

Marshall Cavendish

SCIENCE

A high-quality and complete instructional
package that provides support for the
Cambridge Primary Science Curriculum Framework

For Cambridge
Primary Stages
1 to 6



Support High Quality Teaching and Learning

This package is based on the guided constructivist-inquiry approach and uses spiral progression to build a strong foundation.

What's in Our Package?

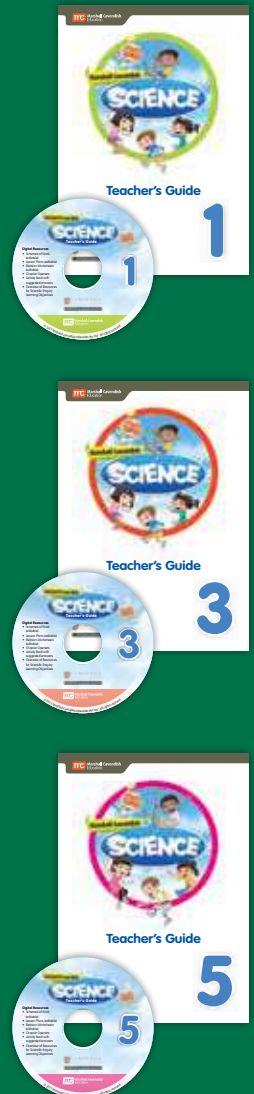
Pupil's Book

Stages 1 – 6



Activity Book

Stages 1 – 6



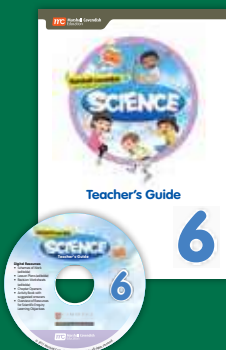
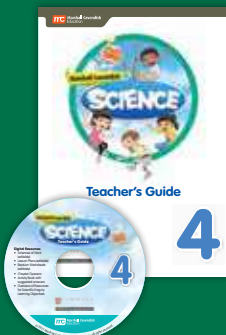
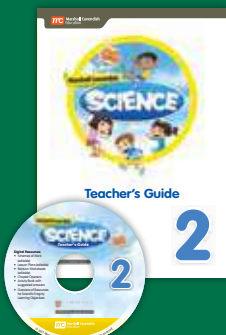
Teacher's Guide with digital resources

Stages 1 – 6

Digital Resources in CD-Rom:

- Schemes of Work (editable)
- Lesson Plans (editable)
- Revision Worksheets (editable)
- Chapter Openers
- Activity book with suggested answers
- Overview of Resources for Scientific Enquiry Learning Objectives

(Resources also available at www.mc-science.com)



Why choose

Marshall Cavendish

SCIENCE



Carefully Developed to
deepen conceptual understanding
and scientific skills

Well-designed to engage
and captivate pupils

Enhance Teachers' Effectiveness to
deliver better lessons



Master Concepts and Reinforce Learning

Constant reinforcement of learning will lead to deeper understanding. Pupils can review and assess what they have learnt through ample formative assessment opportunities.

What You Have Learnt

- The parts of plants carry out different functions.
- Leaves make food for plants.
- Flowers help flowering plants reproduce.
- Roots hold plants firmly to the ground. They also absorb water and dissolved mineral salts from the soil.
- Stems transport water and mineral salts from the roots to the other parts of plants. Stems also hold the leaves up so that they can get sunlight.
- To live and grow well, plants need healthy leaves, stems and roots to work together.

Key learning points are consolidated at the end of each section in *What You Have Learnt* with concise notes for pupils to review before they move on to the next part.

Pupil's Book, Stage 3

Pupil's Book, Stage 3

Pupils can self-assess how much they have learnt at designated milestones in each chapter with *Exercise*.

Exercise

- 1 A fly and an owl are both animals.



Fly



Owl

- Which group does each animal belong to?
- Describe three ways in which they are similar.
- Describe three ways in which they are different.

