



KEMENTERIAN
PENDIDIKAN
MALAYSIA

SCIENCE

YEAR 2





RUKUN NEGARA

Bahawasanya Negara Kita Malaysia

mendukung cita-cita hendak:

Mencapai perpaduan yang lebih erat dalam kalangan
seluruh masyarakatnya;

Memelihara satu cara hidup demokrasi;

Mencipta satu masyarakat yang adil di mana kemakmuran negara
akan dapat dinikmati bersama secara adil dan saksama;

Menjamin satu cara yang liberal terhadap
tradisi-tradisi kebudayaannya yang kaya dan pelbagai corak;

Membina satu masyarakat progresif yang akan menggunakan
sains dan teknologi moden.

MAKA KAMI, rakyat Malaysia,
berikrar akan menumpukan
seluruh tenaga dan usaha kami untuk mencapai cita-cita tersebut
berdasarkan prinsip-prinsip yang berikut:

**KEPERCAYAAN KEPADA TUHAN
KESETIAAN KEPADA RAJA DAN NEGARA
KELUHURAN PERLEMBAGAAN
KEDAULATAN UNDANG-UNDANG
KESOPANAN DAN KESUSILAAN**

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YEAR 2

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INTRODUCTION

The content of *Science Year 2 Textbook* is written and interpreted based on the Standard Curriculum and Assessment Document (DSKP) which can be found in Year 2 Science Standard-based Curriculum for Primary School (KSSR). The production of this book is aimed at fulfilling the new policy under the Malaysia Education Blueprint 2013-2025 that integrates knowledge, skills and values including 21st Century Skills, and Higher Order Thinking Skills (HOTS) explicitly. This curriculum is also aimed at providing education comparable to international standards.

This textbook consists of ten units which cover six themes: Inquiry in Science, Life Science, Physical Science, Material Science, Earth and Space, and Technology and Sustainability of Life. The write-up of this book is arranged to stimulate and attract pupils' interest to appreciate continuous learning in the classroom as well as self-learning. Each unit in this book begins with a stimulus page, learning content description, activities, summary, evaluation, and enrichment activities. In order to make teaching and learning easier for teachers and pupils, answers are prepared on the last page of this book that serve as a guide.

In order to ensure the aims and objectives of the Science Standard-based Curriculum for Primary School are achieved, the content of this book emphasises aspects of HOTS focusing on inquiry and project-based learning approaches. In addition, existing elements of learning across the curriculum are added with elements of creativity, innovation, entrepreneurship, and Information and Communication Technology (ICT). Apart from that, values, positive attributes, and good working culture are incorporated in this textbook.

The teaching and learning strategy for the Standard-based Curriculum for Primary School for Science prioritises thoughtful learning where knowledge acquisition and mastery of skills are emphasised. To stimulate pupils' interest and enjoyment, the presentation of this book is infused with edutainment elements.

We hope that this book is able to enhance the quality of the teaching and learning process.



ICON DESCRIPTIONS



I Investigate >>

Activities that help pupils to master the learning standards.



I Create >>

Activities that help pupils to master the learning standards through innovation and creativity.



Caution

Safety aspects while doing activities.



Let's Think >

Questions that assess pupils' understanding.



I Answer >>

Questions that evaluate pupils' performance in each unit.



HOTS >

Questions that require Higher Order Thinking Skills.



I Remember

A brief note on the content in each unit.



Science Recreation >

Enrichment activities that are interesting and challenging in each unit. These activities also aim to elicit pupils' creativity.

Activity Book

Page:

21

Link page of the activity book.



Learning standards in the Standard Curriculum and Assessment Document.



Teacher's Notes

A guide or as additional information for the teachers during lessons.



The QR Code can be scanned using a smartphone. This code contains additional learning materials.

This seedling has grown taller.

Days	Number of leaves	Height of seedling (cm)
1	2	4
7	5	7
14	8	9
21	10	12

The number of leaves have also increased.

Yes, the seedling has grown.

What are Nisa and her friends doing?



Observe

Nisa and her brother are helping their mother in the kitchen. Let's follow their activities below.

We need flour, salt, sugar, yeast, and water to make bread.



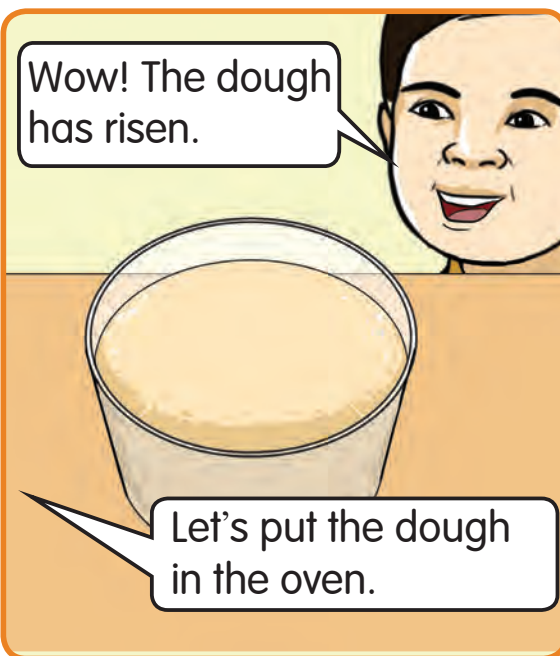
First, we mix the flour with salt, sugar, yeast, and water. Then, we knead the dough until it is smooth.



Next, we cover the dough with a clean wet towel and leave it for an hour.

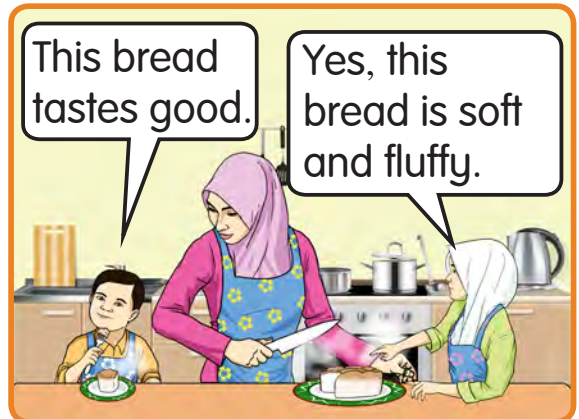


Wow! The dough has risen.



Let's put the dough in the oven.





Below are the observations made by Nisa and her brother while their mother was making the bread:

- saw the changes in the dough
- smelled the bread being baked
- tasted the bread
- touched the bread
- heard the sound of the oven

We gather information about the changes around us by seeing, smelling, tasting, touching, and listening. These process skills are known as observing.





I Investigate

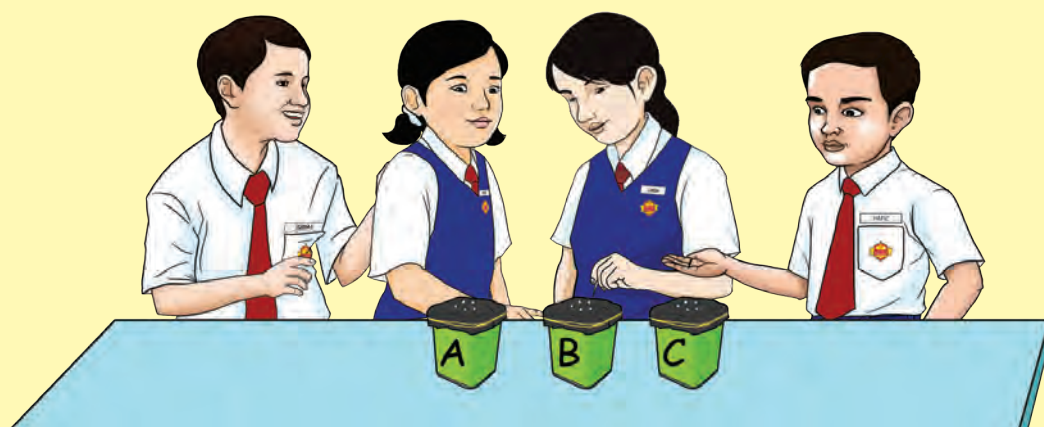


Making Observations on Material Characteristics

Apparatus and Materials

- 3 sealed containers labelled A, B and C.
- pin

Group Activity



Steps

1. Each group is given sealed containers labelled A, B and C containing different materials. Make 5 holes on the lid of each container using a pin.
2. Observe the materials in the sealed containers.
3. Predict the materials investigated.
4. Take the lid off the containers and observe the actual materials.
5. Compare your prediction with the actual materials.

Question

What senses did you use in making the observations?

Teacher's Notes

- Prepare sealed containers labelled A, B and C containing materials to be tested.
- This investigation can be carried out using materials such as liquid soap, coffee powder, marbles, coins, sand, beads, and detergent.

1.1.1





Classify

Observe the characteristics of the animals below.



duck



tiger



penguin



tapir



eagle



goat

The characteristics that can be observed on the animals above are as follows.

- A duck has wings and two legs.
- A tiger does not have wings but has four legs.
- A penguin has wings and two legs.
- A tapir does not have wings but has four legs.
- An eagle has wings and two legs.
- A goat does not have wings but has four legs.





How can we classify these animals?

We can classify these animals by stating their similar and different characteristics.



A similar characteristic between a duck, a penguin, and an eagle is that they are animals with wings.



duck



eagle



penguin

A goat, a tapir, and a tiger are different from a duck, a penguin, and an eagle because they are animals without wings.



goat



tapir



tiger

These animals can be classified as animals with wings and without wings.



Teacher's Notes

- Similar characteristics are shared characteristics.



Animals

- duck
- penguin
- eagle
- goat
- tiger
- tapir

Features

With wings

- duck
- penguin
- eagle

Without wings

- goat
- tapir
- tiger



Please classify the animals using other characteristics.

We classify things by separating and grouping them according to their similarities and differences.



I Investigate

>> Classify the Plants

Apparatus and Materials

- pictures of plants
- hanger
- rope
- picture of various plants



Group Activity

Steps

1. Observe the similarities and differences in the characteristics of the plants in the pictures.



- The plants can be classified according to flowering plants and non-flowering plants.
- Separate the pictures of the flowering plants and non-flowering plants.



- Create an interesting mobile classification chart.
- Talk about the characteristics used to classify the plants above.

Question

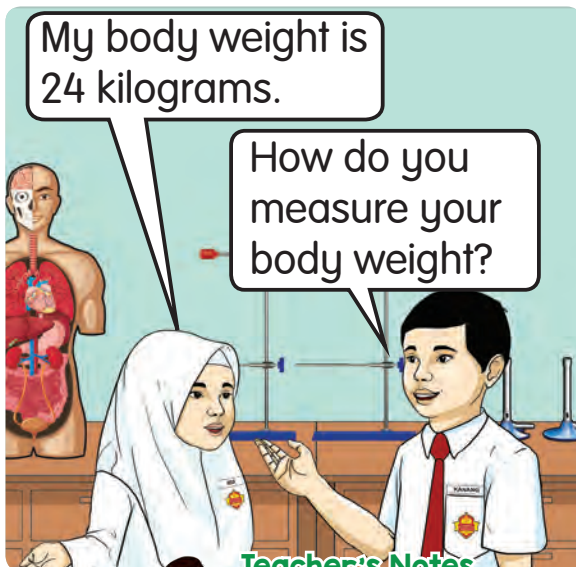


HOTS

Create a mobile classification chart using other characteristics of plants.

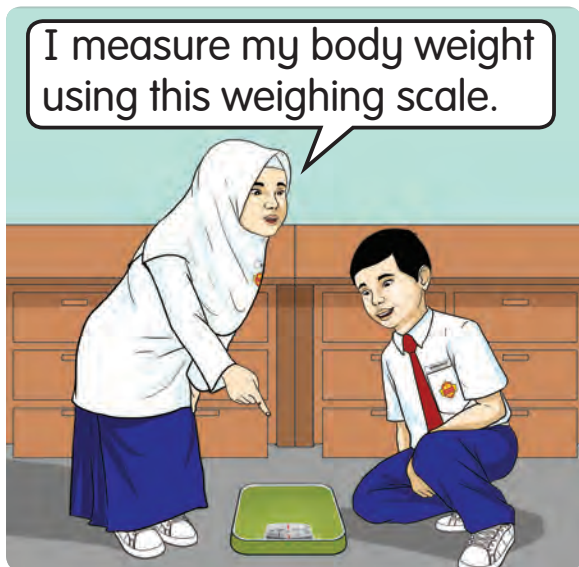


Measure and Use Numbers



Teacher's Notes

- Use pictures of other plants.

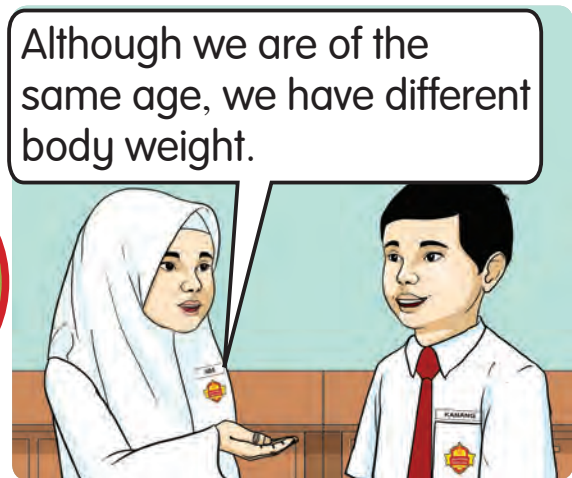
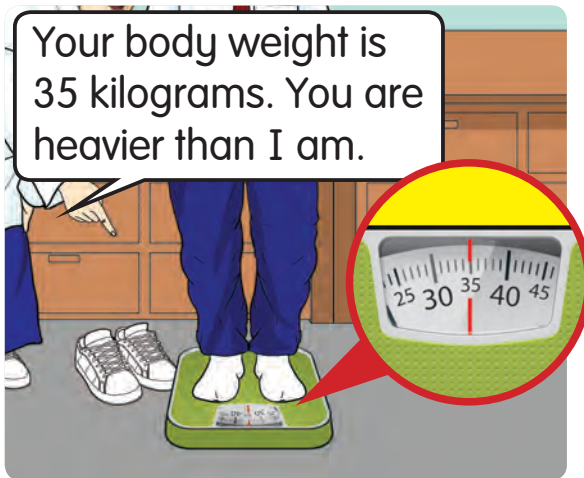


1.1.3

Activity Book

Pages:

5-6



Nurul and Kanang measure their body weight. They measure it using the correct standard tool. They apply the skill of measuring and using numbers.



I Investigate



What is the Measurement of My Head?

Apparatus and Materials

- ribbon
- ruler
- marker pen
- scissors



Paired Activity

Steps



1. Wrap the ribbon around your friend's head. Mark the edge where the ribbon overlaps.







2. Cut at the marked spot.



3. Then, measure the length of the ribbon using a ruler.



4. Record the information in the table as shown below.

Name	Head measurement (cm)
	
	

5. Share your observations.

Question

1. What are other tools that can be used to measure your head?







HOTS

Is the measurement of your head the same as your friend's? Why?



Communicate

Let's look at the duty roster of 2 Arif.

Duty	Sweep	Clean windows	Arrange desks	Clean whiteboard
DAY				
Monday	• Ismail • Ramlah	Rizal	• Theven • Mazlan	Adibah
Tuesday	• Diana • Alia	Jannah	• Mariam • Wahid	Kugan
Wednesday	• Hairun • Yana	Mastura	• Rina • Badrul	Amir
Thursday	• Santhi • Syamim	Jamil	• Saiful • Asyikin	Lee Lim
Friday	• Vellu • Hasni	Chong Min	• Nizam • Adam	Hairun

The information in the table above can provide answers to the following questions.

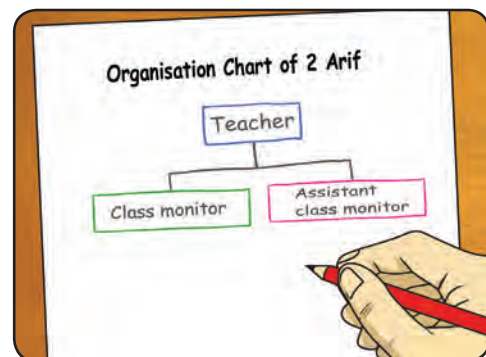
1. Who are the pupils assigned to sweep on Wednesday and Thursday?
2. How many pupils are assigned to arrange the desks in a week?
3. Who has to carry out class duty twice a week?

Based on the questions above, write your answers and read them out in front of the classroom.

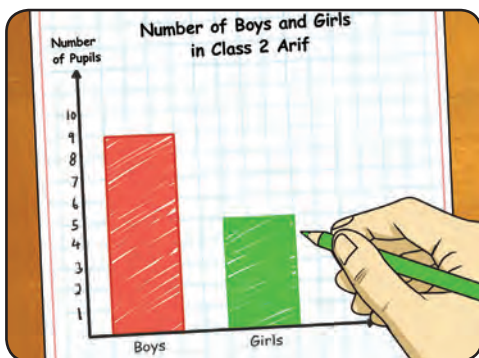
Writing and reading out information are parts of communication skills. Communication skills can also be in the form of pictures, charts, graphs, and models.



picture



chart



graph



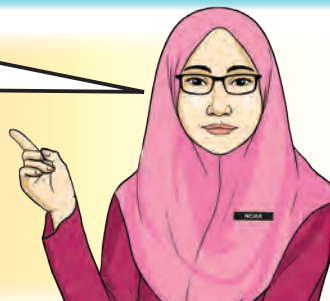
model



Manipulative Skills

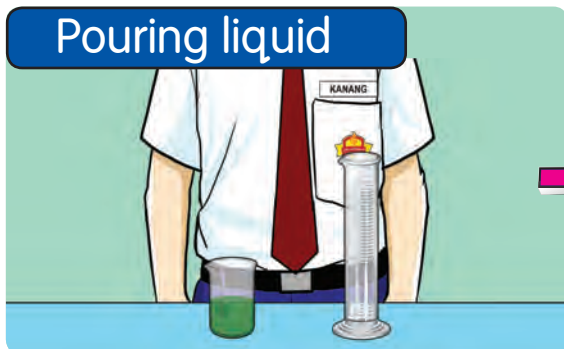
Manipulative skills refer to the ability to use and handle science apparatus and substances correctly when carrying out scientific investigations.

Let us look at the manipulative skills practised in the Science Room.



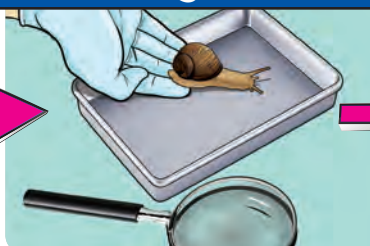
- 1 Use and handle science apparatus and substances correctly.

Pouring liquid



- 2 Handle specimens correctly and carefully.

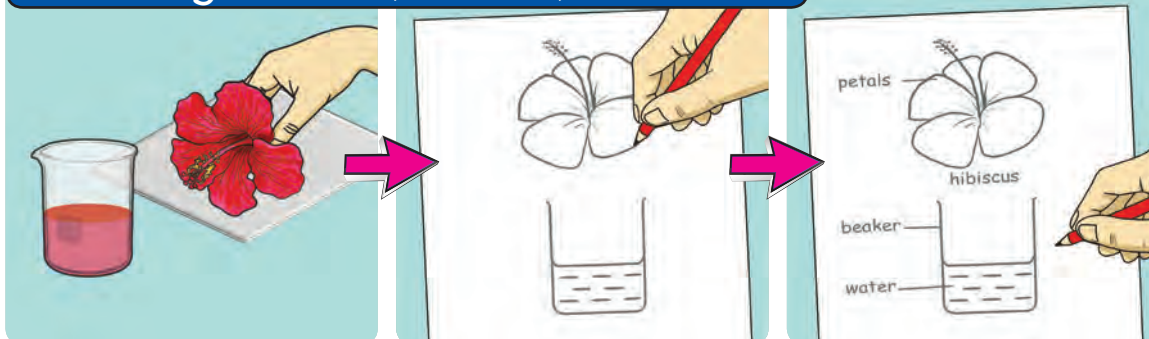
Handling live specimen: garden snail



1.2.1
1.2.2
1.2.3
1.2.4
1.2.5

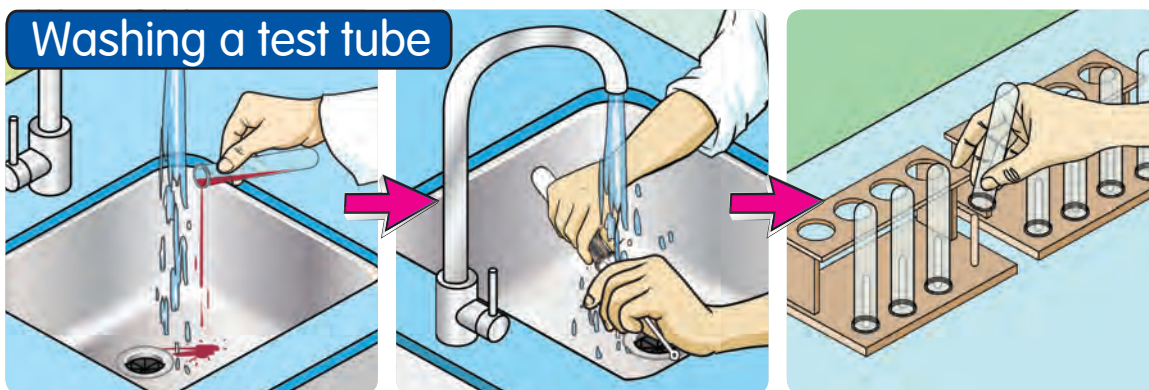
- 3** Sketch specimens, apparatus, and science substances correctly.

Sketching hibiscus, beaker, and water



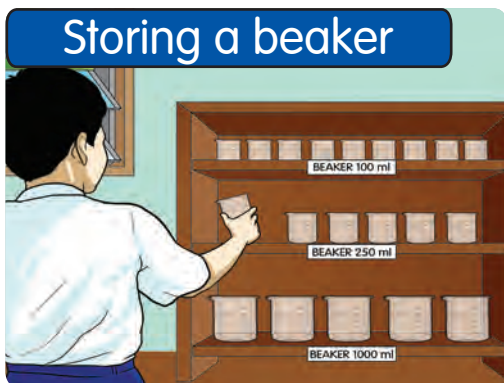
- 4** Clean science apparatus correctly.

Washing a test tube

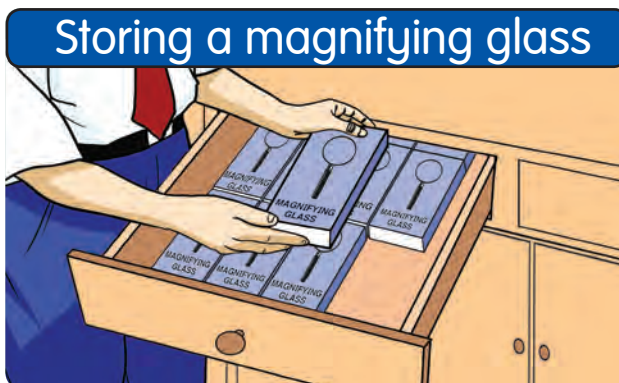


- 5** Store science apparatus and substances correctly and safely.

Storing a beaker



Storing a magnifying glass





I Investigate



Observing a Snail

Apparatus and Materials

- magnifying glass
- white tile
- gloves
- small aquarium
- garden snail

Group Activity

Steps



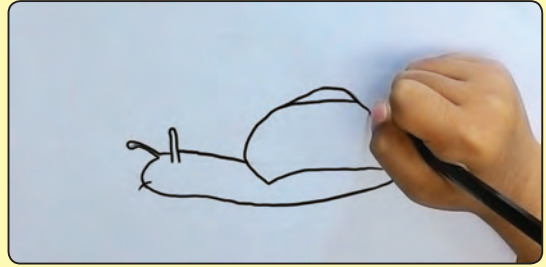
1. Take a garden snail from the Science Park and put it in a small aquarium.



2. Put the garden snail on a white tile.



3. Use a magnifying glass to observe the garden snail.



4. Sketch the garden snail in your Science book.

5. Label the sketch of the garden snail.
6. Release the garden snail into its original habitat.
7. Wash your hands and the apparatus used.

Question

1. Why do you use a magnifying glass when observing the garden snail?



HOTS

Why should you release the garden snail after you have completed the activity above?

Teacher's Notes

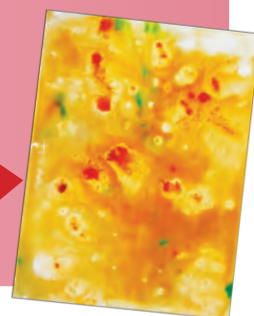
- Ask pupils to do the same investigation using other animals such as a butterfly, a beetle, and an earthworm.

1.2.1
1.2.2
1.2.3
1.2.4
1.2.5



Rainbow Paper

1. Pour 100 ml of fresh milk into a tray.
2. Put a few drops of different food colouring onto the surface of the milk.
3. Use a wooden stick to mix the food colouring.
4. Place a sheet of white paper onto the surface of the mixture and lift it slowly.
5. Dry the paper. This beautiful sheet of paper can be used as a bookmark or a bottle wrapper.



I Remember

Scientific Skills

1. Science Process Skills

- **Observe**
Use the senses to gather information about objects and phenomena.
- **Classify**
Identify the similarities and differences of objects. Then, separate and group the objects.
- **Measure and use numbers**
Measure using the correct standard tools.
- **Communicate**
Present information in a variety of forms.

2. Manipulative Skills

- Use and handle science apparatus and substances correctly.
- Handle specimens correctly and carefully.
- Sketch specimens, apparatus, and science substances correctly.
- Clean science apparatus correctly.
- Store science apparatus and substances correctly and safely.

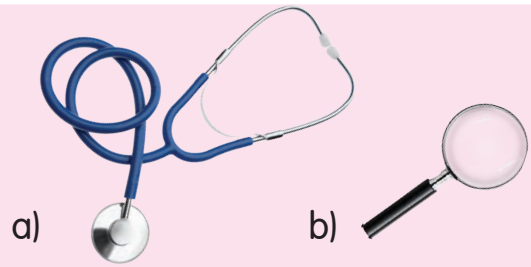




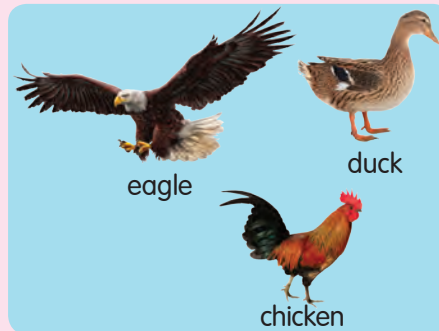
I Answer

Answer all questions below in your Science exercise book.

