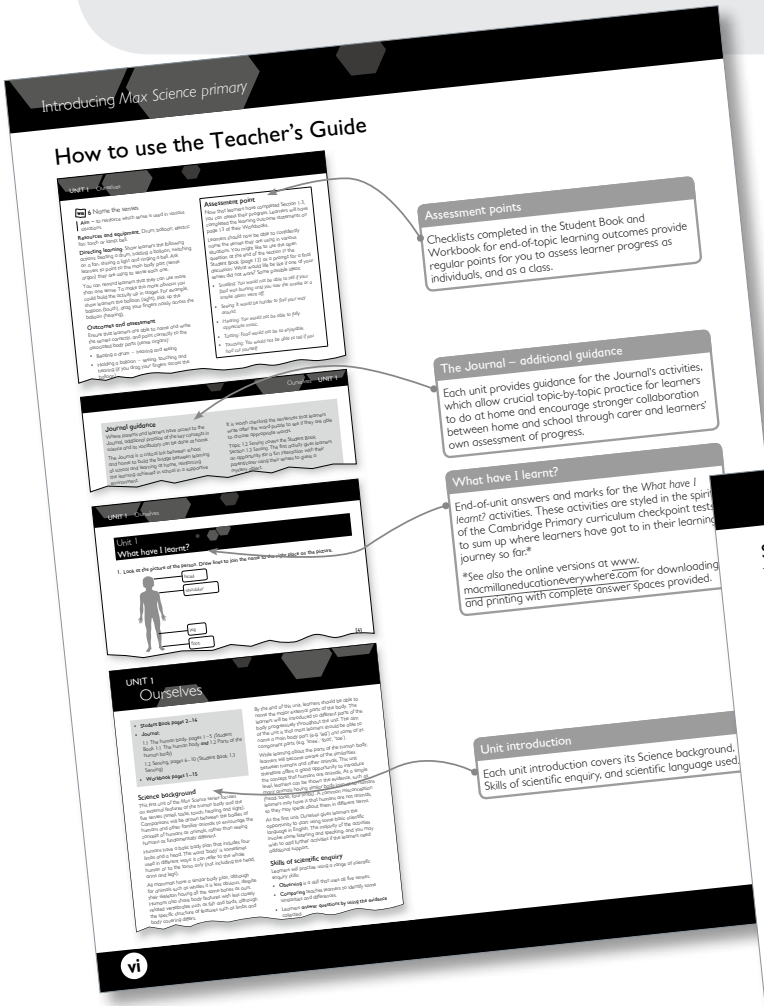


Workbook 6

Teacher's Guide

Teacher's Guide 1 – 6

The Teacher's Guide comes with full support to help teachers plan and deliver active, engaging and productive lessons giving guidance on assessment and differentiation. Each topic includes a section on potential scientific language challenges students may face. Full answers to all activities are also provided.



Teacher's Presentation Kit 1 – 6

The Teacher's Presentation Kit offers a suite of easy-to-use, materials for interactive whiteboards or projectors. It includes a digital version of the Student Book enhanced with scientific language activities for front of class teaching as well as a packed resource centre full of activity sheets that can be downloaded and printed for whole class engagement. These help focus on the development of scientific skills, word cards and audio glossary for scientific vocabulary learning and teacher's notes and full answers are included for all activities.

max science enquiry boxes

eSamples Tablet IWB Cross-Curricular

PRIMARY • YEARS 1 – 6

The *Max Science Enquiry Box* series is a flexible resource that supports the development of scientific skills and follows the Cambridge Primary Science curriculum framework.

Over 6 stages, each Enquiry Box contains a range of activity cards to facilitate enquiry-based learning across the subjects of Chemistry, Biology and Physics.

Activities throughout the series support a student-centred, hands-on approach, and guide learners through the stages of collecting ideas, planning work, presenting evidence and drawing conclusions. The *Max Science Enquiry Box* series helps students develop their understanding of concepts through practical application, while teachers are supported in delivering a modern and relevant science class.