- 2 Look at the body coverings of these animals.



Animal X



Animal Y



Animal Z

- Identify the body coverings of animals X, Y and Z.
- Which group does each animal belong to?



1 Light and Dark

Teachers can **check for pupils' understanding** with *Worksheets* and encourage **recall of concepts learnt** with concept maps in *Let's Review* to facilitate **assessment for learning**.

Worksheet 1

Light Sources in School

Aim: To identify light sources in different parts of the school
Skills: Observing, identifying, communicating

- 1 Look around your school.
- 2 Name one light source in each of these parts of your school.



Classroom

Light source: _____

Light and Dark 1

Reflection

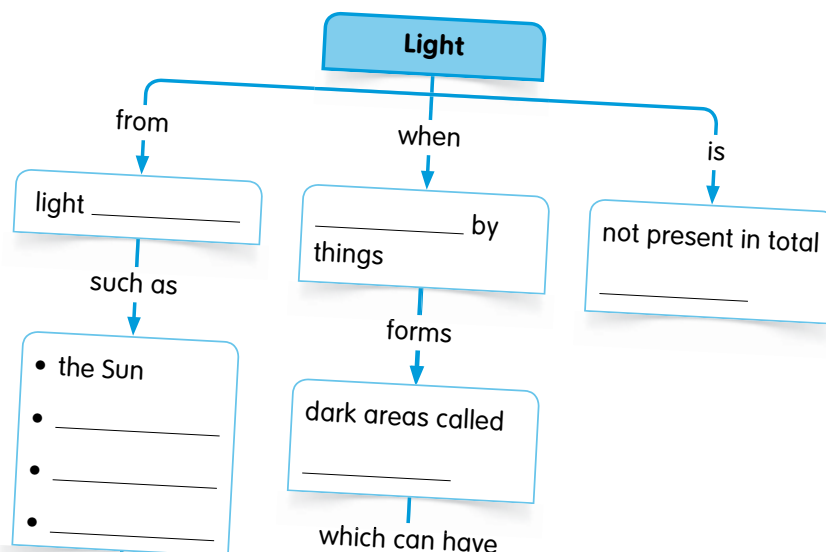
Tick (✓) to show how well you have learnt. Revise the Pupil's Book section(s) that you do not know well.

I have learnt to	Yes	Not sure	No	Pupil's Book section(s)
Identify different sources of light such as the Sun				A
Recognise that there is total darkness when there is no light				B
Identify shadows				C

Let's Review

Fill in the blanks. Use the helping words.

blocked darkness eyes fire lamps
 shadows shapes sources stars sizes



Develop Effective Habits of Learning

Through highly engaging activities that promote active learning, pupils will learn to become confident, innovative, responsible, reflective and engaged.

Opportunities for hands-on learning in *Try This* allow pupils to become **active learners**, practise collaboration and develop thinking skills.

Try This

- STEP 1** Your teacher will give you a few bags. Each bag has a different thing in it.
- STEP 2** Put your hand into a bag.
- STEP 3** Feel the thing inside. Can you say how it feels to touch? Try to guess what it is.



Teacher's Guide, Stage 1

Teaching ideas

11. Try This

Let pupils do the activity in Try This (Pupil's Book p. 12).

- Choose five small objects (such as glass marble, stationery, pebble, coin and key) to put in five small opaque bags.
- Make sure these objects are not sharp, brittle or fragile.
- Pass the bags around the class so that each pupil has a chance to feel the objects in the bags.
- Ask pupils to guess the objects using their sense of touch.
- Take the objects out of the bags after all the pupils have felt them.
- Ask pupils whether they have guessed the objects correctly using their sense of touch.
- **Ask: Which of the senses did you use to check whether your guesses are correct?** (Answer: Sense of sight)

(Answers:

STEP 3 Answer varies.

STEP 5 Answer varies.)