1. What are the senses involved in making an observation using this apparatus?

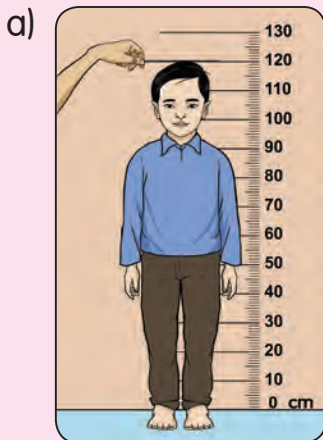


2. The pictures below show the animals that have been classified according to the selected characteristics.



State the similarities and differences in the classification above.

3. Observe the pictures below. State the height and body mass using the measuring tools below.



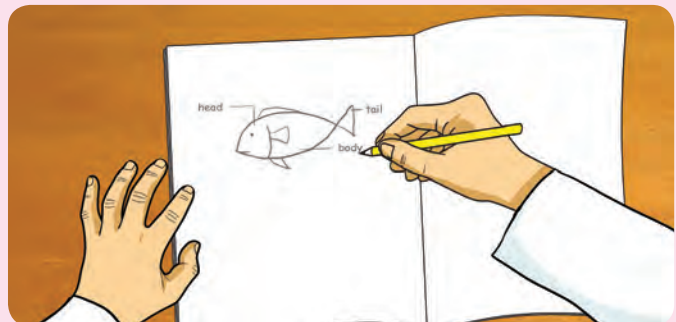
cm

b)



kg

4. What is the manipulative skill practised by Dina?



SAFETY FIRST

Hazardous symbol



CORROSIVE



EXPLOSIVE



HARMFUL

HIGHLY
FLAMMABLEHARMFUL TO
THE ENVIRONMENT

TOXIC

Song for Science
Room Rules

Dry wastes liquid wastes
Must be disposed
Do not keep (2X)
Tools and materials used
Must be washed
Let it dry (2X)

During the investigation
Obey the rules (2X)
Safety first (2X)
Let's practise Science Room Rules

Do all the pupils in this picture obey the
Science Room Rules?



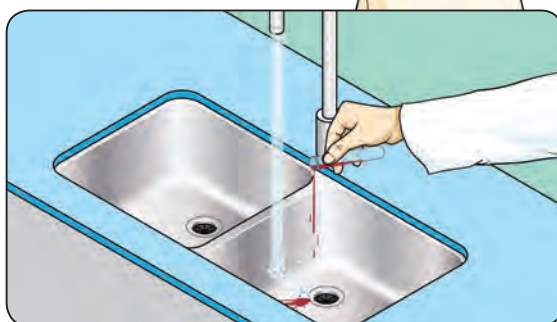
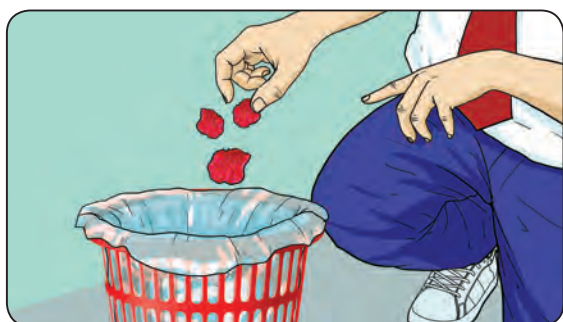
Understand and Adhere to Science Room Rules

Rules must be adhered to in order to ensure that the Science Room is clean, neat, and organised. The rules must be followed to protect the safety of pupils and equipment in the Science Room.

What are the rules that we must adhere to in the Science Room?



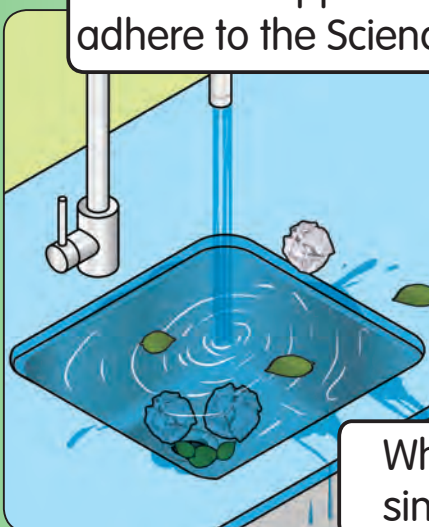
- 1 Dispose solid wastes into waste containers and liquid wastes into the sink.



What will happen if we do not adhere to the Science Room Rules?



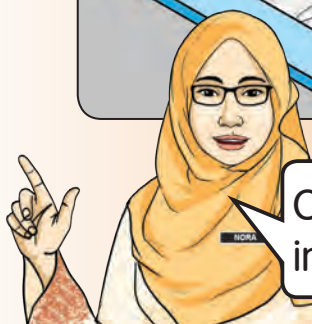
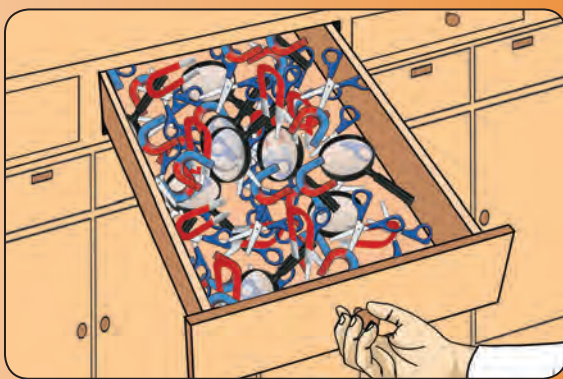
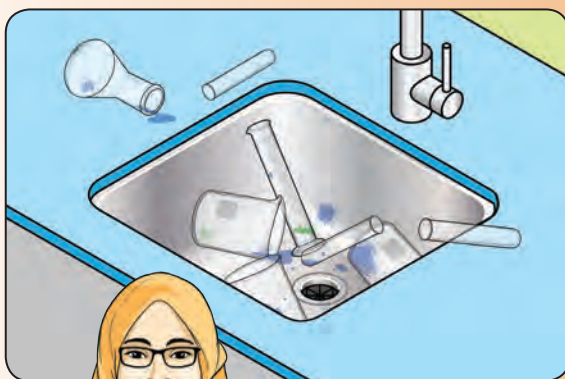
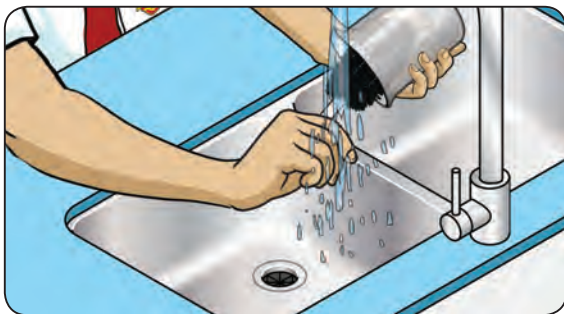
Oh! The liquid is flowing onto the floor.



Why is this sink clogged?

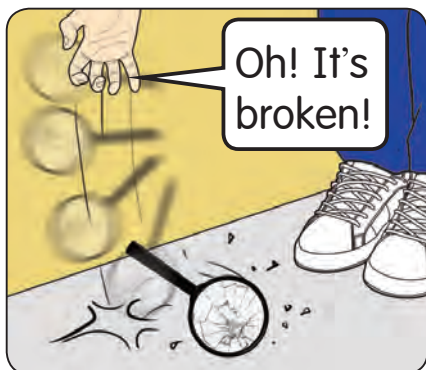


2 Clean all tools and apparatus after use. Store them in their original places.



Can scientific investigations be carried out smoothly in these situations?

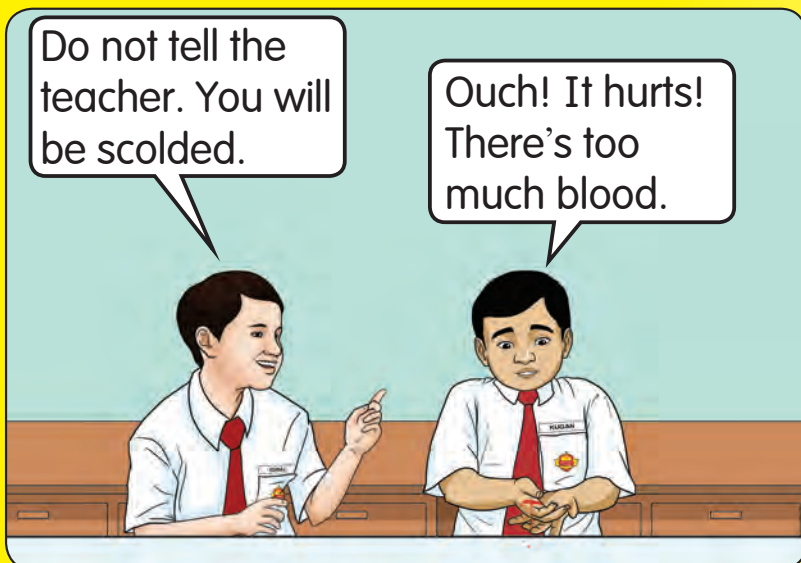
3 All accidents, broken tools, and apparatus must be reported to the teacher immediately.



Do not tell the teacher. You will be scolded.

Ouch! It hurts! There's too much blood.

What will happen if pupils do not inform the teacher about these matters?



Please leave your bags outside before entering the Science Room. Just bring your books and stationery.



School bags placed in the Science Room can interfere with pupils' movement.

Activity Book

Pages:

11-12

You should adhere to and practise the Science Room Rules to ensure that the Science Room is clean, neatly arranged, and safe at all times.



Let's Think

What should they do in the situation below?

Kanang, you have broken this beaker.



Yes. What should I do now?



Science Recreation

Interactive Notes of Science Room Rules

Write interactive notes of the Science Room Rules that you must adhere to.

Bring only books and stationery into the Science Room.	Keep the Science Room clean and be alert constantly.
Clean the tools and apparatus after use.	Keep the tools and apparatus after use.
Dispose solid wastes and litter into the bins.	Dispose liquid wastes into the sink.
Inform the teacher of any damaged tools and apparatus.	Inform the teacher about any injury.

→
Add
casement.



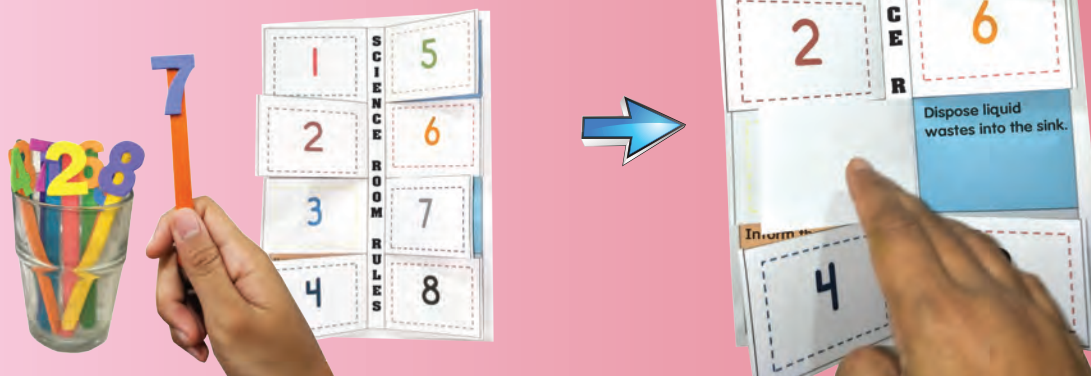
1. Prepare the texts.

2. Add numbering.



How to play.

1. Choose any ice cream stick with a number.
2. Open the casement according to the number chosen.
3. Read the chosen Science Room Rule aloud.



I Remember

Science Room Rules

1. Ensure the cleanliness and safety of the Science Room at all times.
2. Clean all tools and apparatus after use.
3. Store all tools and apparatus to their original places after use.
4. Dispose all solid wastes and litter into waste containers.
5. Dispose liquid wastes into the sink.
6. Inform the teacher if someone is injured.
7. Inform the teacher if any tool or apparatus is damaged or broken.
8. Only bring books and stationery that are allowed into the Science Room.



I Answer

Answer all the questions below in your Science exercise book.



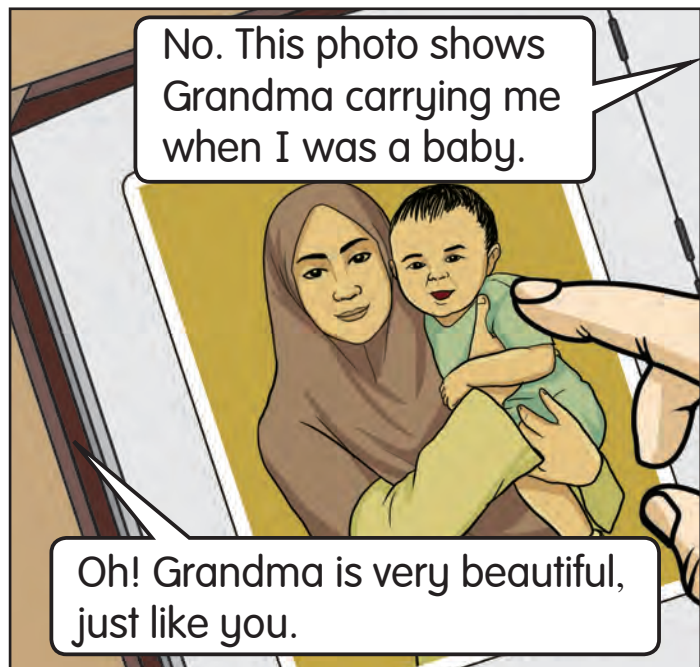
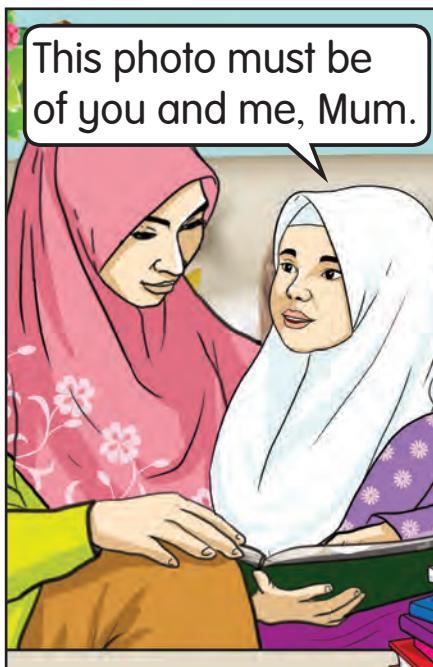
HOTS

1. Pupils must adhere to the Science Room Rules. Why?
2. Azrai is disposing liquid wastes into the dustbin. Is Azrai doing the right thing? Why?
3. Why should we arrange all tools and apparatus neatly after using them?



Unit 3

HUMANS



Why is Nisa confused with her family photos?





Human Reproduction

Kanang's mother has just given birth.



One of the characteristics of a human is reproduction.
How does a human reproduce?

A human reproduces by giving birth.

Teacher's Notes

- Humans increase their numbers through reproduction.

3.1.1

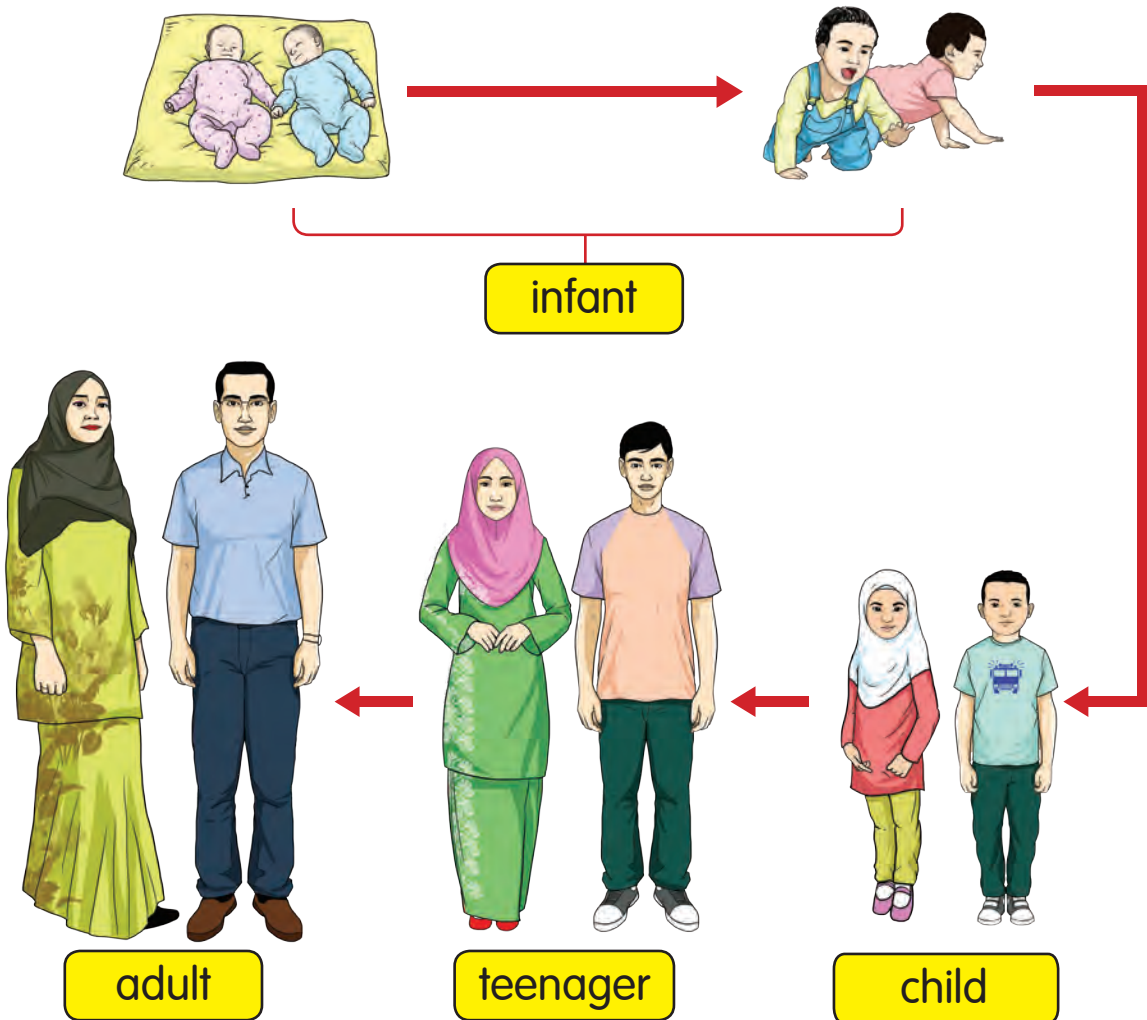
Activity Book

Page:

13

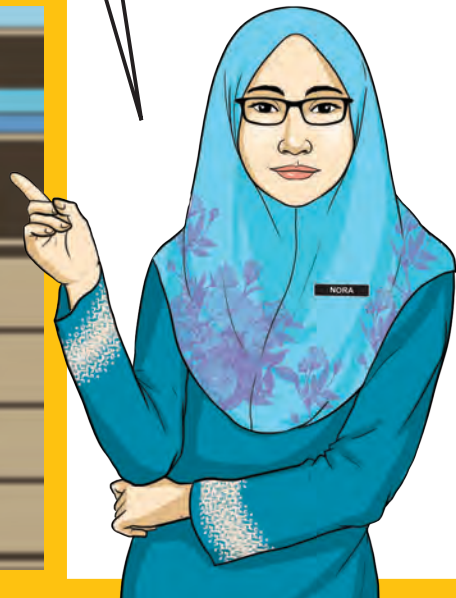
I Grow

Observe the pictures below. Which stage are you at?
What are the changes that you have experienced
from birth?



Let's see the changes in these situations.

Before



After one year

Dad, why is this shirt tight?



Wow! My son is growing. I will buy a new shirt for you.



Increase in size



Before



After one year



Increase in height

Before



After one year



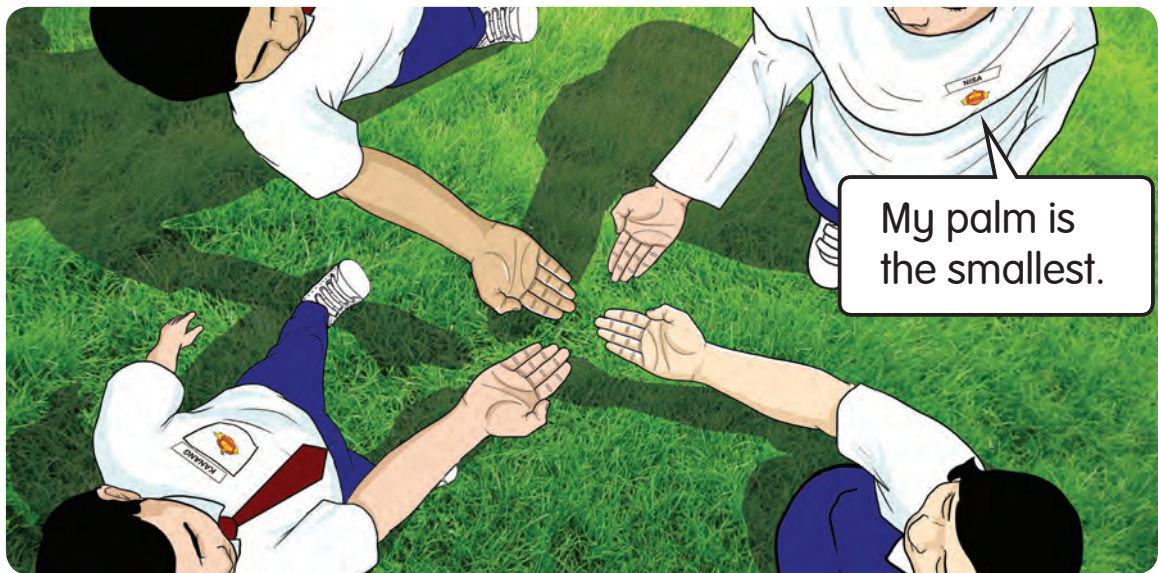
Increase in weight

We experience changes in **size**, **height**, and **weight** since birth.





Different Growths Among Individuals



Why are the growths of these pupils different? Compare your growth with your friends'.





I Investigate

Measuring the Size of Palms, Weight, and Height

Apparatus and Materials

- coloured pencils
- A4 paper
- wall ruler
- weighing scale

Group Activity

Steps



1. Sketch the outline of your palm using a coloured pencil.



2. Repeat Step 1 for your friends. Trace on different sheets of paper.









3. Measure yours and your friend's body weight using a weighing scale.



4. Measure yours and your friend's height.



5. Repeat Steps 3 and 4 to your other friends.
6. Record the results in the table as shown below.

Name	Weight (kg)	Height (cm)
Nisa		
Kugan		
Kanang		

7. Compare the size of palms, height, and weight between you and your friends.

Question



HOTS

Is the size of your palm, height, and weight the same as your friends'? Why?

Growths among individuals are different although they are of the same age.



Inheritance



Teacher's Notes

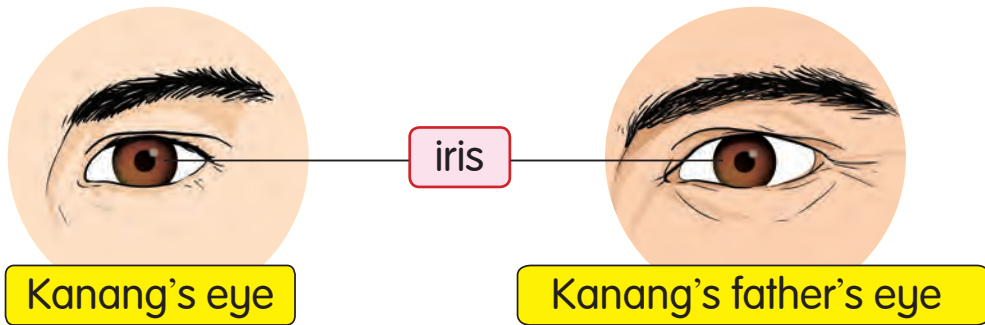
- There are various colours of the iris such as black, brown, gray, blue, and green.

Activity Book

Pages:

17-20

3.1.4
3.1.5



Is the colour of your iris the same as your parents'?

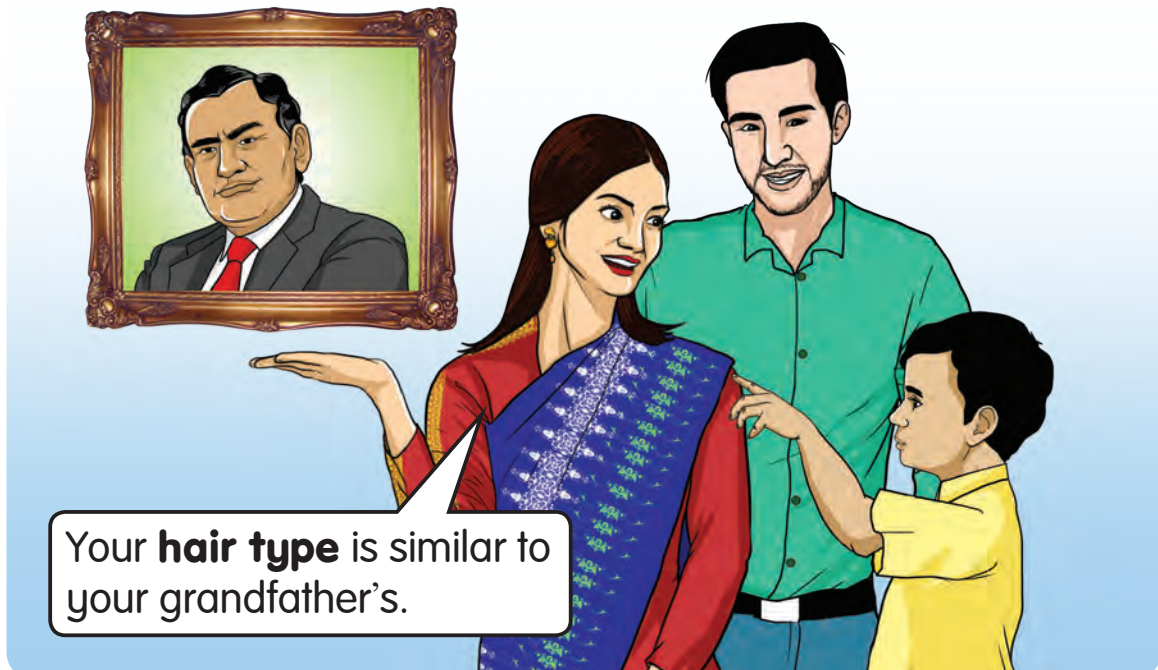
Kanang inherited the colour of his father's iris. The colour of our iris is one of the features inherited from our parents or ancestors. This is called **inheritance**.



Compare Nisa with her mother and father. What are the features inherited by Nisa?



Why is Kugan's hair type different from his parents'?