A 'Scientific Enquiry' strand is also included to support teachers and students who need to focus on the development of enquiry-based learning skills, and raise confidence with the approach.

The *Max Science Enquiry Box* series features:

- four strands to support the Cambridge international primary curriculum: Biology, Chemistry, Physics and 'Scientific Enquiry'
- support for teachers who are focusing on the development of enquiry-based learning skills with their students
- embedded language support for learners and teachers whose first language may not be English
- over 100 free, downloadable online resources for each stage which includes Worksheets, Teacher's Notes (with language support) and Answer Keys
- step-by-step guidance for teachers on how to approach and scaffold lessons appropriately to encourage students to work both independently and collaboratively on key tasks.

Endorsed by Cambridge Assessment International Education for classroom support.

Sample material from *Max Science Enquiry Box 1*

Max Science Enquiry Box 1	9781380019912	Max Science Enquiry Box 4	9781380019943
Max Science Enquiry Box 2	9781380019929	Max Science Enquiry Box 5	9781380019950
Max Science Enquiry Box 3	9781380019936	Max Science Enquiry Box 6	9781380019967

INTEGRATING SCIENCE, MATHS AND TECHNOLOGIES FOR REAL-WORLD LEARNING

Tablet IWB Cross-Curricular

A resource designed for your classroom

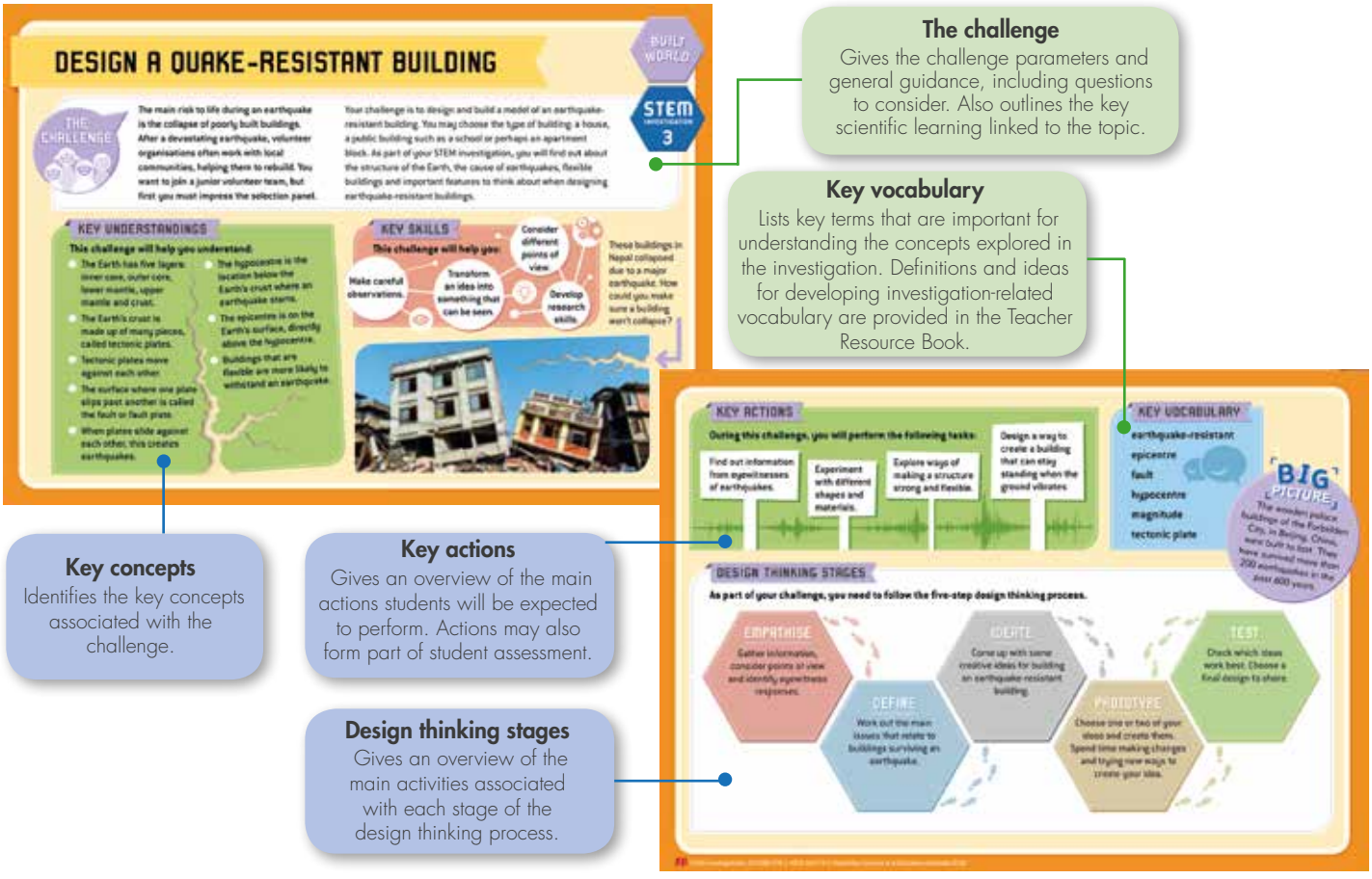
No matter where you are on your STEM journey, you can feel confident and supported using STEM Investigations. Our expert authors have done the hard work for you so you can explore the amazing world of STEM education with your students at the pace and depth of your choice.