(Active learning; Skills: Observing, communicating, verifying)

Material(s)

- 5 small opaque bags each with a small object (such as glass marble, stationery, pebble, coin and key) per class

Skill(s)

- Observing
- Communicating
- Verifying

Essential process skills practised during the lesson are highlighted to teachers in *Skill(s)*.

Pupil's Book, Stage 1

Try This

- STEP 1** Your teacher will give you a few bags. Each bag has a different thing in it.
- STEP 2** Put your hand into a bag.
- STEP 3** Feel the thing inside. Can you say how it feels to touch? Try to guess what it is.



Extend Learning Beyond the Syllabus

Pupils explore and discover expansive application of scientific concepts in various real-life examples, which is an effective way to stimulate their curiosity for science.

Learning is meaningful with concepts applied in **real-life contexts** and **misconceptions** highlighted in *Going Further*. The feature covers information beyond the syllabus to pique pupils' curiosity.

Skill(s)

- Inferring
- Communicating
- Identifying

Common

misconception(s)

- The small balloon is inflated by blowing into it instead of pulling down the big balloon in Try This (Pupil's Book pp. 10–11).

Additional support

For learners needing more support:

- Help pupils make the model of a lung. Alternatively, make the model to demonstrate steps 6 and 7 in Try This (Pupil's Book pp. 10–11).

For advanced learners:

- Get pupils to read up on one disease that affects the lungs or respiratory system. Have them find out its cause(s), symptoms and treatment(s). Ask them to share their findings with the class.

STEP 4 Pull the big balloon by the knot. What happens to the 'lung'? Is it 'inhaling' or 'exhaling'?



Pulling the big balloon

STEP 5 Let go of the big balloon. What happens to the 'lung' now? Is it 'inhaling' or 'exhaling'?



Letting go of the big balloon

What You Have Learnt

- Our respiratory system is made up of organs and parts such as the nose, windpipe or trachea, and lungs. It enables us to breathe or exchange gases with the surroundings.
- Our lungs are organs that allow oxygen from the air we breathe in to be absorbed into the blood. They also allow carbon dioxide to be removed from the blood.

Exercise

- Identify these organs or parts of the respiratory system.
 - The main air tube through which air flows
 - The organ through which air enters or leaves the body
 - The organ in which oxygen is absorbed into the blood and carbon dioxide is removed from the blood
- Does the air we breathe in have more, less or the same amount of oxygen than the air we breathe out? Explain why.

Going Further

Some rocks contain fossils. Fossils are the remains of living things that died a very long time ago.



Scientists studying dinosaur fossils

From these rocks, we can learn more about the living things that lived in the past. This is how scientists found out about dinosaurs!

24 Chapter 2

- The air we breathe in has more oxygen than the air we breathe out. This is because our body uses up oxygen to release energy from food.
(Formative assessment, reinforcement; Skills: Inferring, communicating, identifying)

- Carry out the **Additional activity** if time permits.

Additional activity

- Material(s): Leaflets on lung diseases or diseases caused by smoking per pupil (optional)

Let pupils collect leaflets from clinics, hospitals or health education centres on lung diseases or diseases caused by smoking. Have them share the information in the leaflets with the class.

Pupil's Book, Stage 2

More ideas for pupils' enrichment are shared in *Additional activity*, which also provides opportunities for teachers to extend their lessons, if time permits.