Offsprings **inherit features** such as iris colour, skin colour, and hair type from their **parents** or **ancestors**.



I Investigate



Identify My Family's Inherited Features

Individual Activity

Steps

1. Identify one of your features.
2. Compare it to a similar feature of your parents or ancestors.

Question

What are your inherited features?

Teacher's Notes

- The inherited features are iris colour, height, face, hair type, and earlobe.

3.1.5





I Investigate



Identify Human Inherited Features

Apparatus and Materials

- coloured pencils
- drawing paper
- pencil
- picture of a family

Group Activity

Steps

1. Paste the family picture on a drawing paper.
2. Compare the children's faces with their parents'.
3. List the features you have identified. Paste your work on the wall and explain to the class.

Children's Inherited Features

Wavy hair type
(father's feature)

Black hair colour
(parents' feature)

Fair skin colour
(mother's feature)

Brown iris colour
(mother's feature)



Question

Offsprings will inherit the features from _____, _____ or _____.





Science Recreation

My Family Tree

1. Get your family photos.
2. Paste the photos on a tree branch and decorate it.
3. Discuss the inherited features of your family members.



I Remember

1. Humans reproduce by giving birth.
2. The stages of human growth:

infant

→

child

→

teenager

→

adult
3. We experience changes in:

size

height

weight
4. The growths among individuals are different although they are of the same age.
5. Offsprings inherit features from their parents or ancestors.
6. The inherited features are:

iris colour

skin colour

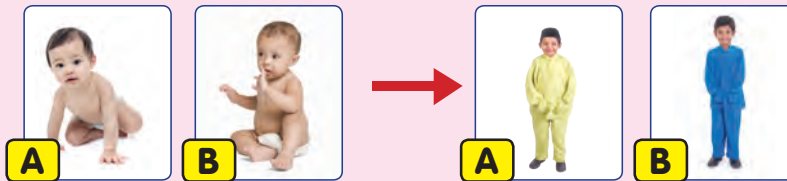
hair type



I Answer

Answer all the questions below in your Science exercise book.

1. Observe these pictures.



- a) We change in , , and since birth.
 - b) Although they are of the age, growths among individuals are .
2. Offsprings inherit from their parents or .



HOTS

What are the advantages of the differences in growths among individuals?



Unit 4

ANIMALS

Where do the chicks come from?

These are newly hatched chicks.

Wow! There are many baby rabbits.

How do these animals reproduce?



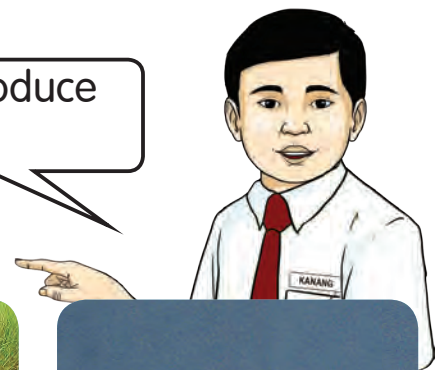
Animal Reproduction

Nisa and her father are on a hill. They are observing a few storks in a tree.



Storks reproduce by laying eggs.

These animals reproduce by laying eggs.



frog



crocodile



mosquito

Teacher's Notes

- Search on YouTube videos on eggs incubation by storks.

4.1.1

Activity Book

Pages:

21-22

Kugan is observing his cat giving birth.



Name other animals that reproduce by giving birth.



kangaroo



dolphin

Animals reproduce by **laying eggs** and **giving birth**.





I Investigate



Classify How Animals Reproduce

Apparatus and Materials

- drawing paper
- marker pen
- 10 small-sized animal models



spider



elephant



chimpanzee



snake



ant



scorpion



lion



horse



grasshopper

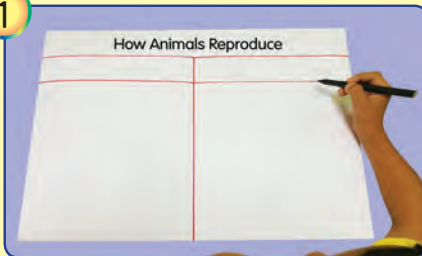


praying mantis

Group Activity

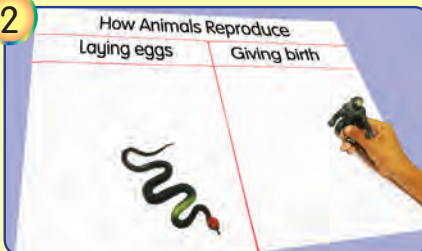
Steps

1



Draw a table on how animals reproduce.

2



Put the animal models in the correct columns.

3. Explain your work to the class.

Question

List other animals that lay eggs or give birth.

Teacher's Notes

- Animal models can be replaced with pictures of animals.

4.1.2





Lay a Few Eggs, Lay Many Eggs

Look at the pictures of animals below.



bird



fish



swan



frog

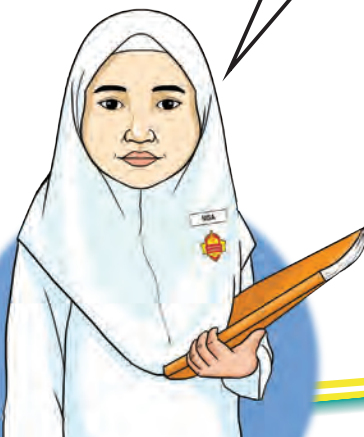


penguin



ant

The animals above lay different number of eggs. There are animals that lay a few eggs or many eggs. Birds, swans, and penguins lay a few eggs. Fishes, frogs, and ants lay many eggs.



What can you say about the number of eggs laid by the animals?



ostrich



butterfly



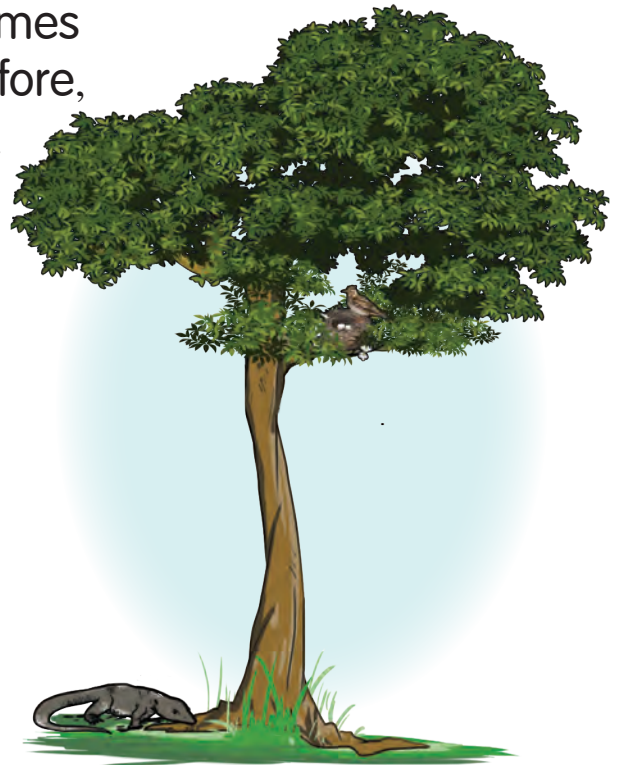
crocodile

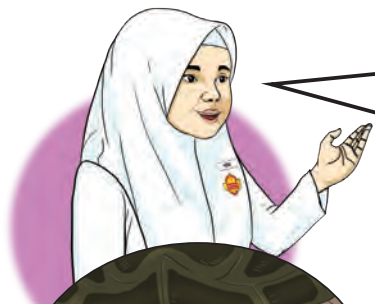


chicken

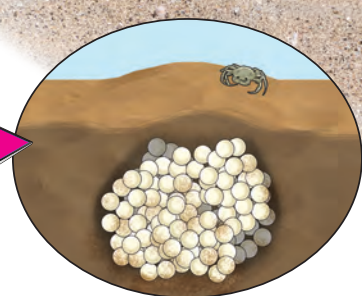
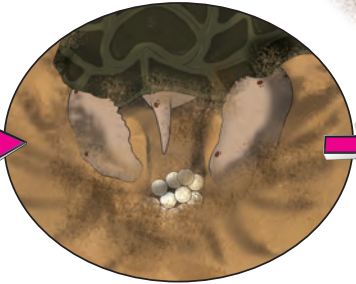
Some animal eggs are sometimes eaten by other animals. Therefore, animals that lay eggs will look after their eggs.

Birds make their nests on tree branches to protect their eggs from being eaten by animals on the ground.





How does a turtle protect its eggs?



A Few Young, Many Young



Let's observe the number of young reproduced by the following animals.



pangolin



dolphin



rabbit



cat

Animals also give birth to different number of young. Based on the pictures above, the animals that give birth to a few young are pangolins and dolphins. Meanwhile, animals that give birth to many young are rabbits and cats.





elephant



porcupine

What can you say about the number of young reproduced by the animals above?

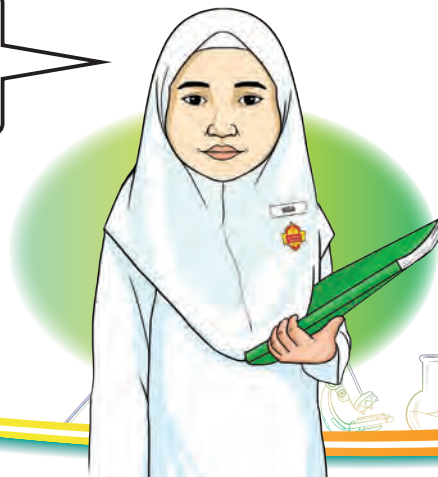


Animals that give birth will look after their young and feed them with milk.



Cats give birth in well-hidden places. The kittens will be safe from other animals.

How do elephants protect their young?





We are Similar, We are Different

Bear cubs look like their parents. They have thick fur.

Hippopotamuses, tigers, and grasshoppers also look like their parents.



bear



hippopotamus

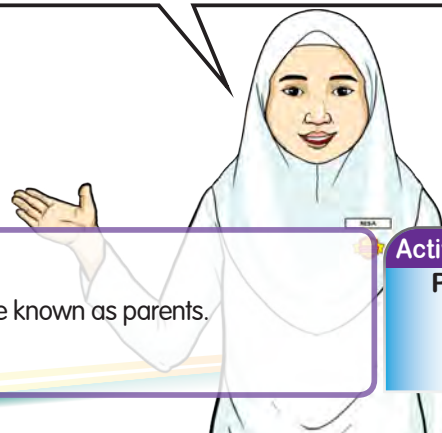


tiger



grasshopper

State other animals that are similar to their parents.



Teacher's Notes

- Mother and father animals are known as parents.

4.1.6

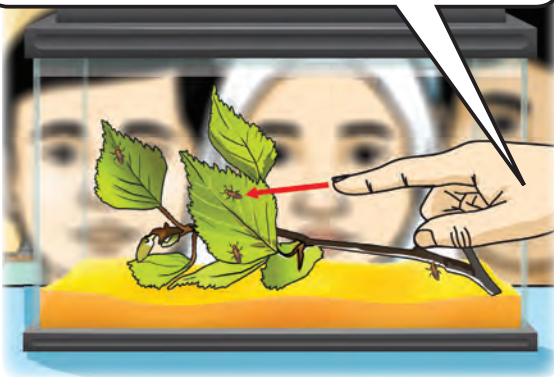
Activity Book

Page:

28

The young of some animals do not look like their parents such as ladybirds and moths.

These are a ladybird's young. They are called larvae. Larvae do not look like their parents.



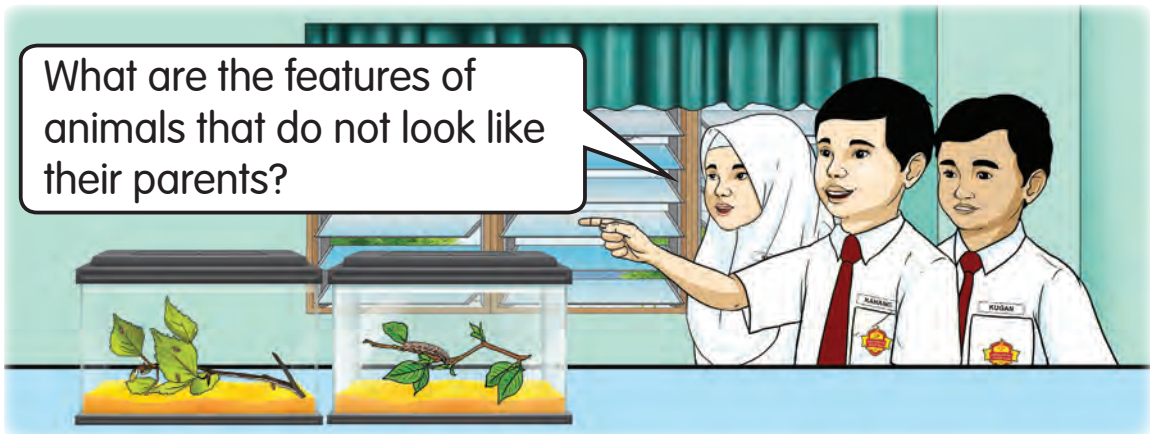
ladybird

This is a moth's larva. It is called a caterpillar. The caterpillar does not look like its parents.



moth

What are the features of animals that do not look like their parents?



The young of some animals look like their parents.
The young of some animals do not look like their parents.

Teacher's Notes

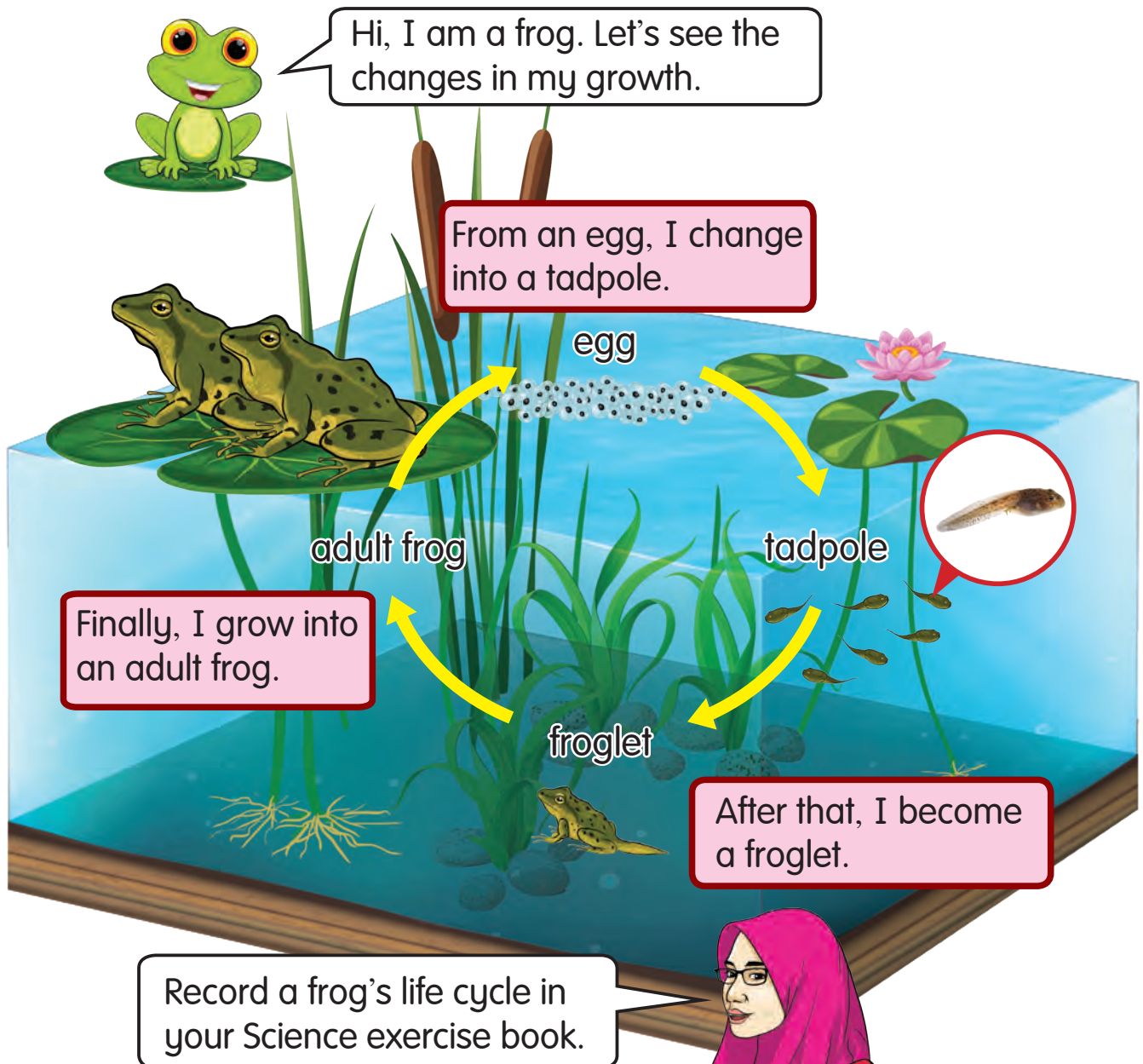
- Search on YouTube videos on the life cycle of a ladybird.





Life Cycle of Animals

Animals that lay eggs will change as they grow. These changes occur in the animals' life cycle.



What is the life cycle of animals that give birth?



yearling



calf



COW



Write the life cycle of a cow.




I Investigate



Make a Chart of a Butterfly's Life Cycle

Apparatus and Materials

- paper plate
- coloured pens
- scissors  Caution
- paper
- glue
- computer
- Internet

Group Activity

Steps

1. Watch and observe the life cycle of a butterfly on the Internet.
2. Sketch the butterfly's growth changes on a piece of paper.
3. Colour the sketch.
4. Cut the pictures you have sketched and paste them on a paper plate.
5. Label every stage of growth.



Question

State every change of growth in the life cycle of a butterfly.





Animal Diorama

Produce a diorama of animals and their young using the materials below.



box



coloured pencils



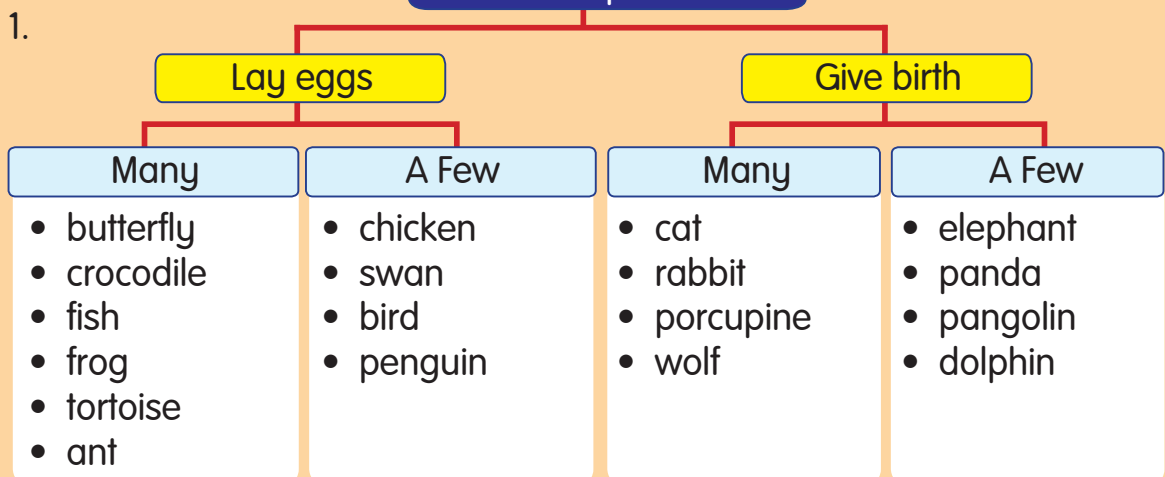
cards



I Remember

Animal Reproduction

1.



2. Animals that look like their parents:

cow

hippopotamus

tiger

grasshopper

bear

3. Animals that do not look like their parents:

frog

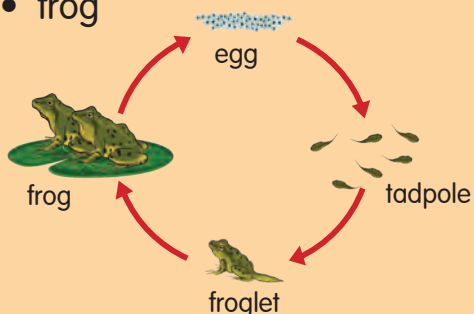
moth

mosquito

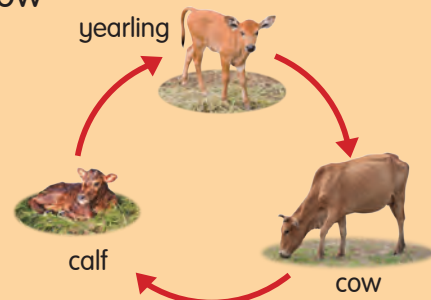
ladybird

4. Life cycle

- frog



- cow





I Answer



Answer all the questions below in your Science exercise book.

1. Complete the classification table as shown below.



bat



lizard



crab



deer

Animal Reproduction

Lay eggs



Give birth



- Why do some animals lay a few eggs? Give three examples of animals that lay a few eggs.
- Why do some animals lay many eggs? Give three examples of animals that lay many eggs.
- Number the growth stages of a chicken in the correct order.



egg



chicken



chick



hatchling



5. Choose the young of the animals that look like their parents.



caterpillar



young squirrel



duckling



tadpole

6. Explain the life cycle of a butterfly.



HOTS



Observe the diagram above. Explain how monkeys reproduce and take care of their young.



Unit 5

PLANTS



These long beans can be eaten raw.

This is so delicious.

The air here is so fresh.

I want to eat too.

Humans and animals need plants to stay alive. Why?



The Importance of Plants

Plants are important to humans and animals because they provide:

habitats

air

medicine

food



HOTS

Give other benefits of plants to humans.

5.1.1

50

Activity Book

Page:

29



Basic Needs for Seeds to Germinate

Hmm...when will this seed germinate?



I am a seed. I will germinate when all my basic needs are fulfilled.



I need water and air to germinate.

I also need a suitable temperature to germinate. I am more comfortable here.



A few days later...

I have started to germinate.



Water, air, and a suitable temperature are required for the germination of seeds.

Teacher's Notes

- A suitable temperature for seed germination differs between plants.

5.1.2



Activity Book

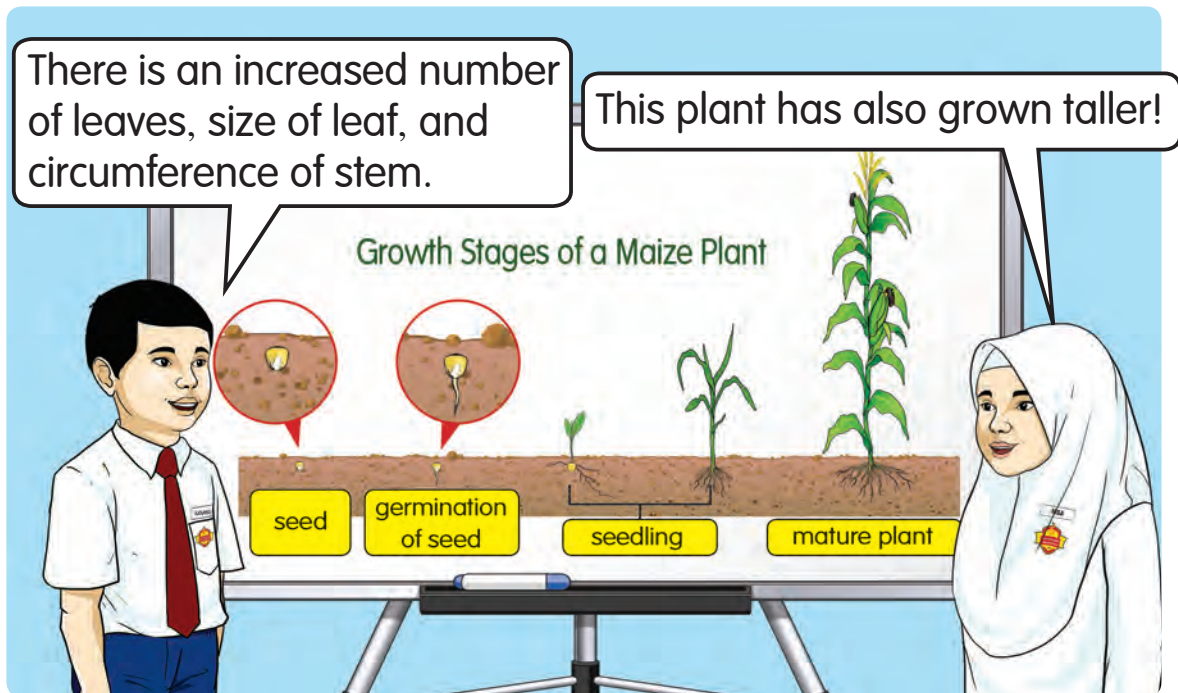
Pages:

30-31



A Plant's Growth

Plants will undergo changes of growth. What are the changes that you notice in the maize plant below?



Observation of growth changes in the maize plant is recorded below until the 21st day.

Parts of plant	Day			
	3 rd	9 th	15 th	21 st
Number of leaves	2	5	10	14
Size of leaf (cm)	1.0	1.5	1.8	2.5
Circumference of stem (cm)	0.3	0.5	0.8	1.0

When plants grow, the **number of leaves**, the **size of leaf**, the **height of plant**, and the **circumference of the stem** will increase.



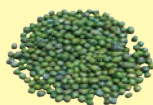
I Investigate

Observe the Growth of the Green Bean Plant

Apparatus and Materials



soil



green bean seeds



plastic cup



trowel



magnifying glass



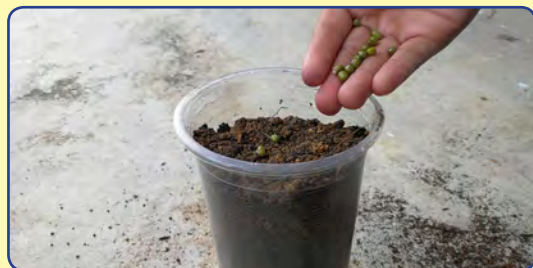
adhesive tape

Group Activity

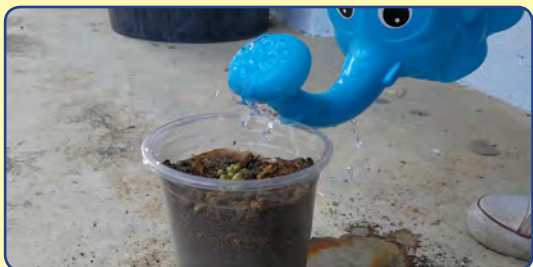
Steps



1. Fill a plastic cup with soil.



2. Put the seeds into the soil.



3. Water the seeds every day.

4. Allow the seeds to grow.
5. Remove a seedling every three days. Paste the seedling using adhesive tape in your Science exercise book.