Tick every box with STEM INVESTIGATIONS:

- ☑ Easy to use
- ☑ Highest quality
- ☑ Expert authors
- ☑ Supports classroom differentiation
- ☑ Curriculum aligned
- ☑ For Middle and Upper Primary (Years 3 – 6)

What's in the Box?

- **120 laminated student cards (A4 size):**
  - 20 different investigations organised into five themes
  - Six copies of each card (and you can print more)
- **A comprehensive, full-service Teacher Resource Book with digital resources**



The challenge
Gives the challenge parameters and general guidance, including questions to consider. Also outlines the key scientific learning linked to the topic.

Key vocabulary
Lists key terms that are important for understanding the concepts explored in the investigation. Definitions and ideas for developing investigation-related vocabulary are provided in the Teacher Resource Book.

Key concepts
Identifies the key concepts associated with the challenge.

Key actions
Gives an overview of the main actions students will be expected to perform. Actions may also form part of student assessment.

Design thinking stages
Gives an overview of the main activities associated with each stage of the design thinking process.

STEM Box Years 3 - 4	978-1-4202-4319-2
STEM Box Years 5 - 6	978-1-4202-4154-9

Max Science: Discovering through Enquiry ISBN

	Book 1	Book 2	Book 3
Student Book	9781380010155	9781380021557	9781380021595
Student Book + Digital Student Book	9781380024046	9781380024121	9781380024206
Digital Student Book	9781380024022	9781380024107	9781380024183
Workbook	9781380021526	9781380021564	9781380021601
Teacher's Presentation Kit	9781380024039	9781380024114	9781380024190
Teacher Guide	9781380021540	9781380021588	9781380021625
Journal	9781380021533	9781380021571	9781380021618

	Book 4	Book 5	Book 6
Student Book	9781380021632	9781380021670	9781380021717
Student Book + Digital Student Book	9781380024282	9781380024367	9781380024442
Digital Student Book	9781380024268	9781380024343	9781380024428
Workbook	9781380021649	9781380021687	9781380021724
Teacher's Presentation Kit	9781380024275	9781380024350	9781380024435
Teacher Guide	9781380021663	9781380021700	9781380021748
Journal	9781380021656	9781380021694	9781380021731

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