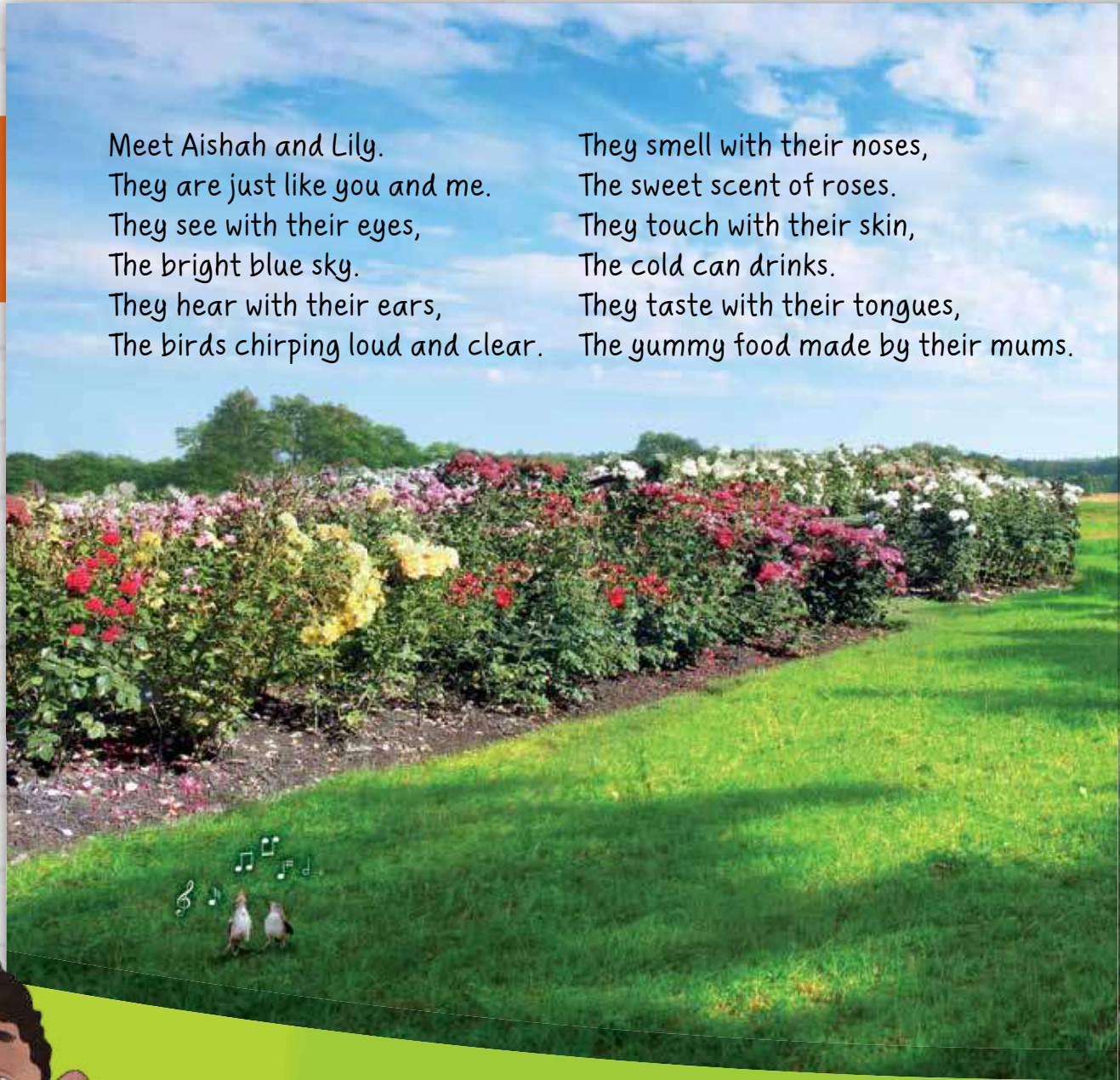
Spark Interest in Science

Colourful illustrations and mascots make science concepts less intimidating and more fun. When pupils are engaged in learning the content, they ignite their intellectual curiosity about science.

New concepts are introduced in chapter openers using rich visuals and text.

Meet Aishah and Lily.
They are just like you and me.
They see with their eyes,
The bright blue sky.
They hear with their ears,
The birds chirping loud and clear.

They smell with their noses,
The sweet scent of roses.
They touch with their skin,
The cold can drinks.
They taste with their tongues,
The gummy food made by their mums.