Day		
3rd	6th	9th

Question

During growth, plants will increase in the of leaves, of leaf, of plant, and of stem.

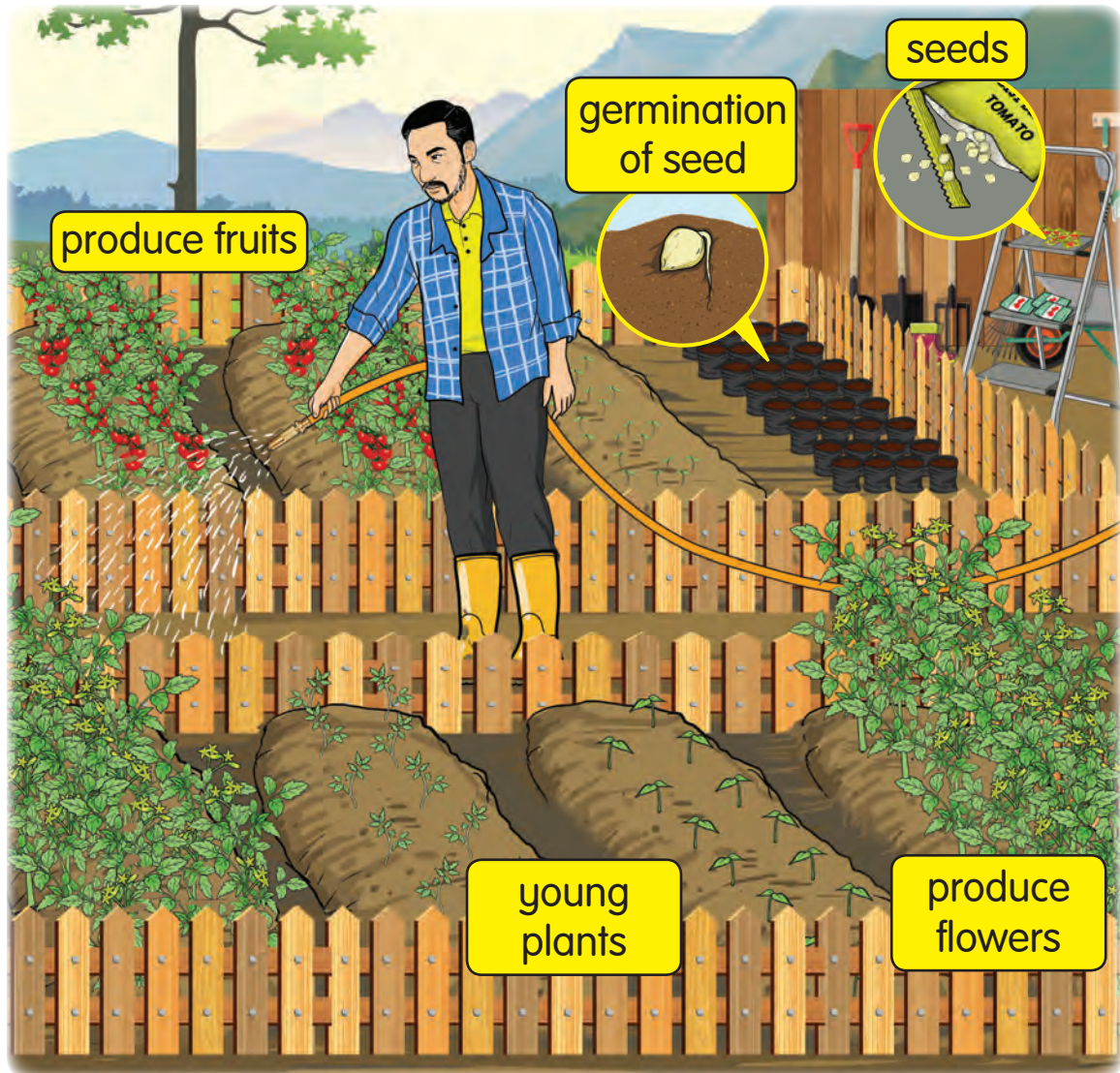




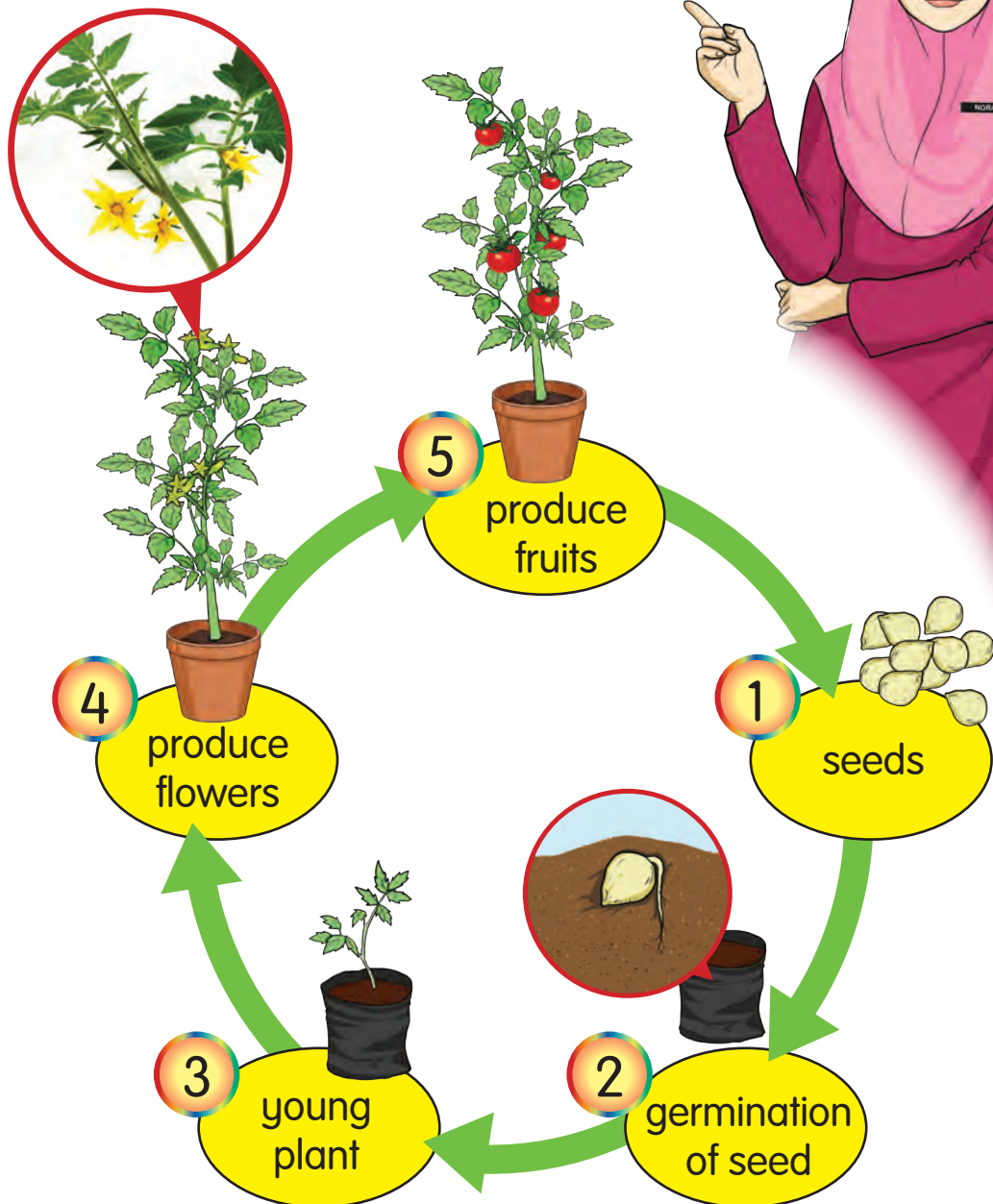
Stages of Plant's Growth

A plant has several stages of growth.

Let's go to Pak Ali's farm to observe the growth stages of tomato plants.



Let's arrange the growth stages of a tomato plant.



The growth stages of a tomato plant are seed, germination of seed, young plant, produce flowers, and produce fruits.





Basic Needs for a Plant's Growth

Plants require the basic needs for growth. Plants will wither and die if any basic need is lacking.

Why has this plant wilted?



Maybe it lacks some basic needs. Let's investigate.



I Investigate

1

Investigate the Basic Needs of Plants

Apparatus and Materials

- water
- clear plastic bag
- box
- same type and size of plants (labelled A, B, C and D)

Group Activity





Steps







1. Place all plants labelled A, B, C and D outside the classroom.
2. Water all plants except plant A.
3. Tie a clear plastic bag over plant C.
4. Put plant D inside a box.



5. Observe the condition of the plants after two weeks. Record your observation in the table as shown below.

Plant	Sunlight	Water	Air	Observation after two weeks
A	✓	x	✓	
B	✓	✓	✓	
C	✓	✓	x	
D	x	✓	✓	

Question

The growth of plant  is the best because it has sufficient basic needs such as , , and .



I Investigate

>> 2

Investigate Nutrient Requirements of Plants

Apparatus and Materials



fertilizer

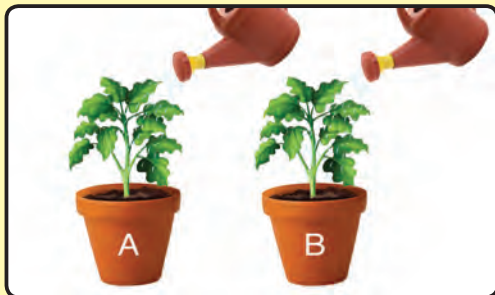


two plants of the same type and size



Group Activity

Steps





1. Place plants A and B outside the classroom. Water the plants every day.



2. Pour liquid fertilizer into pot A.



3. Observe the condition of the plants after two weeks. Record your observation in the table as shown below.

Plant	Nutrient	Observation
A	✓	
B	x	

What conclusion can you make from the investigation?

Question

The growth of plant  is better because it gets .



Water, air, and sunlight are basic needs of plants. Nutrients help plants to grow and stay healthy.

Science Recreation

Grass Egg Head

1. Break the top part of an egg. Remove the content.
2. Wash and dry the shell.
3. Draw a nose, eyes, and lips on the shell.
4. Insert cotton balls into the shell. Add some grass seeds.
5. Water the seeds daily. Place the grass egg head at one corner of the house with sunlight.



I Remember

1. Plants are important because they provide:
 - habitat
 - air to breathe
 - food
 - medicine

Teacher's Notes

- Grass seeds are available at convenience stores or garden nurseries.



2. Basic needs for seeds to germinate:

water

air

suitable temperature

3. When plants grow, they increase in:

- number and size of leaves
- height of the plant
- circumference of the stem

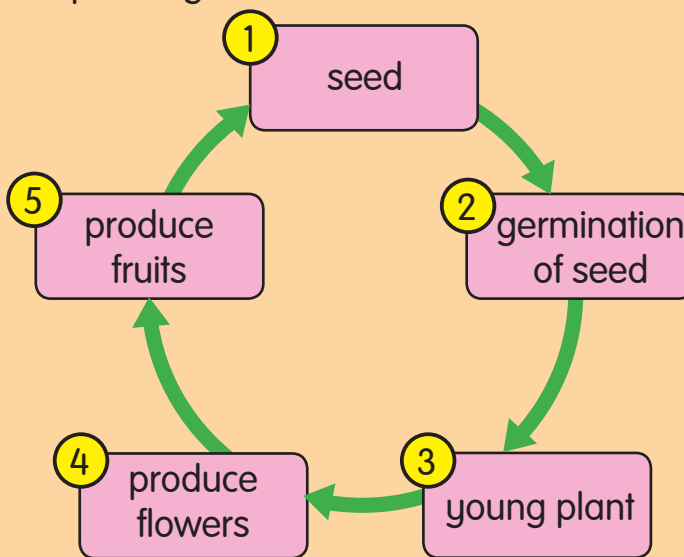
4. Basic needs for a plant's growth:

water

air

sunlight

5. Stages of a plant's growth:



I Answer

Answer all the questions below in your Science exercise book.

1. What is the importance of plants to humans and animals?
2. State the basic needs for the germination of seed.
3. Observe the growth stages of a sunflower plant. Arrange the growth stages in the correct sequence.

A



B



C



D



4. What are the changes that can be observed in a plant's growth?
5. State the basic needs for a plant's growth.
6. Arrange the growth stages of a coconut plant in the correct sequence.

A



young plant

B



germination of seed

C



seed

fruit

D



produce fruits

E




produce flowers



Unit 6

LIGHT AND DARK

A woman wearing a blue hijab and a light blue long-sleeved shirt is standing in a forest at night. She is holding a torchlight and shining it on a tree trunk. She is wearing a headlamp. A young boy in a yellow shirt and blue pants is standing next to her, also holding a torchlight. He is looking down at a small container he is holding. The forest is dark with tall trees and some foliage. In the background, there are mountains and a rainbow in the sky.

Mum, my torchlight is getting dim.

Maybe the batteries are weak. We will change them later.

What are the lady and her son doing?
Why do they need the torch?



Sources of Light

Light is an important requirement in our lives. Light is obtained from various sources such as the sun, lamps, and fire.

The Sun

During the day, the sun is the main source of light. Sunlight is a natural source of light.



The sun is not visible at night. Lamps and fire give light to dark areas.

Lamps

There are many types of lamps such as street lamps, car lamps, and home lamps.

Fire

Light can also be obtained from fire, such as the flame of a candle, an oil lamp, and a torch.



HOTS

Can fireflies be a source of light? Why?





Light and Dark

We can easily do activities in a lighted area. How can an activity be done in a dark area?



I Investigate

Investigate Which Activity is Faster

Apparatus and Materials



box A



box B

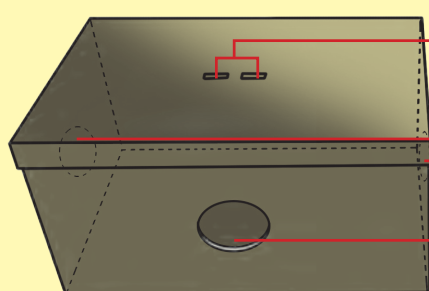


torch



2 sets of number cards

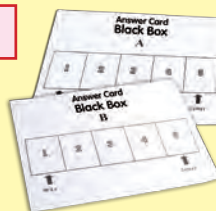
How to make a black box:



peepholes

holes for hands

hole for torch (box A only)



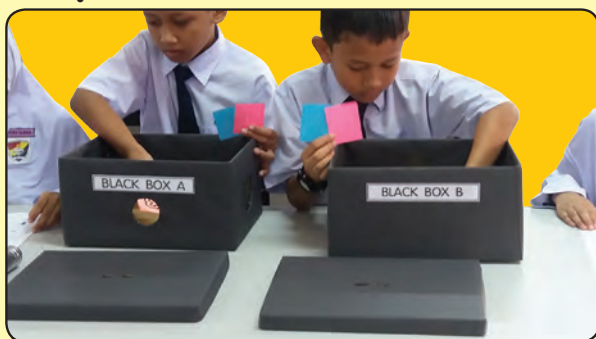
2 answer cards



glue

Paired Activity

Steps



1. Scatter a set of number cards inside each black box. Then, close the boxes.

Teacher's Notes

- Prepare black box A, black box B, and answer cards before the activity.

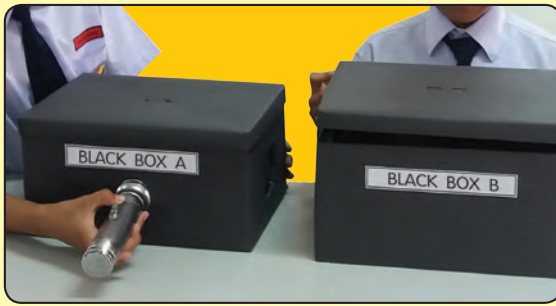
6.1.2



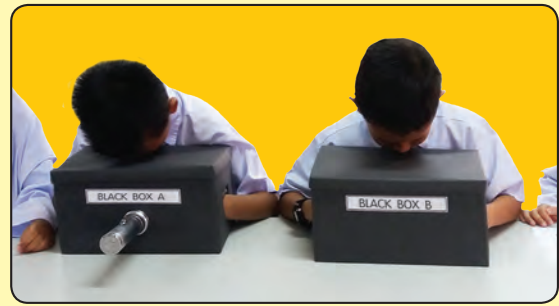
Activity Book

Pages:

38-40



2. Fix the torch to box A only.



3. Observe the number cards from the peepholes.





4. Pick the number cards in the correct sequence simultaneously. Hand it over to a friend. If it is correct, paste it on the answer cards. If it is incorrect, put the card back into the box.



5. Repeat step 4 until all the number cards are pasted on the answer cards.

6. Record your observation in the table as shown below.

Black box	Time to paste number cards (fast/slow)
A	
B	

Questions

1. Which answer card was completed earlier?
2. Which answer card was completed later?
3. Why is there a time difference in completing the answer cards in the two situations above?



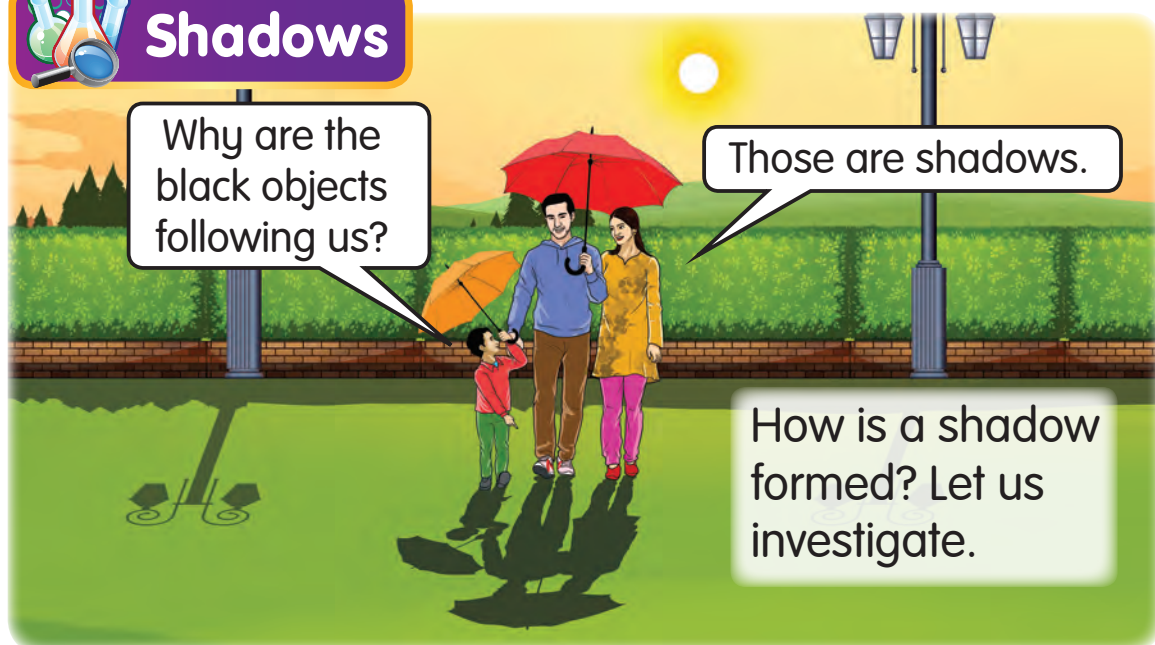
HOTS

Is light important to humans? Why?





Shadows



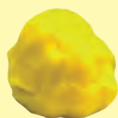
I Investigate

>> Produce a Shadow

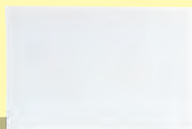
Apparatus and Materials



torch



clay



white card



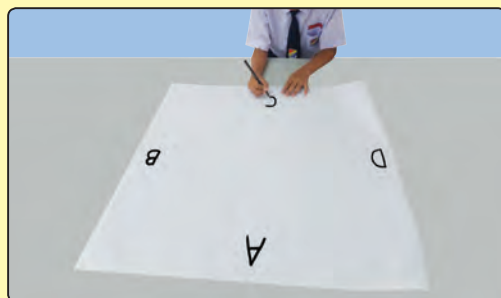
model of
an animal
(object)



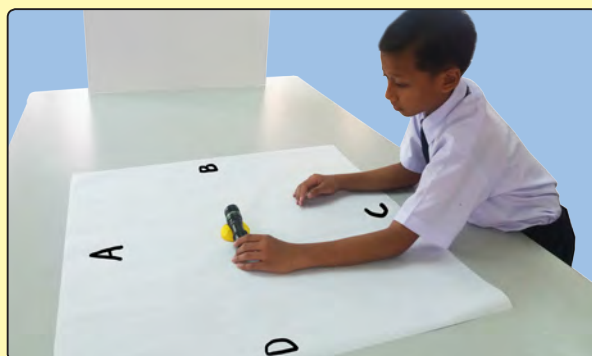
mahjong paper

Individual Activity

Steps



1. Mark A to D on the mahjong paper.



2. Place a torch on the clay in the middle of the mahjong paper.

Teacher's Notes

- Search on YouTube videos on shadow formation.

Activity Book

Page:

41

6.1.3



3. Switch on the torch. Place the model of the animal (object) in position A. Observe the screen.
4. Move the model of the animal (object) to positions B, C and D.
5. Record your observation in the table as shown below.

Position of model (object)	Shadow (Formed/Not formed)
A	
B	
C	
D	

Question

At which position of the object is the shadow formed?

A shadow is formed when light is blocked by an object.



Clarity of Shadows

Is a shadow formed when light is blocked by a plastic book wrapper?



I Investigate >> **Observe the Clarity of Shadows**

Apparatus and Materials



white card



torch



pencil



skewer



scissors





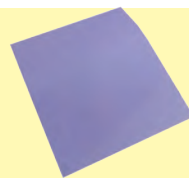
adhesive tape



plastic sheet



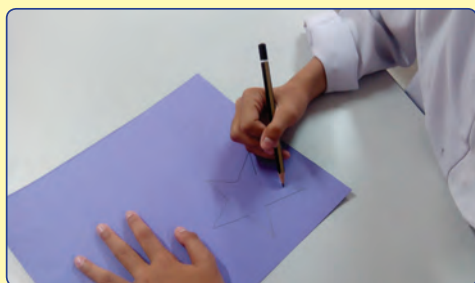
tracing paper



thick paper

Paired Activity

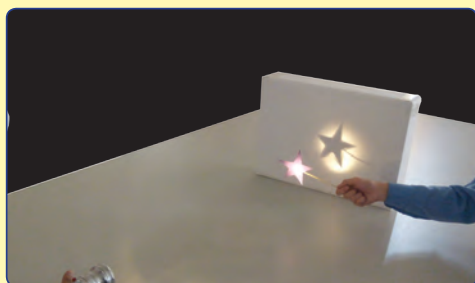
Steps



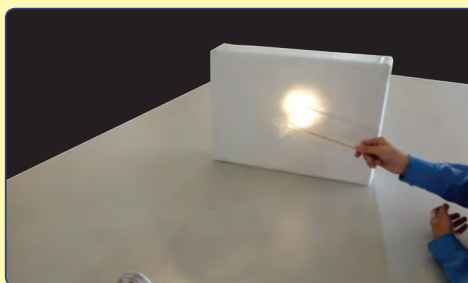
1. Draw the shape of a star on a piece of thick paper.



2. Cut and paste it on a skewer.






3. Flash the light on the star. Observe the shadow formed.



4. Repeat steps 1 to 3 using a plastic sheet and tracing paper.

5. Record your observation in the table as shown below.

Object	Clarity of Shadows (Clear/Less clear/No shadow)
Plastic sheet	
Tracing paper	
Thick paper	

Question

Which object produced the clearest shadow? Why?





The Shadow Play

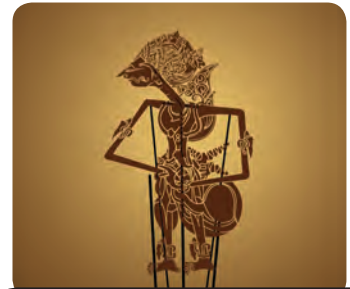
The most popular shadow play is *wayang kulit*. Have you ever seen *wayang kulit*?



Notice the shadows formed on the white screen during the *wayang kulit* show.



object of character



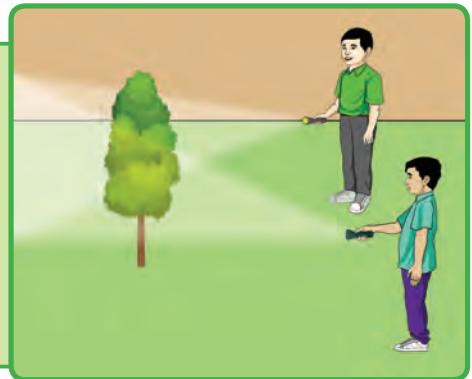
shadow of character

In the shadow play, the shadow of the character is similar to the object of the character. The shadow is clear because the object of the character does not allow light to pass through.



HOTS

Amin and Khairul are flashing light onto a tree from different directions. How many shadows of the tree are formed? Why?



Teacher's Notes

- Search on YouTube videos on *wayang kulit*.

6.1.5
6.1.6

Activity Book

Pages:

43-44



Create a Paper Puppet Play

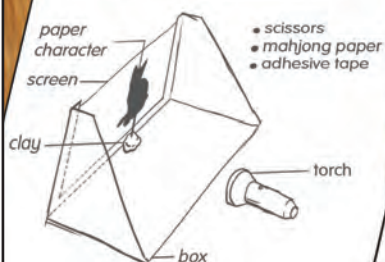
Wow! The *wayang kulit* was very interesting.

Yes. We can create a play just like *wayang kulit* too.

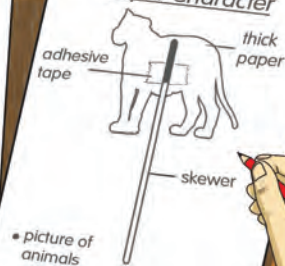
Let's plan our paper puppet play.



Paper Puppet Stage



Paper Character

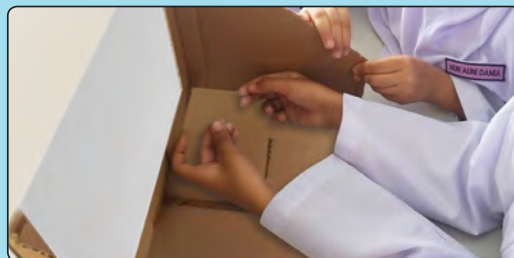


We must build a stage using a box and use puppets as the characters.

Let's do it.



1. Cut the front, back, and top of the box to build a mini stage.



2. Paste the white paper as a screen at the front of the cut box.



3. Trace pictures of animals and cut them.



4. Stick the paper characters to the skewers.





5. Poke the paper characters into the clay.



6. Switch on the torch and start the play.



HOTS

Create your own shadow play.



Science Recreation

Hand Shadow Play

Various shadows can be formed using your hands. Produce the shadows below using light from a torch.

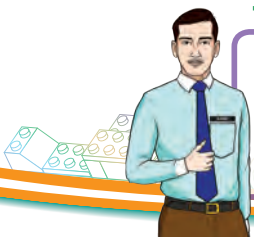


I Remember

1. The examples of sources of light are the sun, fire, and lamps.
2. The sun is a natural source of light.
3. An activity can be carried out easily in a bright area.
4. In the dark, we need light to carry out activities.
5. Shadow is formed when light is blocked by an object.
6. The clarity of shadows depends on the objects used.
7. *Wayang kulit* and hand shadow play are examples of interesting shadow games.

Teacher's Notes

- Search on YouTube videos on interesting hand shadow play.





I Answer



Answer all the questions below in your Science exercise book.

1. Fill in the blanks with the correct answers.

sun

objects

fire

light

lamps

a) The sources of light are the _____, _____, and _____.

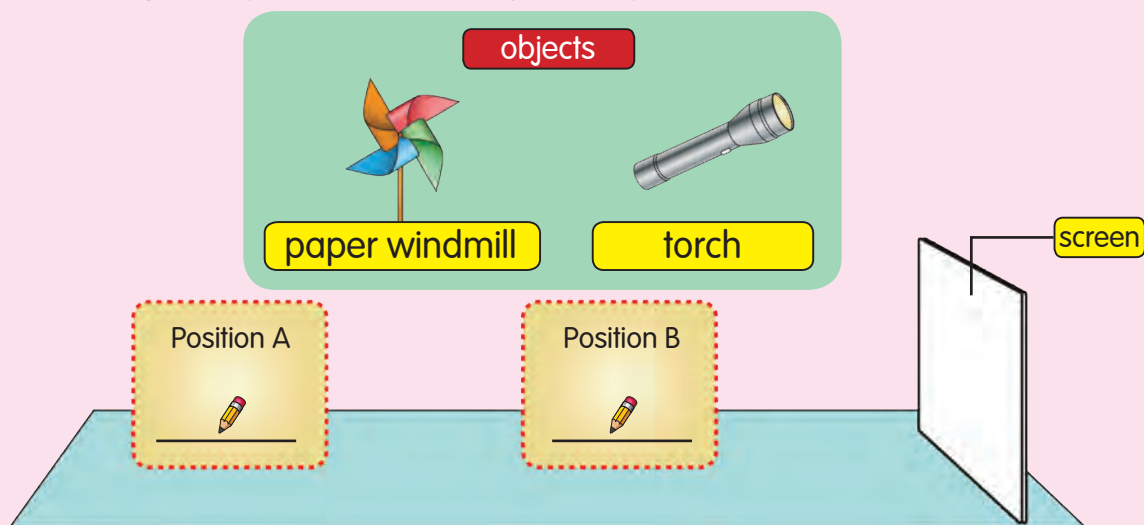
b) A shadow is formed when _____ is blocked by an object.

c) The clarity of shadows is influenced by the type of _____ that blocks the light.

2. a) It is (easy/difficult) to do activities in lighted areas.

b) It is (easy/difficult) to do activities in dark areas.

3. Arrange the position of the objects to produce a shadow on the screen.



4. State the clarity of shadows formed when light passes through the objects below:

Object	Clarity of shadows (Clear/Less clear)
Tracing paper	_____
Pencil	_____
Glass	_____
Frosted glass	_____
Steel ruler	_____



HOTS

Light is needed for our daily activities. Why is it so?



Unit 7

ELECTRICITY

Wow! Those colourful flashing lights are so beautiful.

Father, how does the carousel move?

Electricity enables the bulbs to light up and the carousel to move.

What will the situation at this funfair be if there is no electricity?



Identifying the Electrical Components

We can build an electric circuit by using these electrical components.



dry cell



bulb



switch

dry cell holder

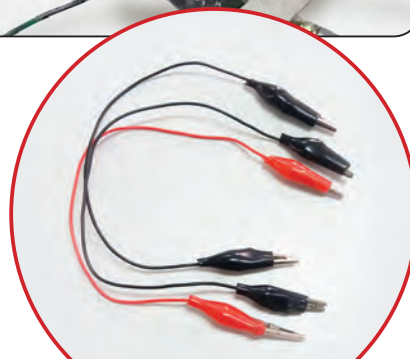
The dry cell should be installed in a dry cell holder and connected to the correct terminals.



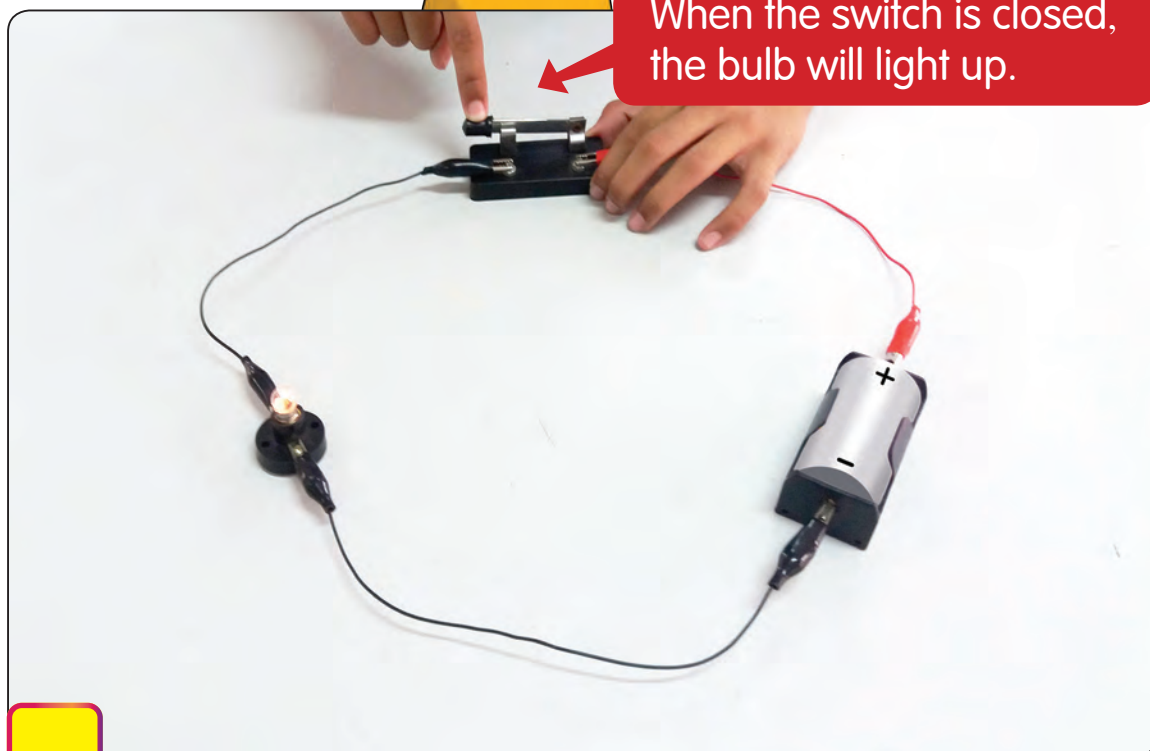
The bulb should be fastened onto the bulb holder correctly.



Wire is used to connect each electrical component into a complete circuit.



connecting wires

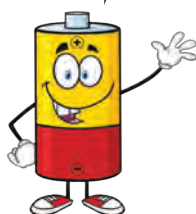




Functions of the Electrical Components

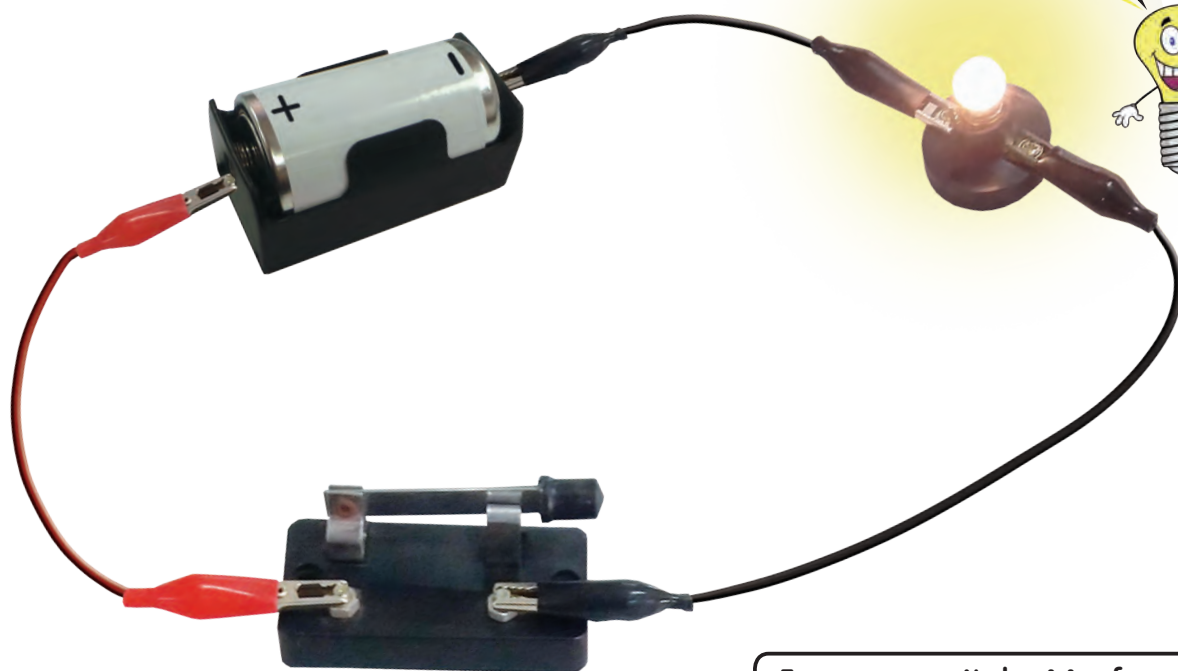
Electrical components have their own functions. Let's see what their functions are.

I am a dry cell. My function is to supply electrical energy.



Bulbs are easily broken because they are made of glass.

I am a bulb. My function is to produce light.



I am a switch. My function is to complete and break an electric circuit.

Teacher's Notes

- The bulb can be replaced with a buzzer using a suitable dry cell. The function of a buzzer is to produce sound.

7.1.2



Activity Book

Page:

47



Building an Electric Circuit

We can build a simple electric circuit by using electrical components and connecting wires.



I Investigate >> Junior Engineer

Apparatus and Materials

- bulb and bulb holder
- connecting wires
- dry cell and dry cell holder
- switch

Paired Activity

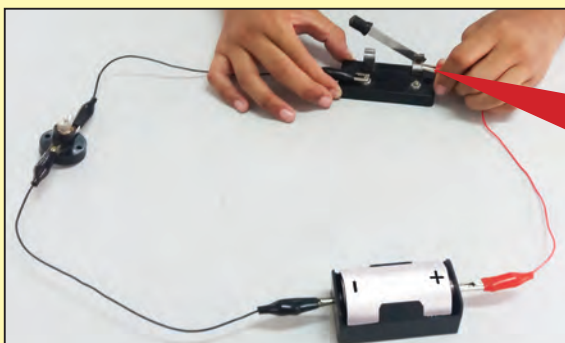
Steps



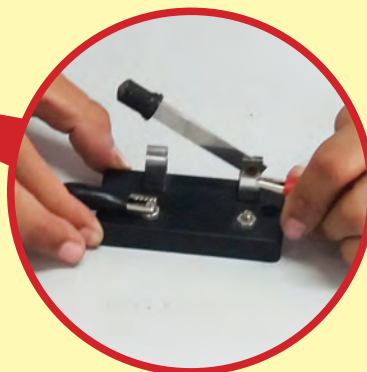
1. Fasten the bulb onto a bulb holder.

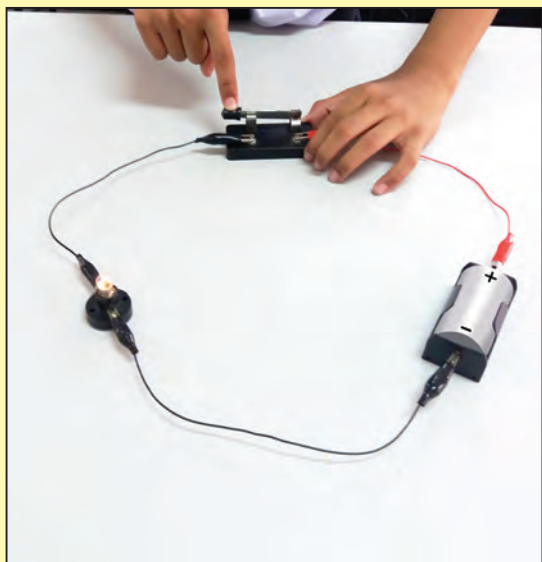


2. Install the dry cell in a dry cell holder.

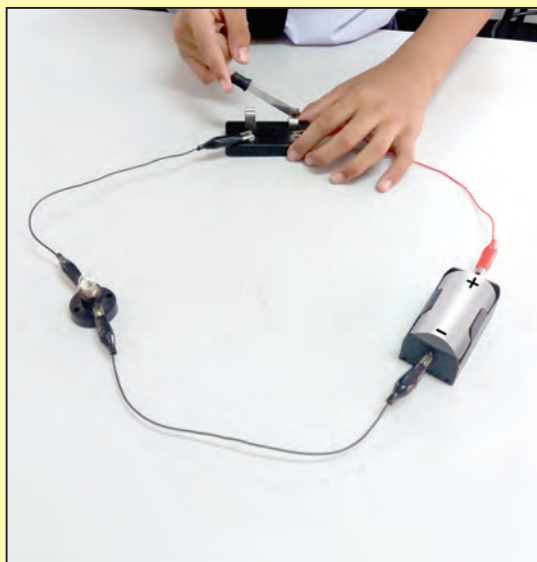


3. Complete the circuit by connecting all components using the connecting wires.







4. Close the switch and observe the bulb.



5. Open the switch and observe the bulb.

Questions

1. Why does the bulb light up when the switch is closed?
2. Why doesn't the bulb light up when the switch is opened?
3. The bulb will light up when the switch is . The bulb does not light up when the switch is .



HOTS

What will happen to the brightness of the bulb if the circuit is left complete for one day? Why?



Let's Think

List three electrical components that need to be connected using connecting wires to build a complete electric circuit.

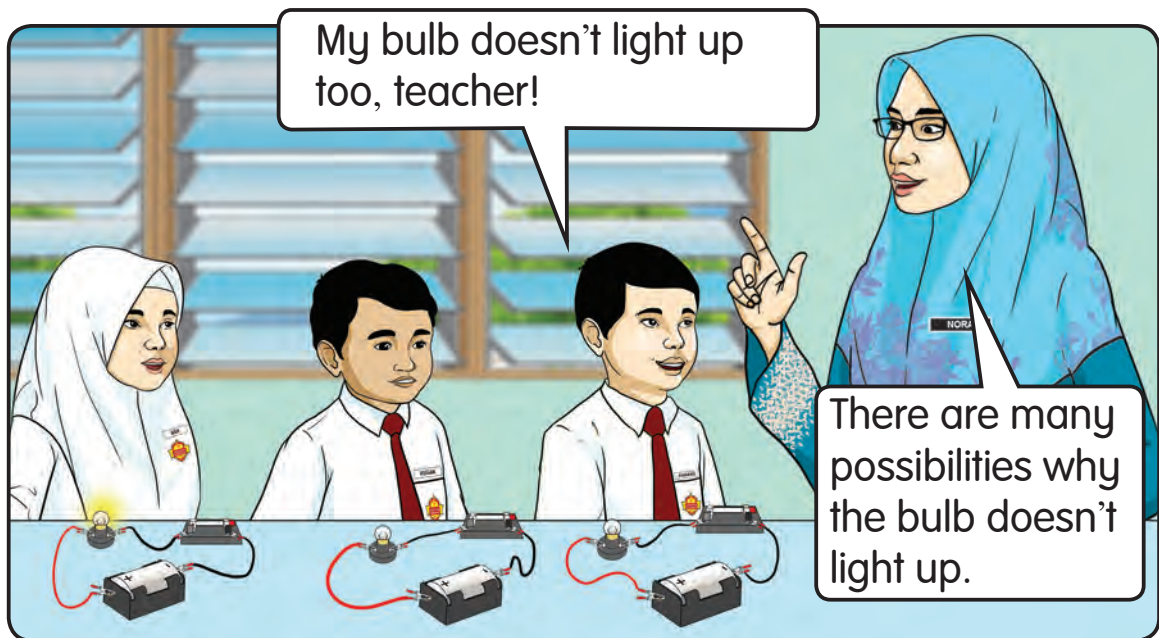
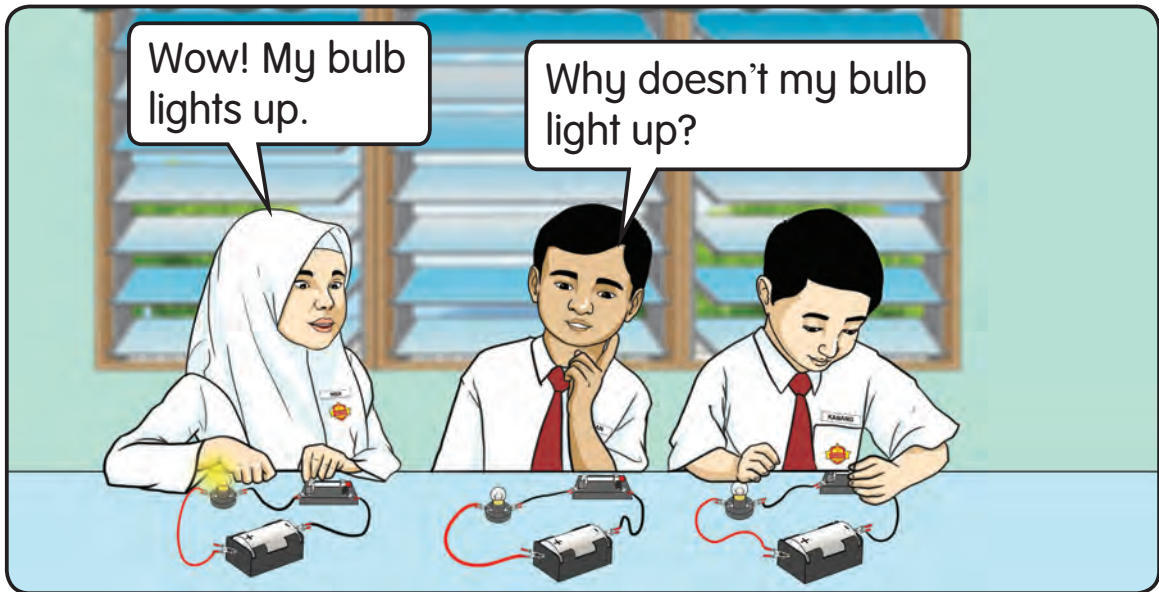
Teacher's Notes

- A closed circuit is a complete circuit.





Why Doesn't the Bulb Light Up?



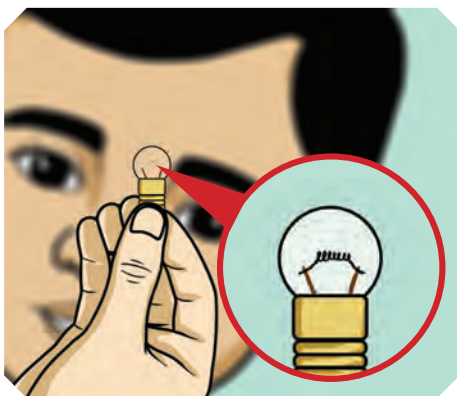
If the bulb does not light up in a complete circuit, the reason could be an opened switch, dry cells which lack of energy or a damaged bulb.

Oh! Perhaps my bulb is damaged.



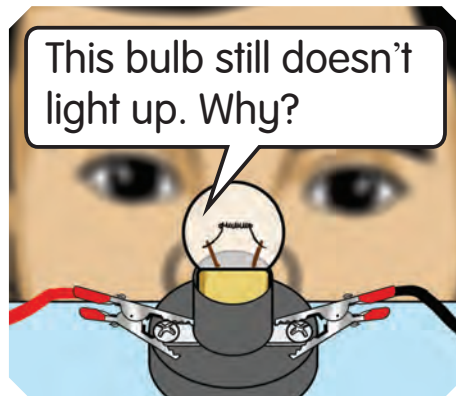
1

Kugan checks the bulb.



2

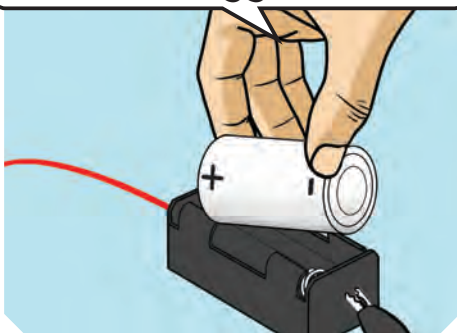
Kugan changes the bulb but the new bulb does not light up.



3

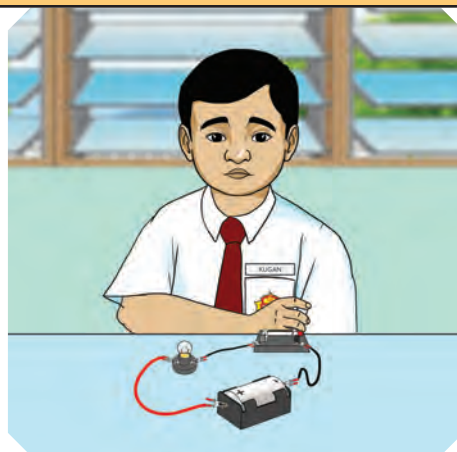
Kugan replaces the dry cell.

Maybe the old dry cell is lack of energy.



4

The bulb still does not light up.



HOTS

Predict why the bulb in Kugan's complete circuit does not light up.





Pupils, the reasons why the bulb doesn't light up could be because the bulb is not properly fastened onto the holder or the wire connections on the electrical components are not connected.



Conductors and Insulators

The bulb will light up when the switch is closed because the electric current flows in a complete circuit.

What happens to the bulb if the switch is replaced with other objects or materials? Let's investigate.



I Investigate

Replacement Switch

Apparatus and Materials

- bulb
- dry cell
- connecting wires



rubber



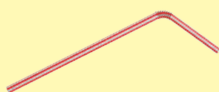
paper clip



metal spoon



handkerchief



straw



ice cream sticks



coins



glass rod

7.1.5
7.1.6
7.1.7



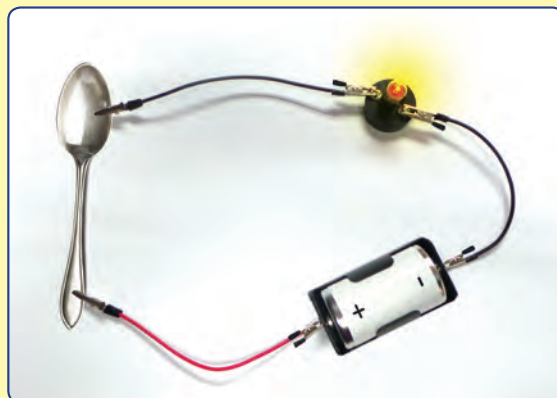
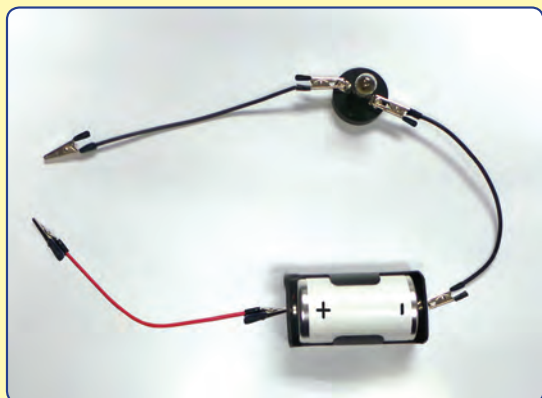
Activity Book

Pages:

51-54

Paired Activity

Steps



1. Build a circuit such as the above. 2. Test every object in the circuit.
3. Observe the bulb.
4. Record your observation in the table as shown below.

No.	Object	Bulb lights up/Bulb does not light up	Conductor/ Insulator
1	Rubber		
2	Paper clip		
3	Straw		
4	Glass rod		
5	Metal spoon		
6	Ice cream stick		
7	Handkerchief		
8	Coin		

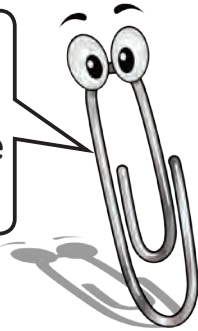
5. List the objects that can light up the bulb.



Questions

1. List the objects that can replace the switch to light up the bulb.
2. List the objects that cannot replace the switch to light up the bulb.

I'm a paper clip. I allow electric current to flow through me because I'm a conductor.



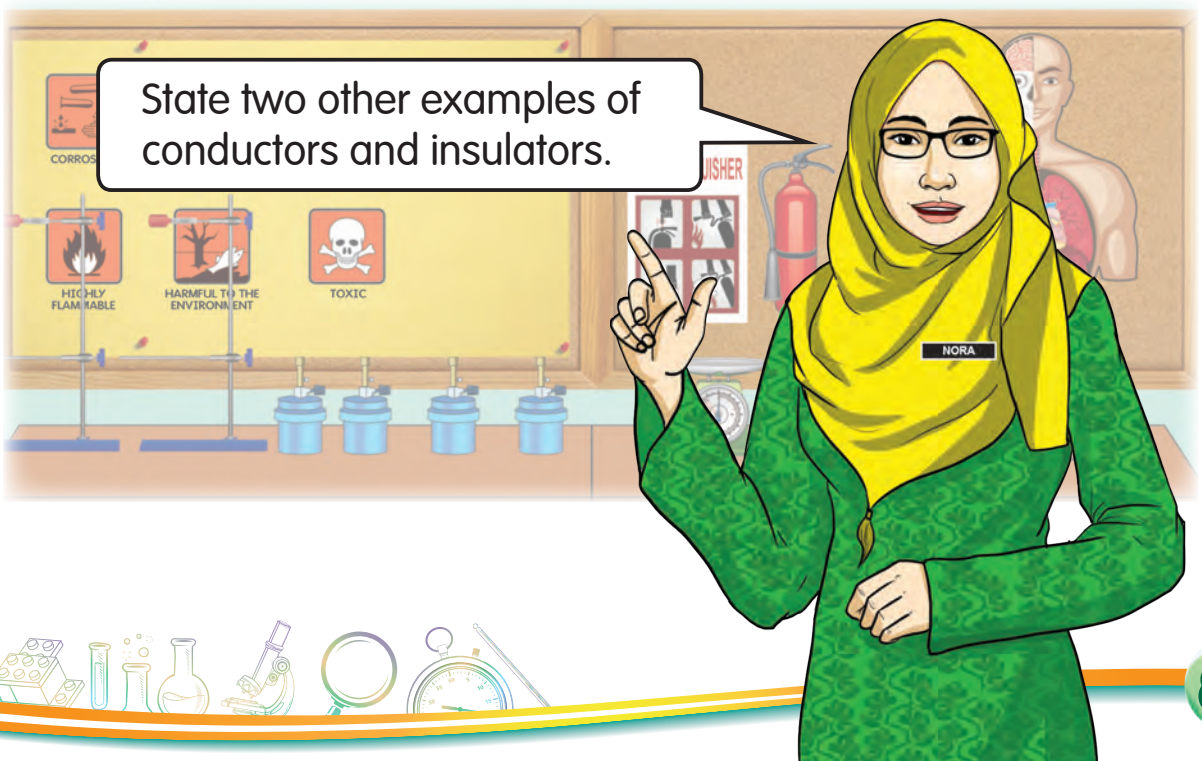
A conductor is a material that allows electric current to flow through it.