1 Ourselves



In this chapter, you will learn to

- recognise and name the different parts of the body
- investigate how senses help humans and animals to be aware of the world around them
- recognise how humans are similar to and different from one another

Mascots (Owen, Lily, Aishah, Tom and Raj) are there to help guide the pupils and **make learning more fun!**

About This Book

Marshall Cavendish **SCIENCE** is specially written to help you learn science, and use the knowledge and skills to find out more about the world around you.

Learning science can be fun and enjoyable. This is especially when you have friends to help you along the way.

Meet Raj, Lily, Owen, Tom and Aishah.

We are your friends.
We are here to help
you learn science.



Owen



Look out for
us as you use
this book!



Raj

Lily

Tom

Aishah

v

Make Learning Science Relevant and Applicable to Everyday Life

Pupils can focus on learning scientific concepts and their application, without having to understand contexts that may be foreign to them. Age-appropriate language is used to ensure that pupils can grasp the concepts easier and faster.



The seeds of the rubber tree are dispersed by explosion of the fruit.

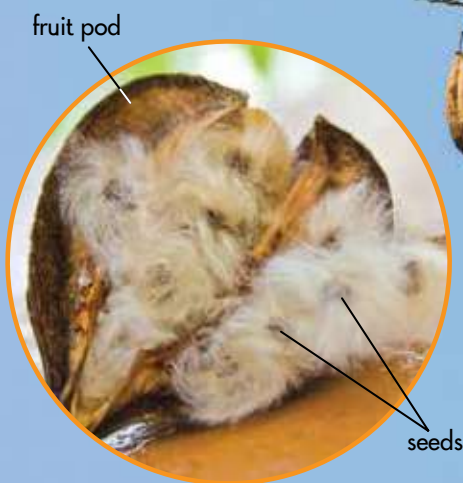


The seeds of the balsam plant are dispersed by explosion of the fruit.

References are made to **native plants** (eg: rubber tree, kapok tree & balsam plant).

Try This

Observe the fruit and seeds of the kapok tree.



Kapok fruit

Fruit hanging from a kapok tree

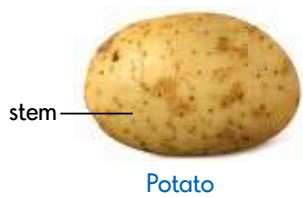
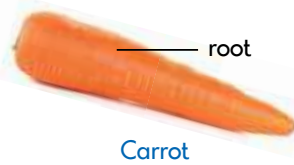
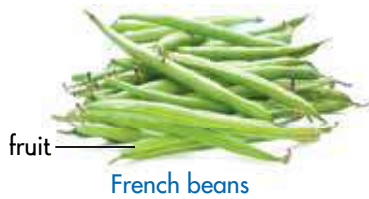
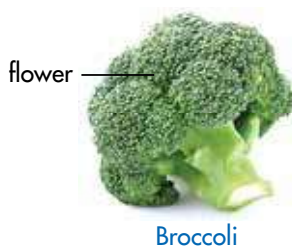
How do you think kapok seeds are dispersed? Discuss in pairs.

Worksheet 6, pages 48–49
Worksheet 7, pages 50–51

References are made to **local vegetables**.

Going Further

The vegetables we eat are different parts of plants.



What You Have Learnt

- Plants have leaves, stems and roots.
- Some plants also have flowers and fruit.

Pupil's Book, Stage 1

58 Chapter 3

Going Further

People around the world use lights for different celebrations. Which of these do you take part in?



References are made to **local festivals**.

Save Lesson Preparation Time and Reduce Teachers' Workload

There is ample support and resources for teachers, so that they can focus on refining their lessons and less on preparing them.



56 Chapter 3

3 Growing Plants

Scheme of Work

Suggested time frame: 15 periods (1 period is approximately 40 minutes.)

Teaching and Learning Sequence	No. of Periods	Framework Code(s) and Learning Objective(s)*	Learning Outcome(s)	Vocabulary	Resources and Material(s)
Introduction A. What Are the Different Parts of a Plant?	5	• 1Bp4: Name the major parts of a plant, looking at real plants and models.	• Name the different parts of a plant.	• leaves • stems • roots • flowers • fruit • trunk	• Pupil's Book , pp. 52–60 • Activity Book , WS 1–2, pp. 32–36 • Teacher's Guide , pp. 58–66 • 1 sketchpad per pupil • 2 different kinds of leaves per pupil
B. How Do Seeds Grow into Plants?	5	• 1Bp6: Explore how seeds grow into flowering plants.	• Investigate into plant		

*As reflected in the Cambridge Primary Science curriculum framework

92 Chapter 4

4 Flowering Plants

Scheme of Work

Suggested time frame: 13 periods (1 period is approximately 40 minutes.)

Teaching and Learning Sequence	No. of Periods	Framework Code(s) and Learning Objective(s)*	Learning Outcome(s)	Vocabulary	Resources and Material(s)
Introduction A. What Are the Parts of a Plant?	5	• 3Bp1: Know that plants have roots, leaves, stems and flowers. • 3Bp3: Know that water is taken in through the roots and transported through the stem. • 3Bp4: Know that plants need healthy roots, leaves and stems to grow well.	• Recognise that plants have parts such as leaves, flowers, stems and roots. • Recognise that roots take in water and stems transport water. • Recognise that the leaves, stems and roots of plants need to be healthy in order for plants to grow well.	• plants • leaves • flowering plants • flowers • roots • stems • healthy • grow • unhealthy	• Pupil's Book , pp. 84–97 • Activity Book , WS 1–3, pp. 46–49 • Teacher's Guide , pp. 94–107 • Different types of leaves or pictures of them per group • 1 set of coloured markers per group • 1 bottle of glue or 1 roll of sticky tape per group • 1 sheet of cardboard per group • 1 bottle of food colouring per group • 1 dropper per group • 1 medium-sized glass or plastic container per group • Water • 1 white flower per group

Topics are introduced and built upon concepts that are taught and mastered previously, with a chapter-by-chapter overview shown in the *Scheme of Work* for teachers.

54 Chapter 3

3 Reproduction in Flowering Plants

Scheme of Work

Suggested time frame: 20 periods (1 period is approximately 40 minutes.)

Teaching and Learning Sequence	No. of Periods	Framework Code(s) and Learning Objective(s)*	Learning Outcome(s)	Vocabulary	Resources and Material(s)
Introduction A. Why Do Plants Produce Flowers?	4	• 5Bp2: Know that plants reproduce. • 5Bp6: Observe that plants produce flowers which have male and female organs; seeds are formed when pollen from the male organ fertilises the ovum (female). • 5Bp7: Recognise that flowering plants have a life cycle including pollination, fertilisation, seed production, seed dispersal and germination.	• Recognise that plants reproduce. • Recognise that flowering plants produce flowers with male and female parts. • Recognise the processes of pollination, fertilisation, seed production, seed dispersal and germination involved in the reproduction of flowering plants.	• flowering plants • reproduce • flowers • male • stamen • petals • anther • pollen grains • filament • female • pistil • stigma • style • ovary • ovule • egg • ovum	• Pupil's Book , pp. 48–56 • Activity Book , WS 1–2, pp. 34–38 • Teacher's Guide , pp. 60–68 • Different kinds of flowers per class • 3 kinds of flowers per group • 1 magnifying glass per group • Different kinds of flowers, each with the male and female parts within the same flower, per class • 1 magnifying glass per class • 1 flower with large petals, and male and female parts (such as lily, hibiscus and peacock flowers) per group

*As reflected in the Cambridge Primary Science curriculum framework

Teacher's Guide,
Stages 1, 3 & 5