I'm a rubber. I don't allow electric current to flow through me because I'm an insulator.



An insulator is a material that does not allow electric current to flow through it.

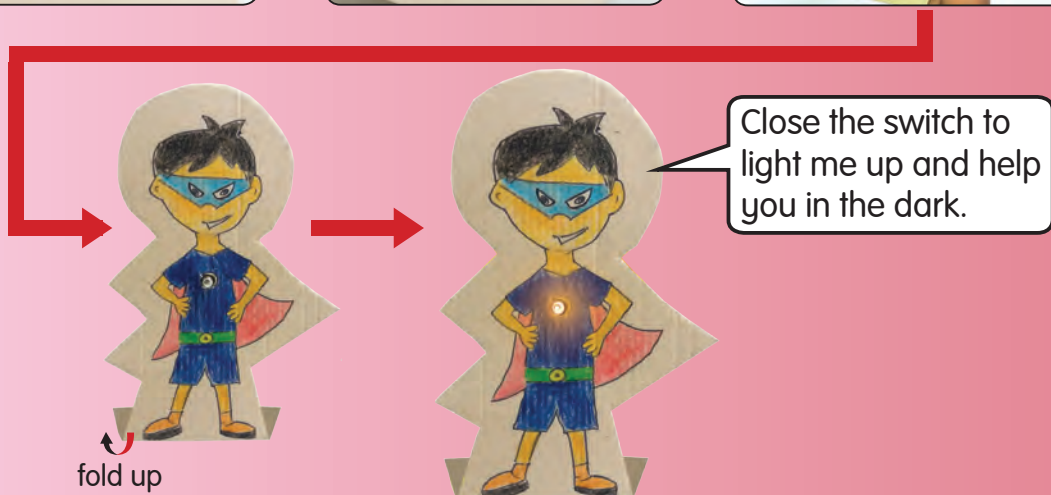
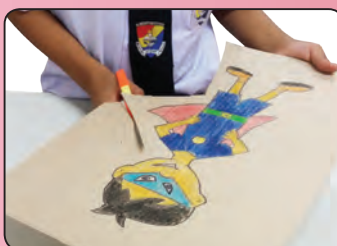
State two other examples of conductors and insulators.





My Superhero

Create a superhero using electrical components and recycled materials such as a paper box.



fold up



I Remember

1. Electrical components.



dry cell



bulb



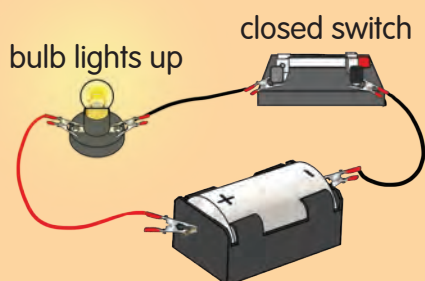
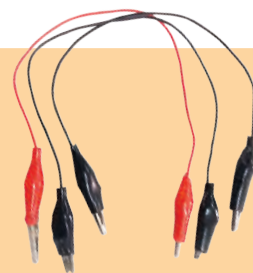
switch

2. Functions of the electrical components:

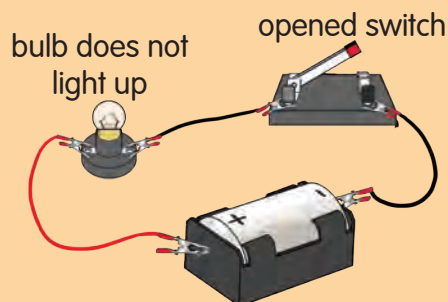
- dry cell – to supply electrical energy
- bulb – to produce light
- switch – to complete and break the electric circuit



3. A bulb, a switch, a dry cell, and connecting wires are used to form a complete circuit.
4. Complete and incomplete circuits.



complete circuit



incomplete circuit

- The switch is closed.
 - The switch is opened.
5. The bulb does not light up because:
 - the bulb is damaged
 - the dry cell is out of energy
 - the bulb is not fastened properly onto the bulb holder
 - the wire is not connected correctly to the electrical components
 - the switch is opened
 6. A conductor is an object that allows electrical current to flow through it. Examples of conductors are a metal spoon, nails, and coins.
 7. An insulator is an object that does not allow electrical current to flow through it. Examples of insulators are cloth, rubber, and plastic.



I Answer

Answer all the questions below in your Science exercise book.

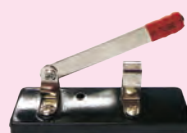
1.



dry cell



bulb

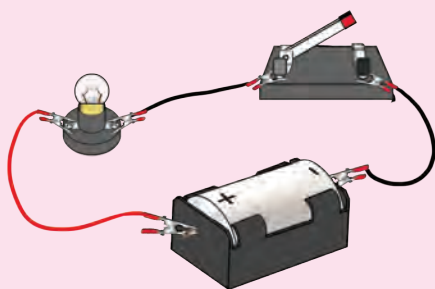


switch

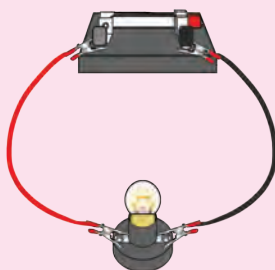
- a) Which component supplies electrical energy?
- b) What is the function of the switch?



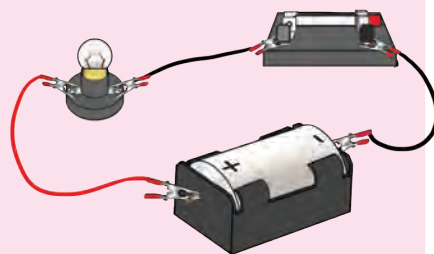
2. Observe the circuits below.



Circuit A



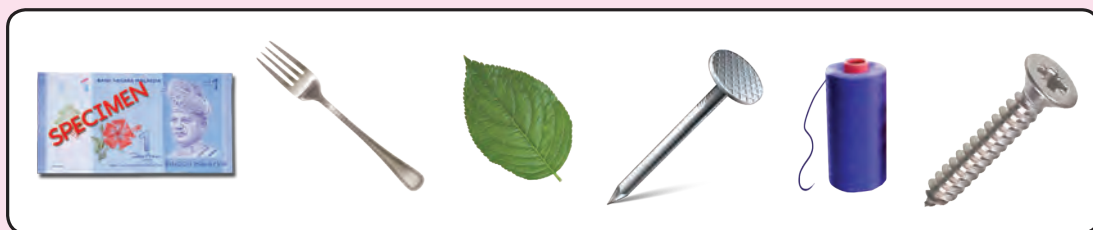
Circuit B



Circuit C

- Which bulb lights up? Why?
- Which bulb does not light up? Why?

3. Classify these objects and complete the table.



Electrical conductors	

Electrical insulators	

- An electrical conductor is .
 - Examples of electrical conductors are , , and .
- An electrical insulator is .
 - Examples of electrical insulators are , , and .



Unit 8

MIXTURE

1



2



3



Why do the materials in the mixtures need to be separated?





Methods to Separate a Mixture

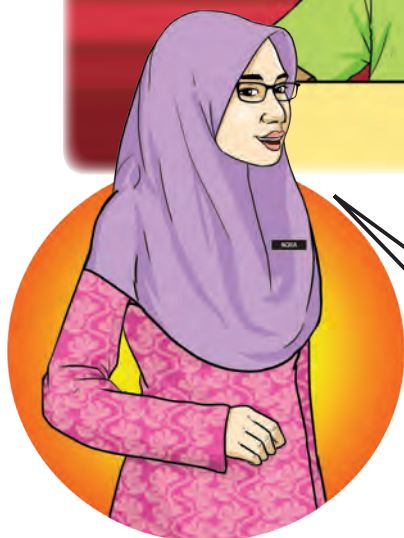


Look at this mixture.
It is a mixture of *muruku* and nuts.



I like *muruku* but I do not like nuts.

I like nuts!



How would Kugan and Kanang separate the mixture of *muruku* and nuts?

We can separate various materials in a mixture using different methods.

Teacher's Notes

- A mixture contains two or more materials that are mixed together.

8.1.1

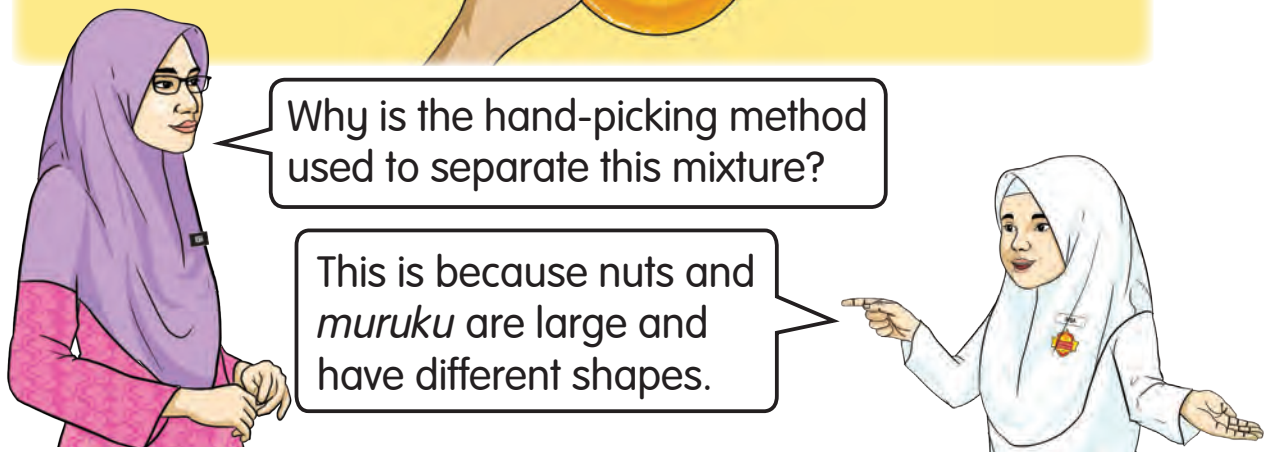


Activity Book

Page:

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Kugan and Kanang can separate the mixture of *muruku* and nuts by using the hand-picking method.



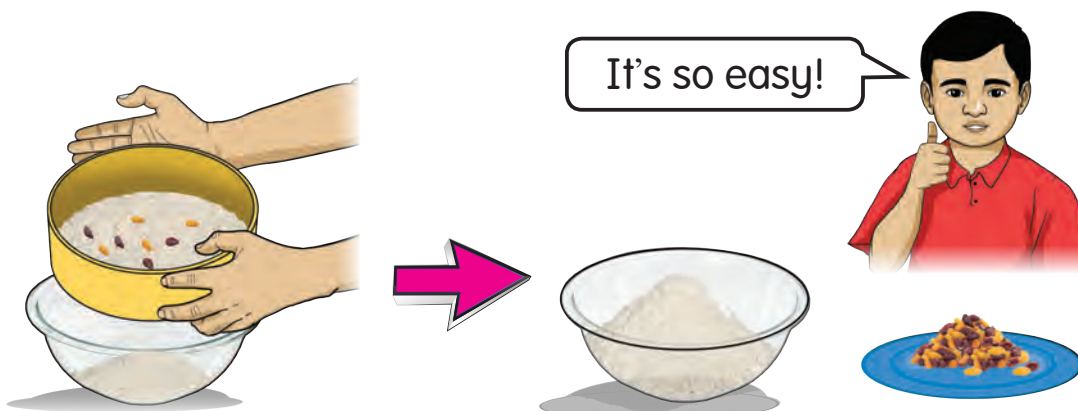
Do you know how to separate the other mixtures?



Suddenly, his brother adds some raisins into the flour.

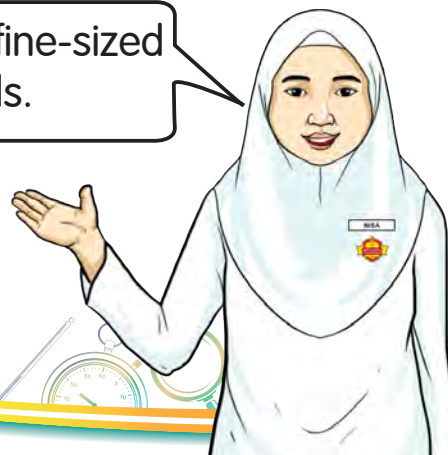


How can Kugan separate a mixture of raisins and flour?



Kugan separates a mixture of flour and raisins using the sieving method. Why did Kugan choose that method?

The sieving method can separate fine-sized materials and large-sized materials.

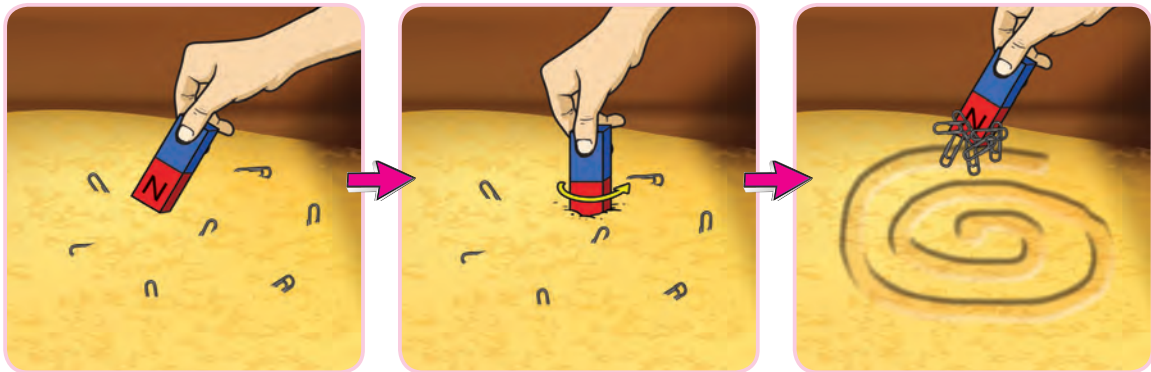


Situation 2



How can Kanang separate his paper clips from the sand?

Kanang can separate the mixture of paper clips and sand using a magnet.



Why did he use a magnet?

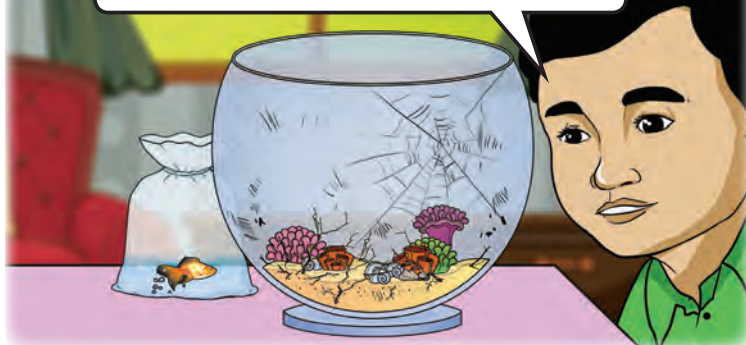


Situation 3

I can't wait to rear this goldfish.



Oh, this old aquarium is so dirty. There is a lot of sand and wood debris inside.

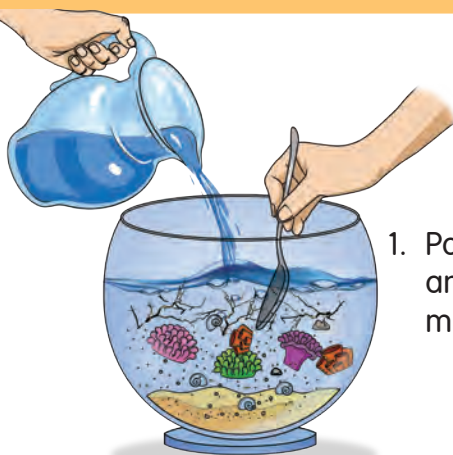


How can we separate a mixture of sand and decayed wood debris?

We can separate this mixture using the floatation method.



Yes. Wood debris can float in water.



1. Pour water and stir the mixture.



2. Separate the wood debris.



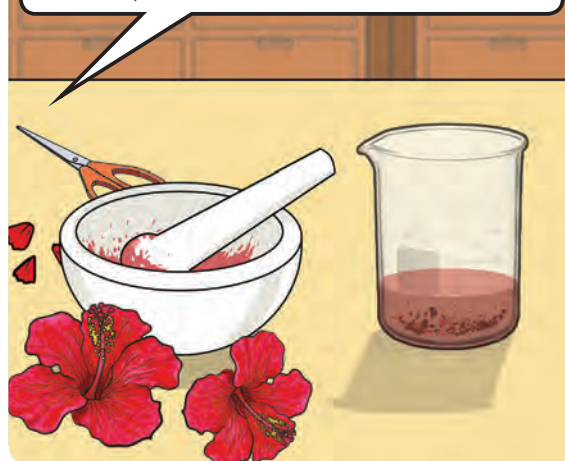
Situation 4

This investigation needs a coloured liquid from hibiscus petals.

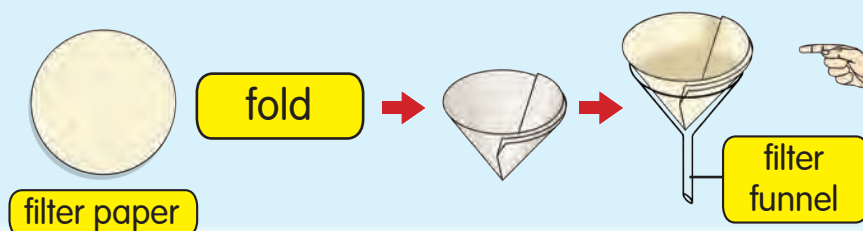


How do we produce this liquid?

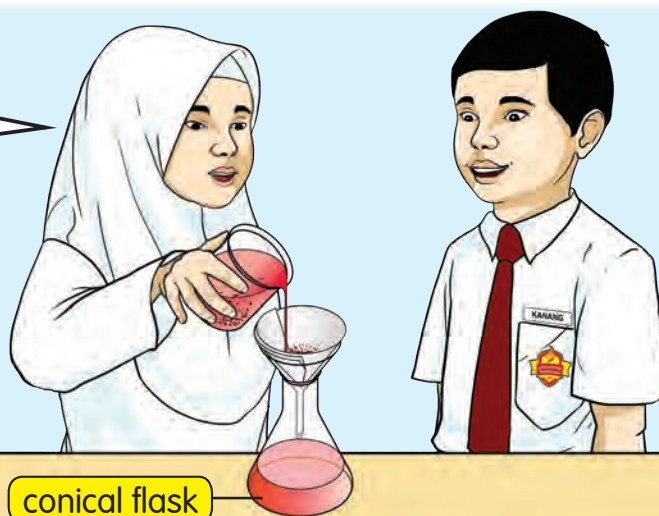
Pound the hibiscus petals and dissolve them in water. Then, filter them.



After that, filter the mixture using a filter paper into a conical flask.



Pieces of hibiscus petals will remain on the filter paper. Coloured liquid will be collected in the conical flask.



Why do you separate this mixture using the filtration method?



Using the filtration method, solid materials can be separated from liquid materials.

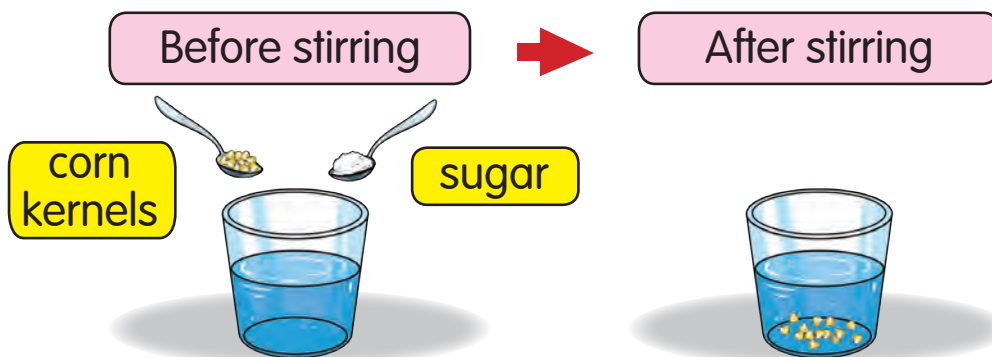


A mixture can be separated using the hand-picking method, the sieving method, magnetic attraction, floatation method, and the filtration method.



Soluble and Insoluble Materials

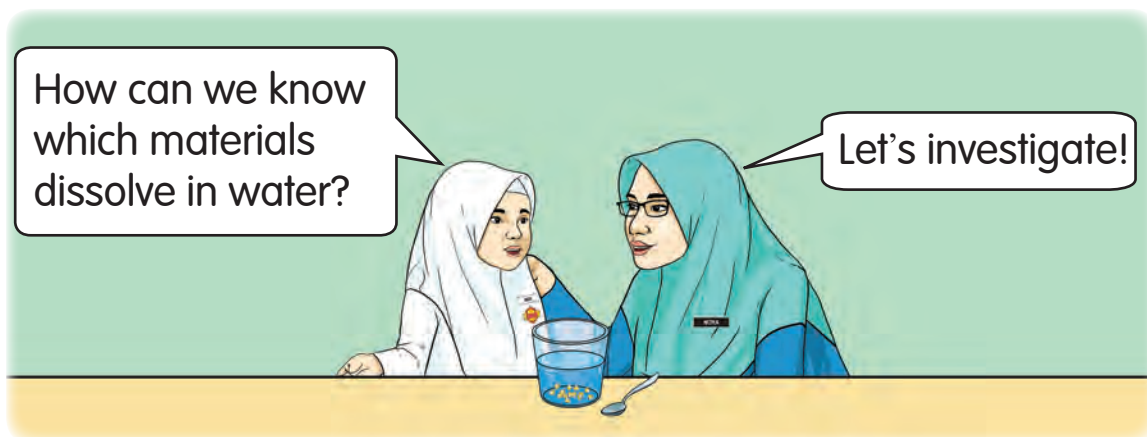
Nisa adds two materials into a glass of water and stirs.



Eh! Where is the sugar? Why are the corn kernels still visible?

The sugar is still there, but it has dissolved in the water. The corn kernels are still visible because they don't dissolve in the water.

Some materials **can dissolve in water** such as sugar.
Some materials **cannot dissolve in water** such as corn kernels.



I Investigate >> Stirring a Mixture

Apparatus and Materials

- water
- 3 labelled beakers
- glass rod



1 teaspoon of salt



1 teaspoon of green beans



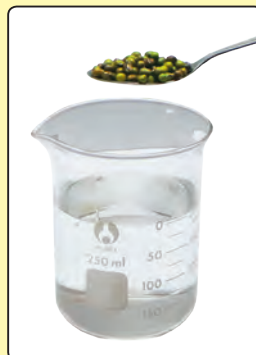
1 teaspoon of rice

Group Activity

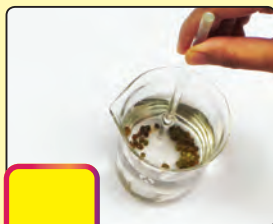
Steps



1. Pour 200 ml of water into each beaker.



2. Add salt into beaker A, green beans into beaker B, and rice into beaker C.



3. Stir the water in each beaker and observe the changes.







8.1.3

Activity Book




Page:

61

4. Record your observation in the table as shown below.

Beaker	Materials	Visible/Not visible	Dissolve/ Do not dissolve
A	Salt		
B	Green beans		
C	Rice		

Question

 dissolves in water.  and  do not dissolve in water.



Materials That Dissolve More Quickly

Situation I



Which water can dissolve sugar more quickly?




I Investigate

>> 1

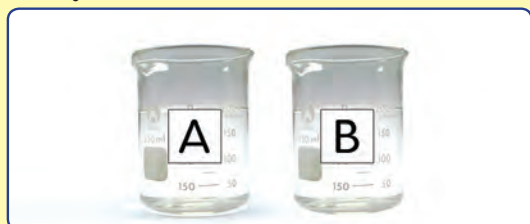
Investigating the Solubility of Sugar in Hot and Cold Water

Apparatus and Materials

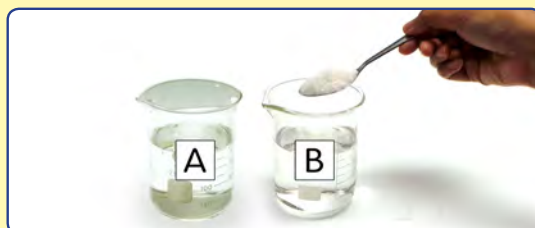
- cold water
- hot water 
- 2 beakers
- sugar
- spoon
- glass rods

Group Activity

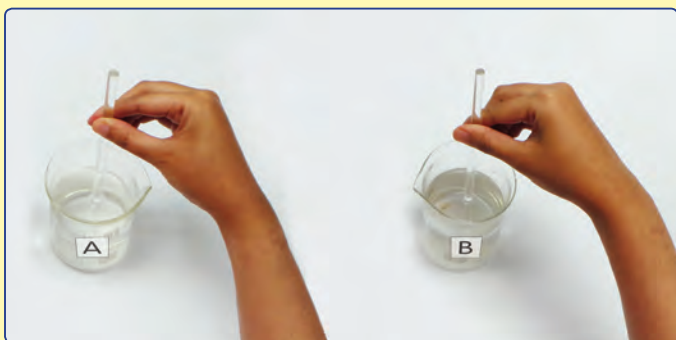
Steps



1. Pour 200 ml of cold water into beaker A and 200 ml of hot water into beaker B.



2. Add one teaspoon of sugar into each beaker.



3. Stir the water in both beakers at the same time.

4. Observe the sugar in beaker A and beaker B. Which dissolves first?

5. Record your observation.

Question

Materials can dissolve more quickly in _____ water than _____ water.

Situation 2



Why is the tea still not sweet even after sugar has been added?



I Investigate

2

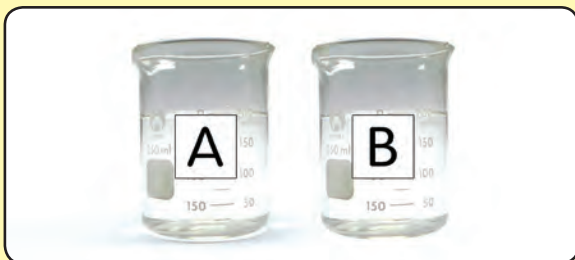
Investigating the Solubility of Sugar through Stirring

Apparatus and Materials

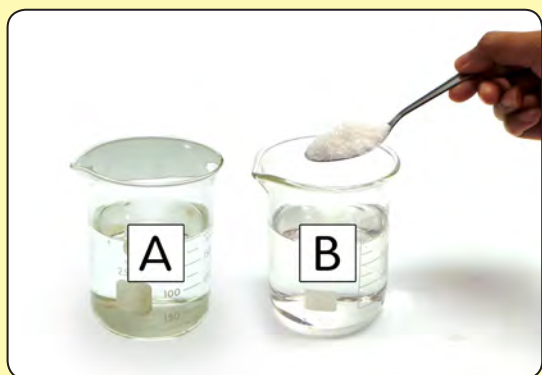
- water
- 2 beakers
- coarse sugar
- glass rod
- spoon

Group Activity

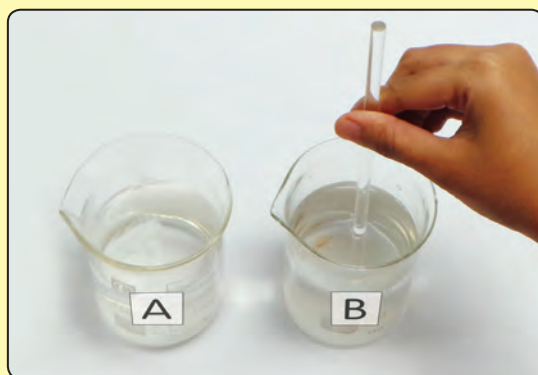
Steps



1. Pour 200 ml of water into each beaker.



2. Put one teaspoon of sugar into each beaker.
4. Record your observation.



3. Stir the water in beaker B only.

Question

Materials can dissolve more quickly in water if _____ (stirred/not stirred).

Situation 3



Why is this coffee still not sweet even though I've stirred it?



I Investigate

>> 3

Investigating the Solubility of Coarse Sugar and Sugar Cubes

Apparatus and Materials

- water
- 2 beakers
- spoons
- glass rods



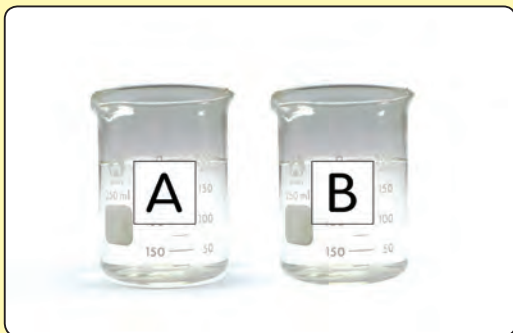
coarse sugar



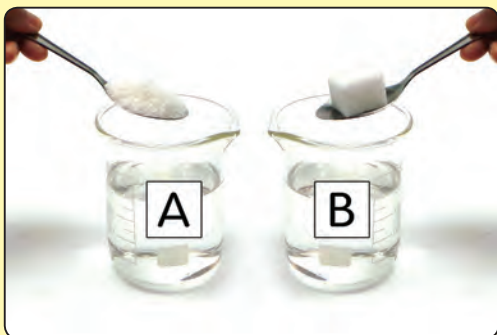
sugar cubes

Group Activity

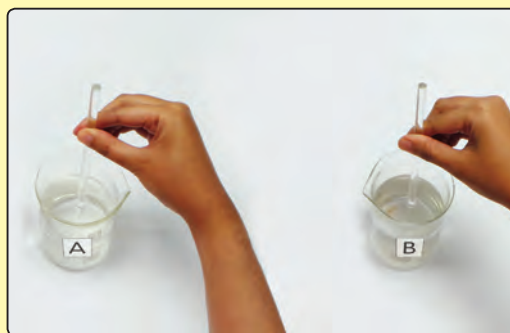
Steps



1. Pour 200 ml of water into each beaker.





2. Add one teaspoon of coarse sugar and one cube of sugar into each beaker.



3. Stir the water in both beakers at the same time.

4. Record your observation.

Question

 (Big/Small) sized materials dissolve more quickly than  (big/small) sized materials.

What can you conclude from the three investigations?

Materials can dissolve more quickly in hot water, when they are stirred, and when they are small in size.



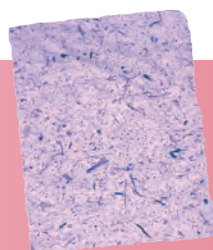
Science Recreation

Decorative Paper

Tear up a piece of recycled paper.

Blend it finely with some water in a blender.

Add a few drops of food colouring. Filter the mixture. Flatten and press the paper residue on a tray and leave it to dry. Remove the sheet of paper that has been formed. Create an attractive greeting card with your decorative paper.



I Remember

Methods to separate a mixture

Hand-picking	to separate two big-sized materials
Sieving	to separate fine-sized materials and large-sized materials
Magnetic attraction	to separate materials that can be attracted by a magnet
Floatation	to separate materials that can float from materials that sink
Filtration	to separate solid materials from liquid materials

Materials can dissolve more quickly when:

- using hot water
- being stirred
- it is small-sized



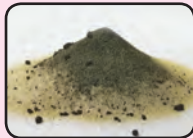
I Answer

Answer all the questions below in your Science exercise book.

1. Name suitable methods to separate the mixtures below.



paper clips and staples



iron powder and beach sand



corks and sand



green beans and flour

2. Tick (✓) the materials that can dissolve in water.



sugar



sand



salt



stone

3. State 3 methods to dissolve materials more quickly.



Unit 9

EARTH

Water and Air

Flowing of water in the river
Never stop (2X)
From where the source originated
Let's learn (2X)



Fresh air blowing (2X)
Its movement can be felt
Gives effect to the life
Let's investigate together



The air here
is so fresh.

Water and air are the basic sources of life.
Where does water originate from?



Natural Sources of Water

What are the natural sources of water on our earth?



Rain

Water droplets that fall to the earth from clouds.



Lakes

A large area of water that is surrounded by land.



Seas

A large part of the earth's surface that is covered with salt water.



The natural sources of water on our Earth are **rain**, **rivers**, **lakes**, **seas**, and **springs**.

Springs

A place where underground water flows out to the earth's surface.



Rivers

Rains that fall to the earth form streams of water called rivers.



HOTS

What would happen if there is no water on Earth?




I Investigate

Making a Bubble Map on Natural Sources of Water

Apparatus and Materials

- Pictures of natural sources of water from various media

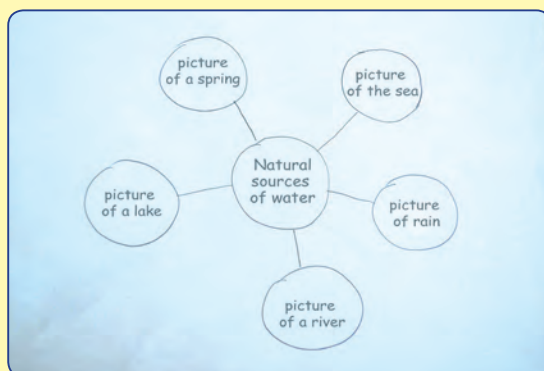
- scissors 
- coloured paper
- glue

Paired Activity

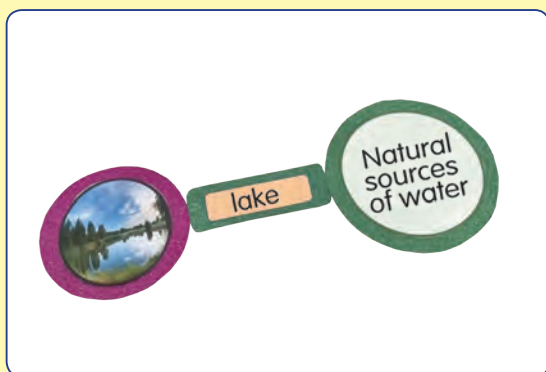
Steps



1. Collect pictures of natural sources of water.



2. Draft out your bubble map.



3. Paste the pictures accordingly to form a bubble map.



4. Share your bubble map with your classmates.

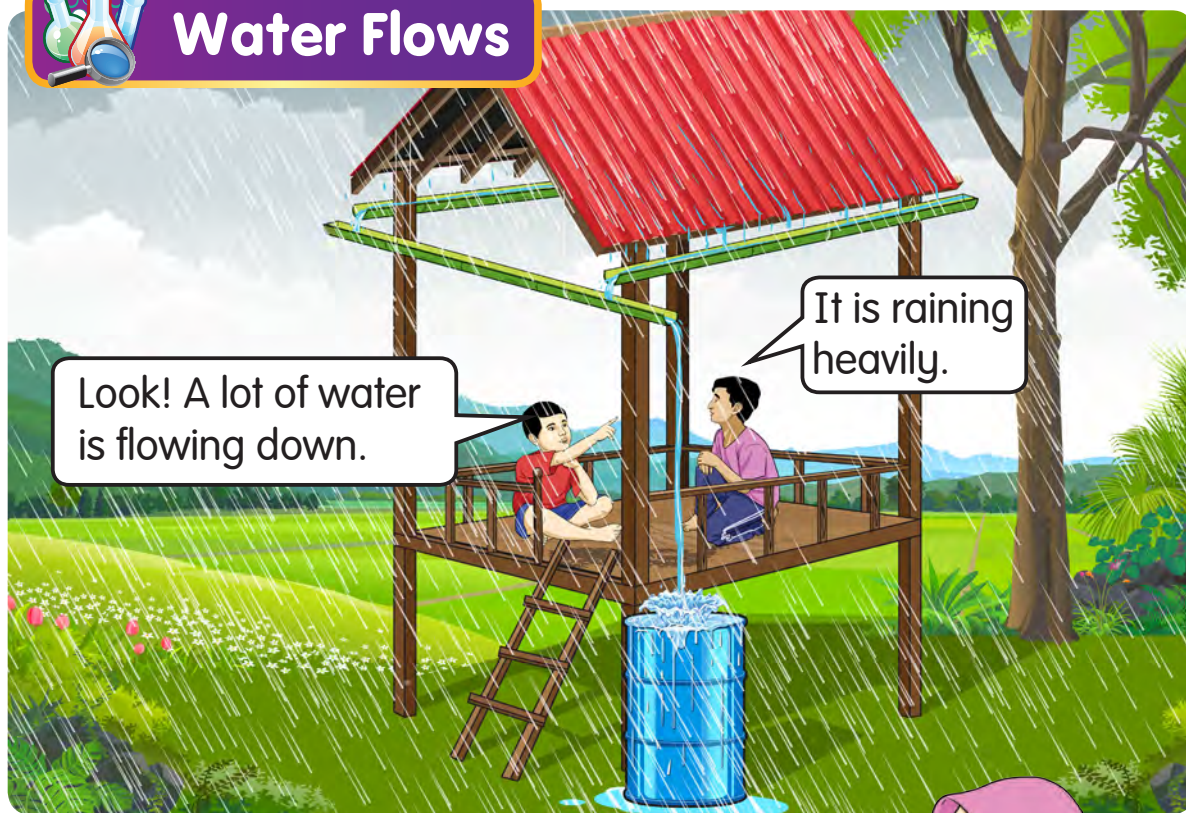
Question

State the natural sources of water on earth.





Water Flows



Look! A lot of water is flowing down.

It is raining heavily.

Do you know in which direction water flows? Let's investigate.



I Investigate



Investigate Direction of Water Flow

Apparatus and Materials



food colouring



beaker



tray



Group Activity

Steps



1. Put six drops of food colouring into 250 ml of water and stir it.



2. Pour the coloured liquid into a tray.



3. Put the tray on the table.



4. Raise one side of the tray.

5. Observe the direction of the coloured liquid flow in the tray.

6. Sketch your observation.

Question

How did the liquid in the tray flow when one side of the tray was lifted?

Liquid flows from a **high place** to a **low place**.



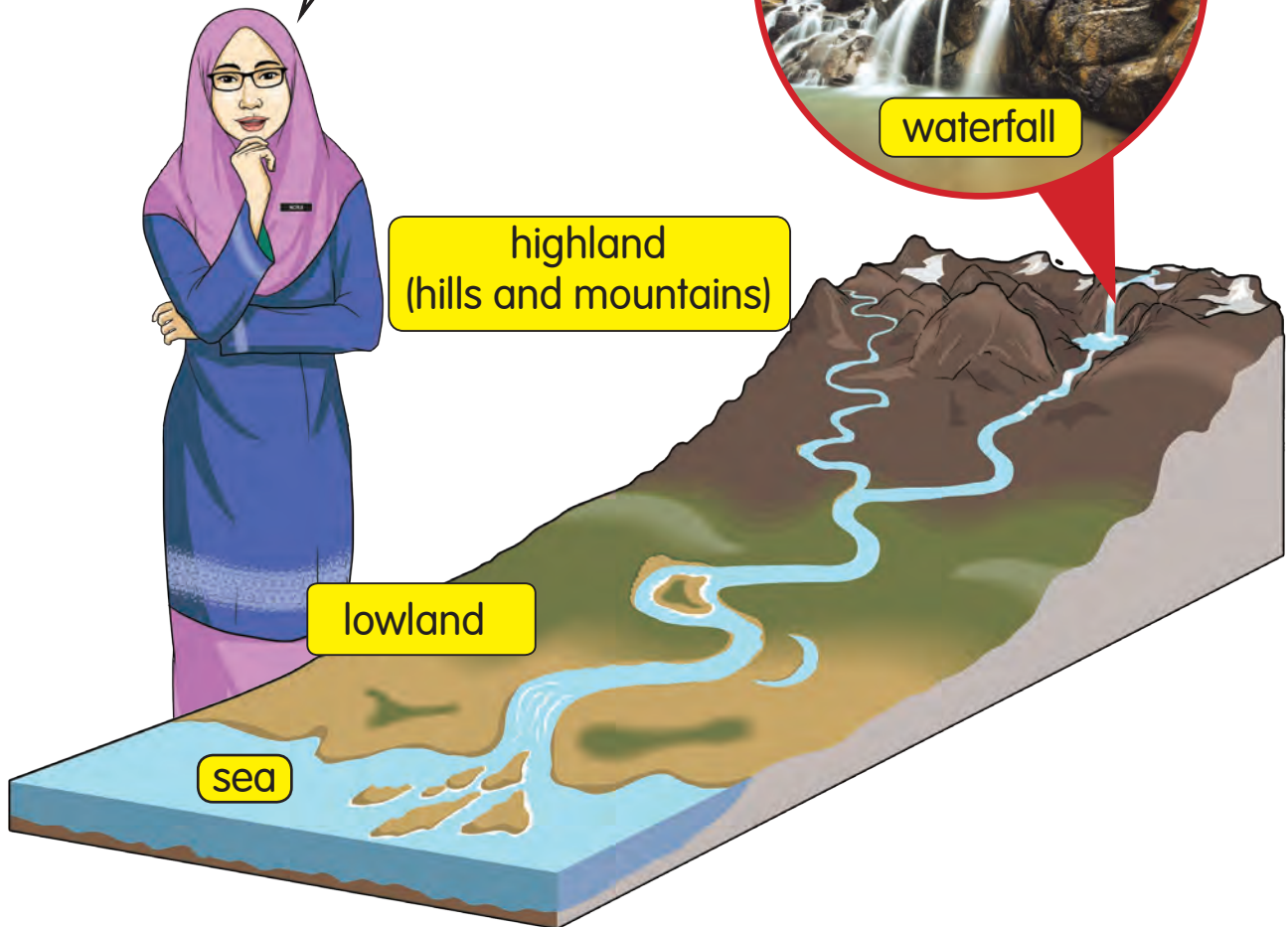


Natural Direction of Water Flow

How about the direction of natural water flow such as the river?



waterfall



Rivers and waterfalls flow from high areas to low areas. Then, they flow to the sea.

Teacher's Notes

q.1.3

- Search on YouTube videos on the formation of waterfall.

Activity Book

Pages:

66-67



Natural Water Cycle

How is a natural water cycle formed?



We evaporate into water vapour and rise up.

sea

1 water

2 water vapour

We are water.

3 clouds

Water vapour is cooled and become water droplets to form the clouds.

Natural water cycle is a continuous cycle that supplies water to living things and to cool down the earth.

Teacher's Notes

- Search on YouTube videos on the natural water cycle.

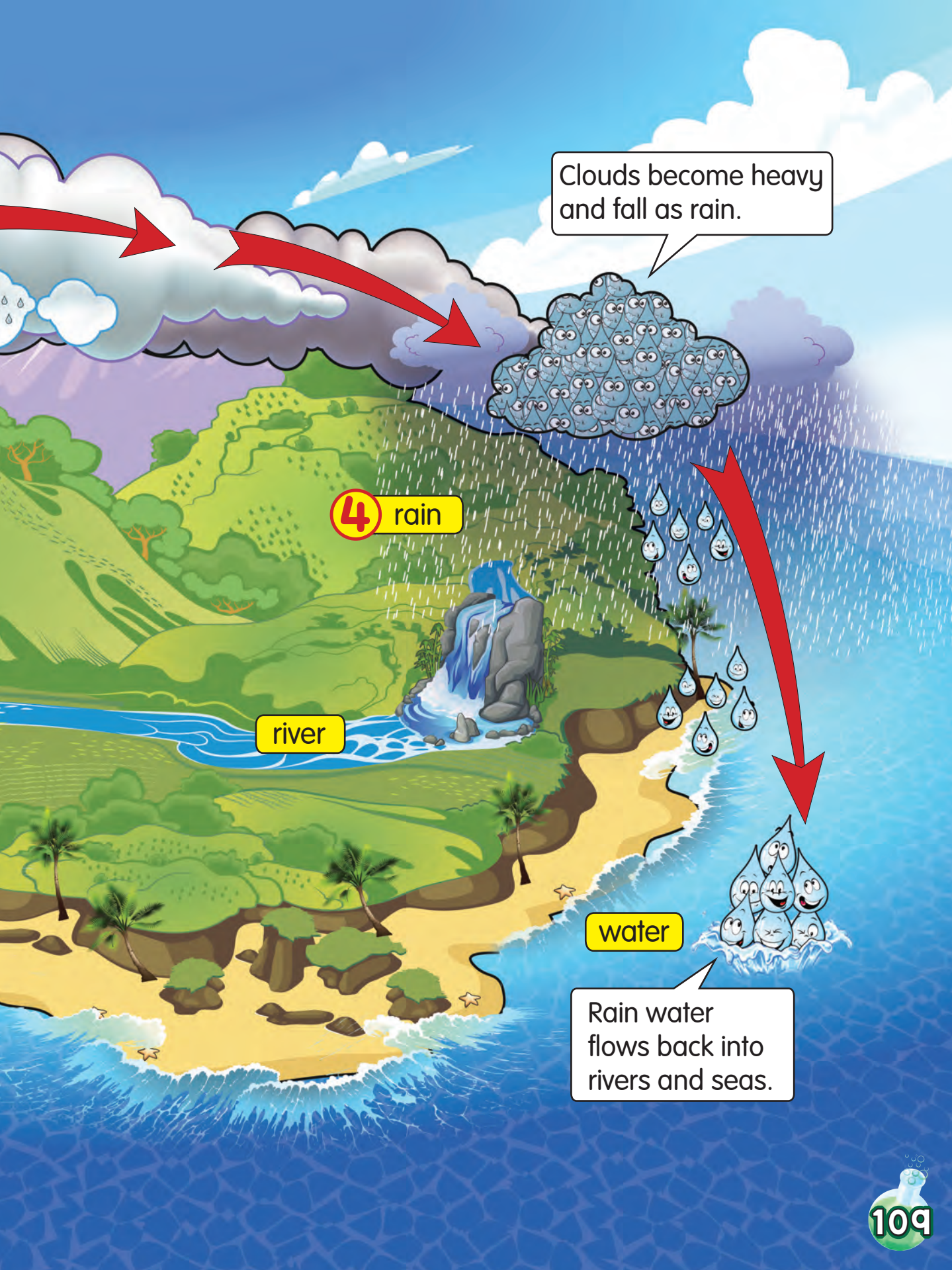
Activity Book

Pages:

68-69

q.1.4
q.1.5





Clouds become heavy and fall as rain.

4 rain

river

water

Rain water flows back into rivers and seas.



Air is around us. Air is also present in water and soil.
Air consists of gases such as oxygen and carbon dioxide.

Oxygen is needed
for living things to
breathe.

humans breathe




Termites also breathe
in the soil.



plants breathe

Living things breathe
out carbon dioxide.

animals breathe



Fish also breathe
in water.

Living things need air to breathe.



Moving Air

What is moving air? Moving air is known as wind. Wind cannot be seen but can be felt.



Do you know that the wind affects humans in many ways?

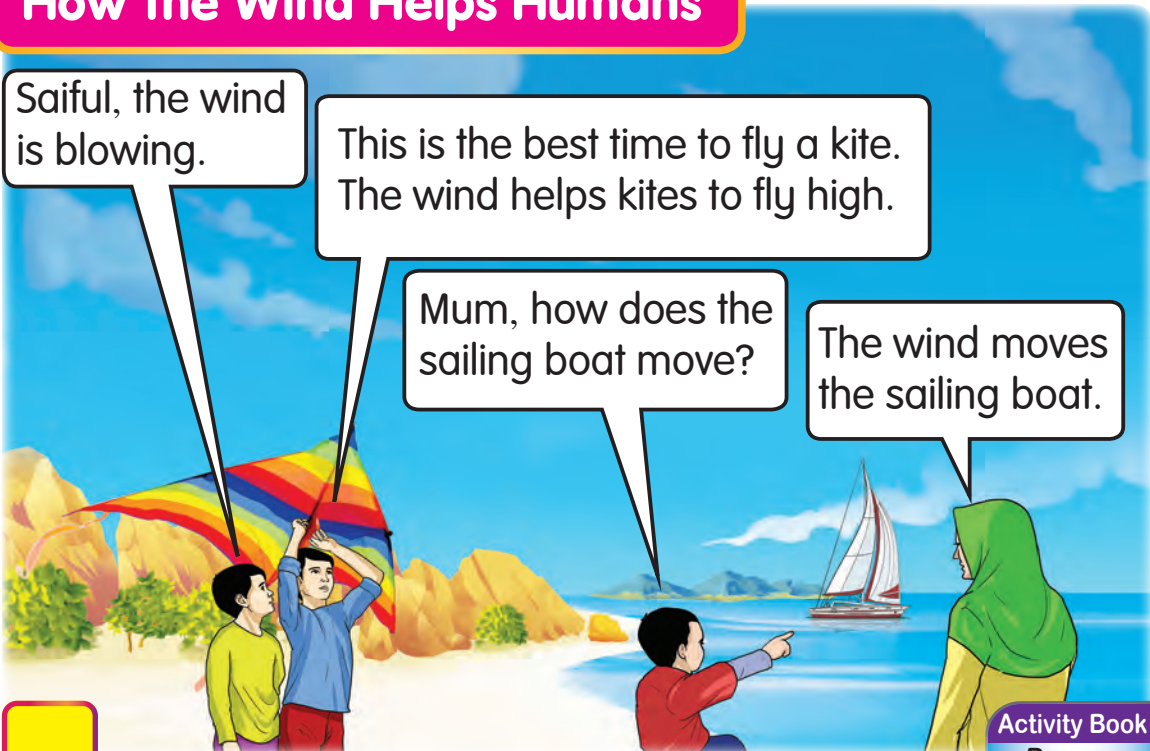
How the Wind Helps Humans

Saiful, the wind is blowing.

This is the best time to fly a kite. The wind helps kites to fly high.

Mum, how does the sailing boat move?

The wind moves the sailing boat.



q.2.3
q.2.4

Activity Book

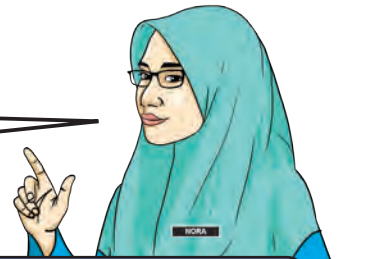
Pages:

73-75



The wind can fly a kite and move a sailing boat.

State how the wind helps humans in the following situations.



Effects of Strong Winds



What are the effects of the wind in this situation?

Teacher's Notes

- Strong winds affect the environment and humans in many ways such as causing storms and big waves.





Designing a Wind Rocket

Wow! Nice rocket!

Let's create a rocket.

These are the tools and materials we need.

Wind Rocket Design

- scissors
- coloured pencils

A4 paper
adhesive tape
straw

Now, let's create it.



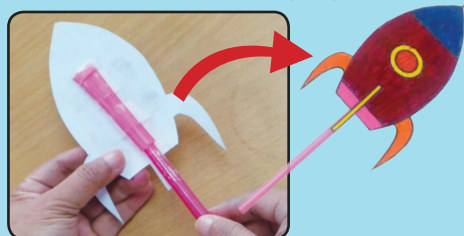
1. Draw the shape of a rocket and cut it.



2. Colour it.



3. Cut a straw. Use adhesive tape to seal the top of the straw. Paste it on the paper rocket.



Wow! The rocket is flying!



HOTS

Try to create another type of model that also uses moving air.

4. Insert a long straw into the short straw.

5. Test the wind rocket by blowing into the straw.





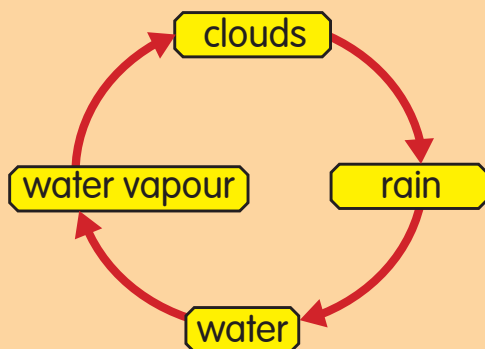
Wind Chimes

Use the materials around you such as decorative butterflies, beads, and ballast to produce wind chimes. Hang the wind chimes that you have produced outside your house.



I Remember

1. Natural sources of water are rain, rivers, lakes, seas, and springs.
2. The direction of water flow is from high areas to low areas.
3. Natural water cycle.
4. Air consists of gases such as oxygen and carbon dioxide.
5. Moving air is known as wind.
6. The wind helps to:
 - move a sailing boat
 - rotate a windmill
 - fly a kite
 - dry clothes on the clothes line.
7. Strong winds can cause big waves, threaten lives, and destroy properties.





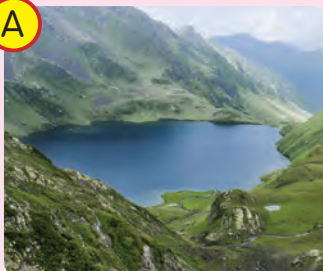
I Answer



Answer all the questions below in your Science exercise book.

1. What are the natural sources of water as shown in the pictures below?

A



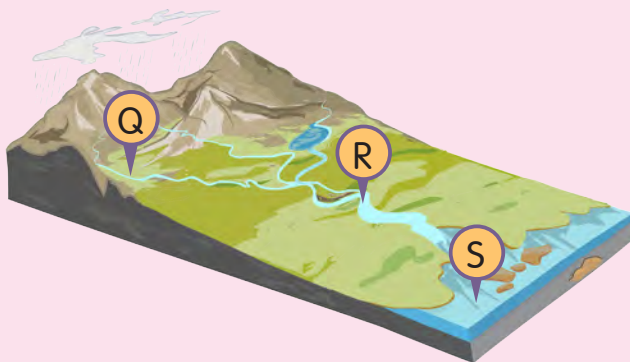
B



C



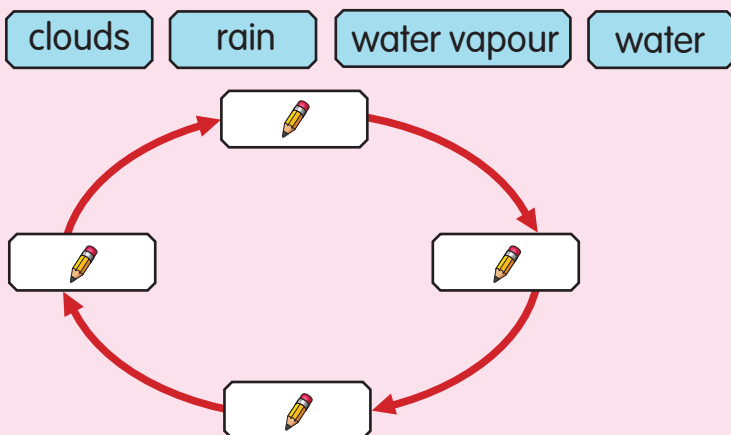
2. What is the direction of the water flow in the diagram below?



Tick (✓) the correct direction of the water flow.

Q → R	<input type="checkbox"/>
S → Q	<input type="checkbox"/>
R → S	<input type="checkbox"/>

3. Complete the natural water cycle chart below with the correct words.



4. How does wind help humans? Give two examples.
5. Give one effect of a strong wind.



Unit 10

TECHNOLOGY

Wow! This model is so amazing.

I used the Gemilang Building Set. Let me show you how to build it.

Kanang, how do you build this model?

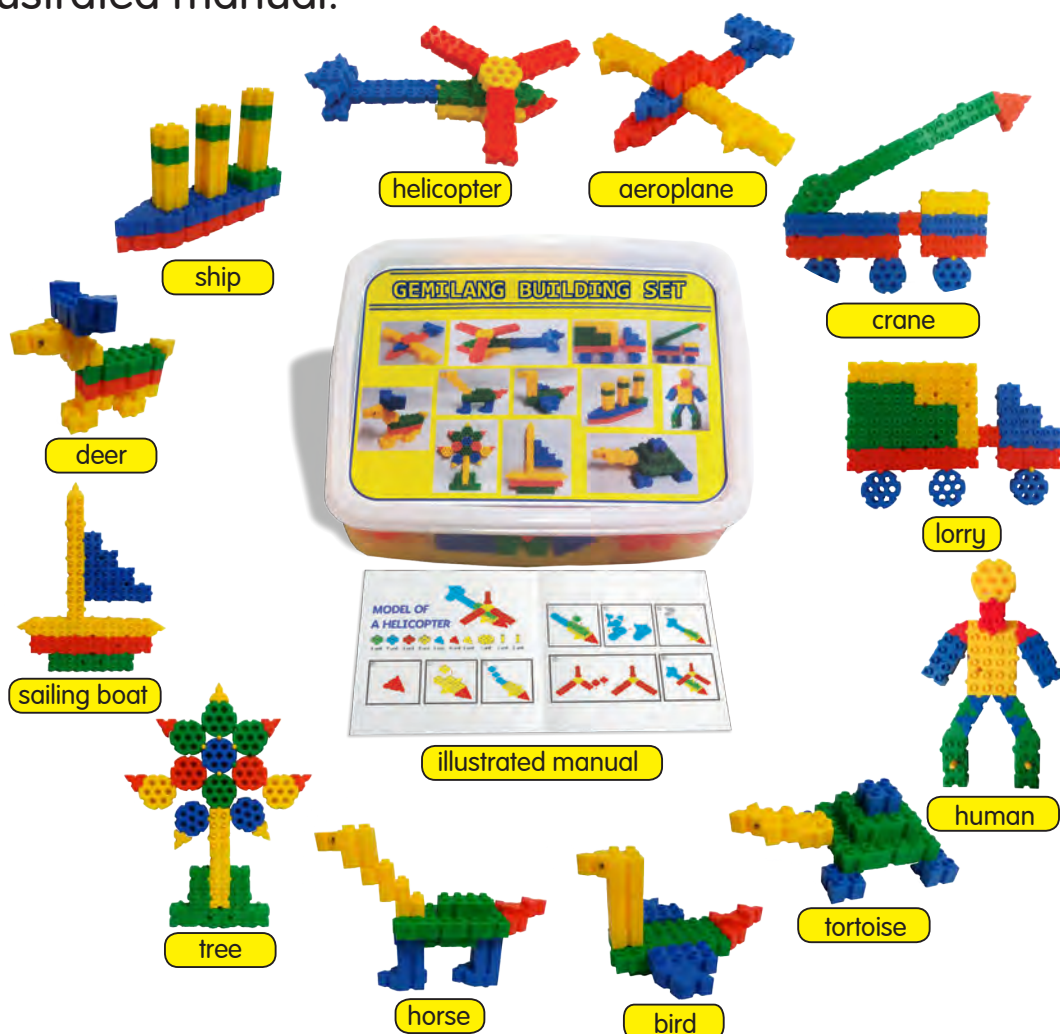


Have you ever played with a building set?
What type of models have you built?



My Choice of Building Set

A building set is a set of components that is used to build several types of models and it includes an illustrated manual.



You can choose the model you want to build from the pictures on the building set box.

What is the model you want to build?

Teacher's Notes

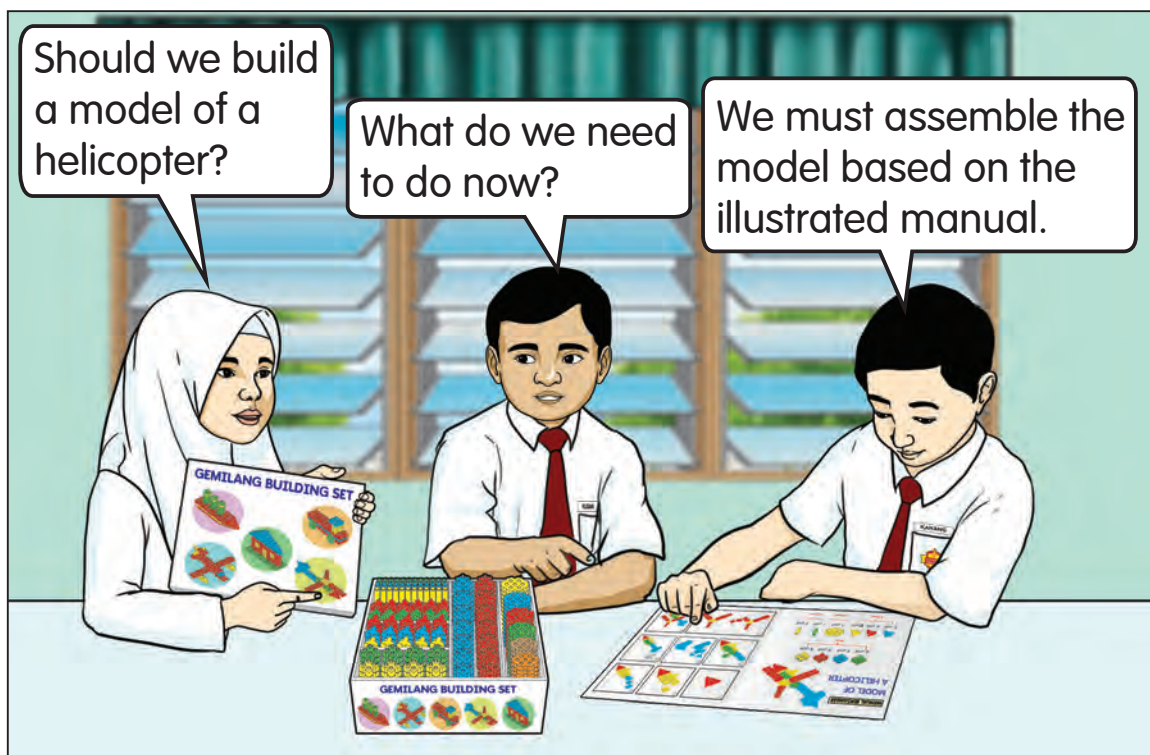
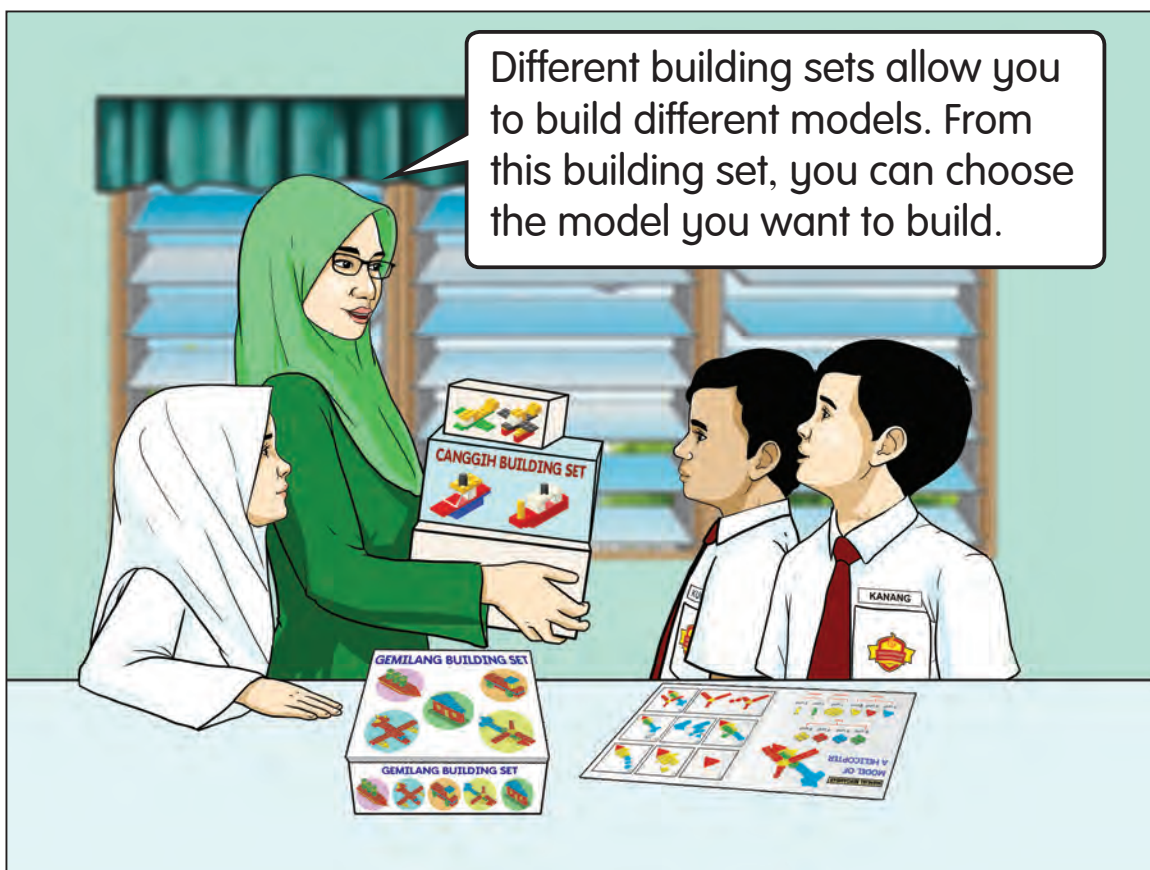
- A building set allows you to build several models, but a model kit only allows you to build one model.

Activity Book

Page:

77

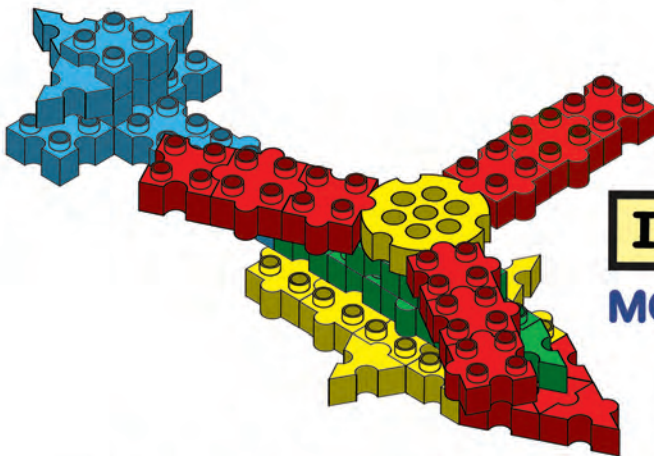
10.1.1



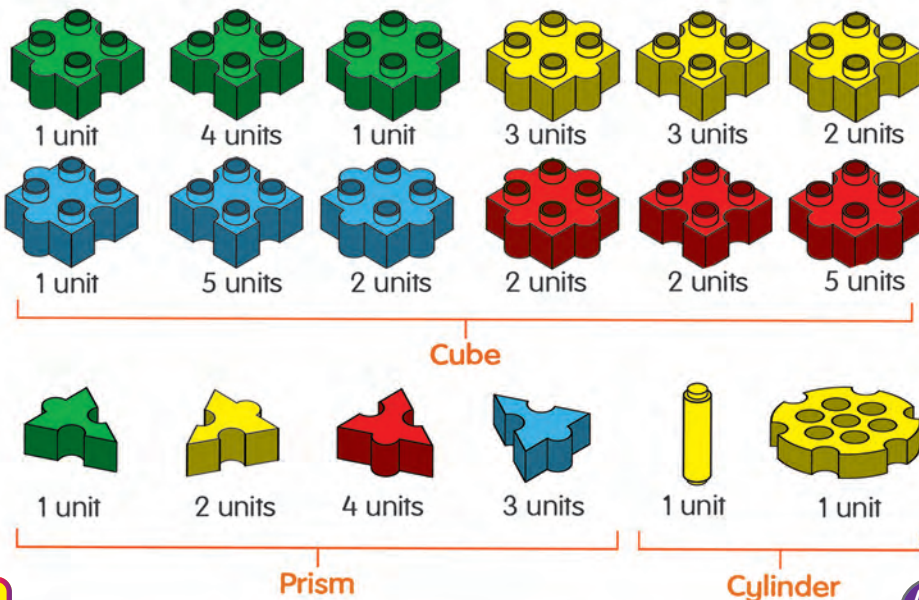


Identifying Components in the Illustrated Manual

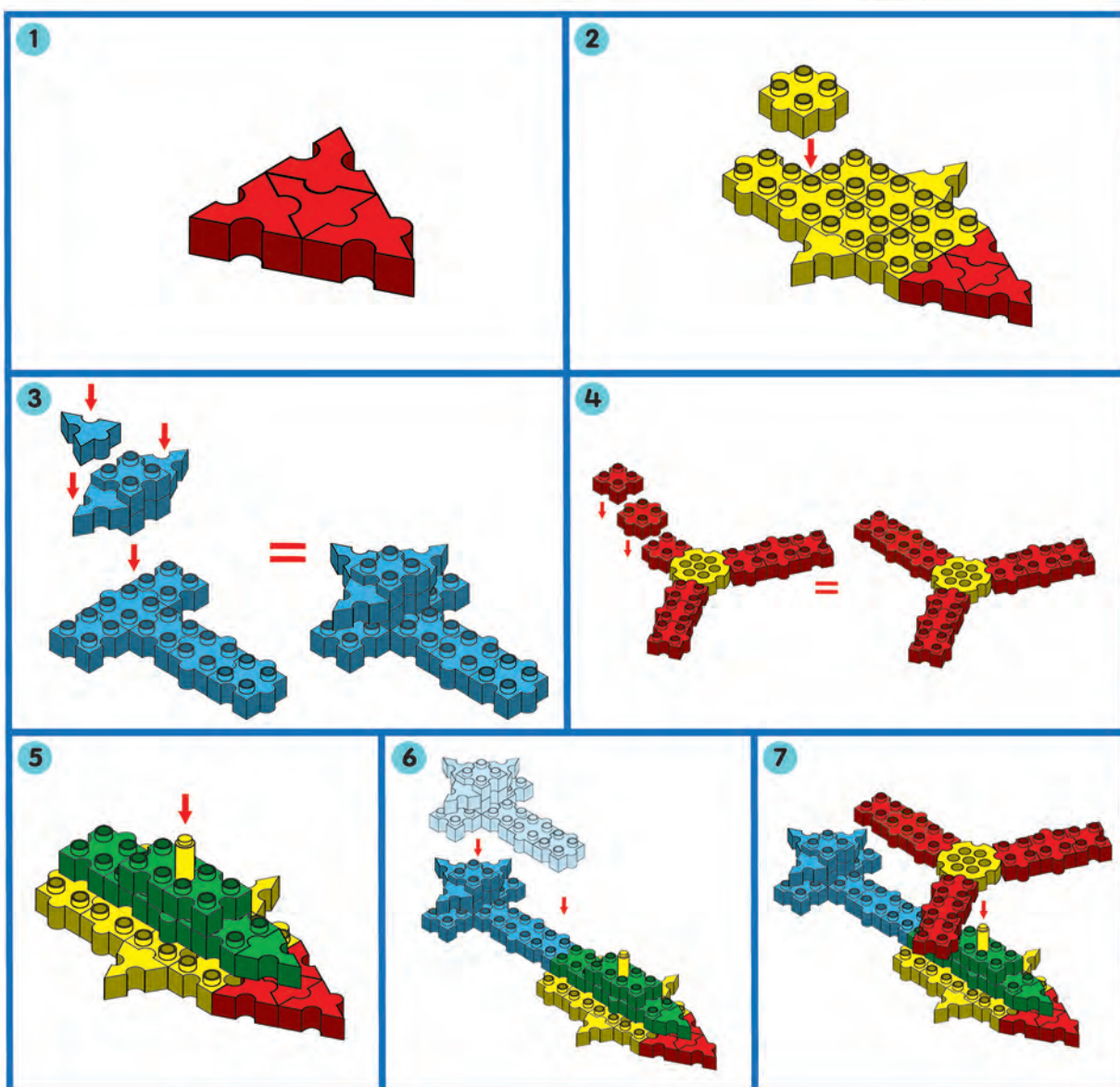
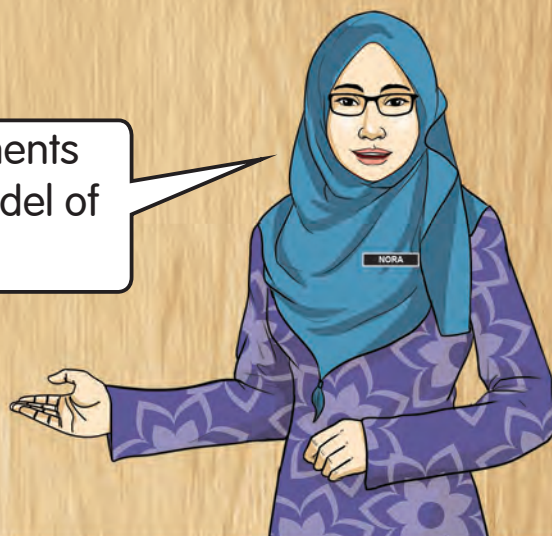
A manual is a guide to help you to assemble a model from a building set correctly. You can identify the required building components. Building set model can be assembled easily by referring to the illustrated manual.



ILLUSTRATED MANUAL MODEL OF A HELICOPTER



What are the components needed to build a model of a helicopter?





Junior Engineer

After the manual is read and understood, we can now assemble the model of a helicopter.

I have read and understood the manual of the model of a helicopter.

I have also identified the components to build this model.

Let's assemble it now.

Steps

1



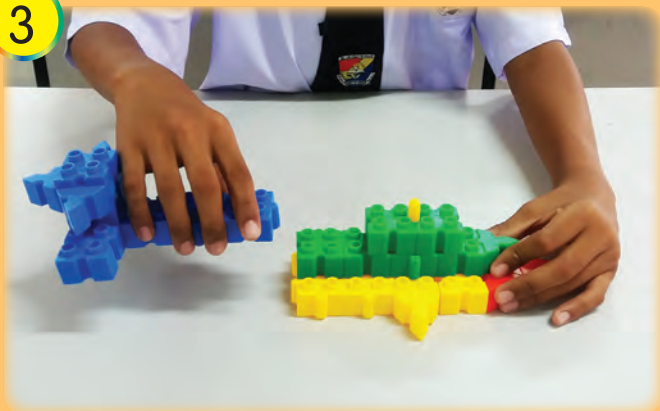
Take out the required components from the building set box.

2



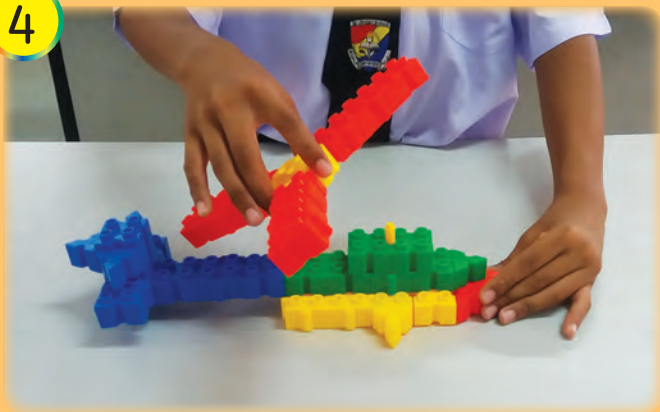
Assemble the head, body, tail, and blade sections of the helicopter.

3



Combine the head, body, and tail sections of the helicopter.

4



Combine the blade section.

5



The model of the helicopter based on the illustrated manual.



HOTS

What will happen if a model from a building set is assembled without referring to the illustrated manual?





I Am Creative

The components of a building set can be assembled into various structures. Can you create another model that is not in the illustrated manual?

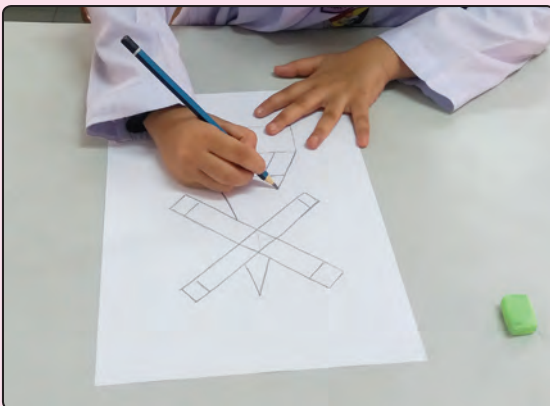
What other models can you create using a Gemilang Building Set?



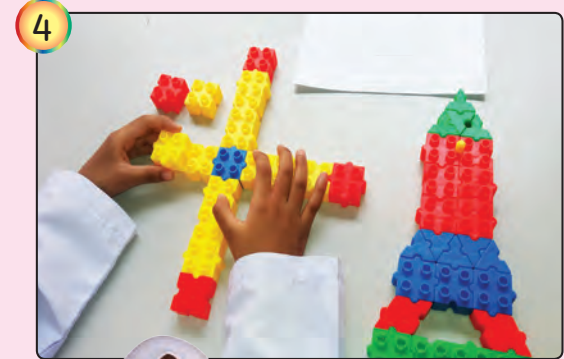
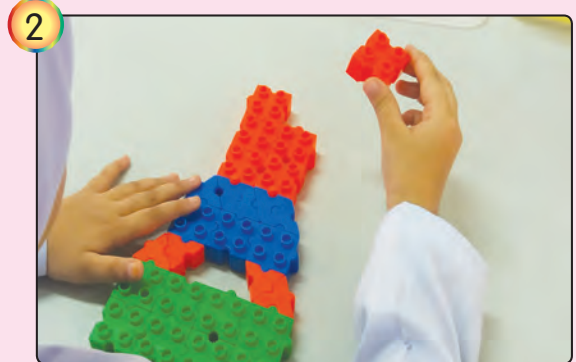
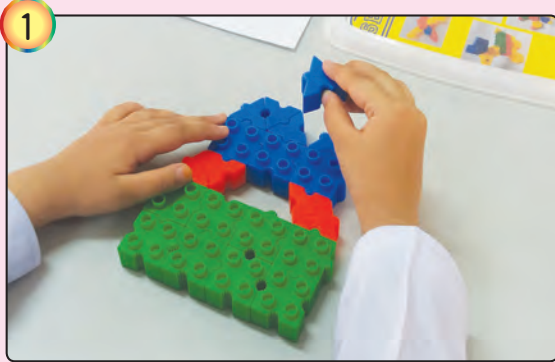
Maybe I can build a model of a windmill.



Planning, sketching, and preparing tools and materials



Structuring a model



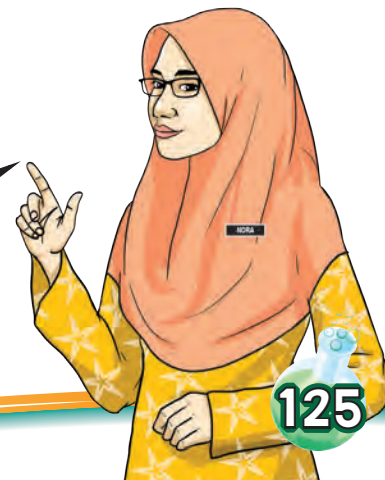
This is my model of a windmill.

What is the model built by the pupil above?
Is the model above found in the illustrated manual?



HOTS

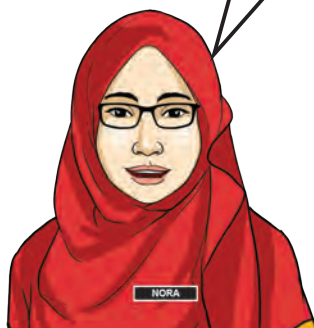
Using the building set in your Science Room, build a model that is not in the illustrated manual. Tell us about your newly built model.





Disassemble and Store

Pupils, our class will dismiss in 5 minutes.

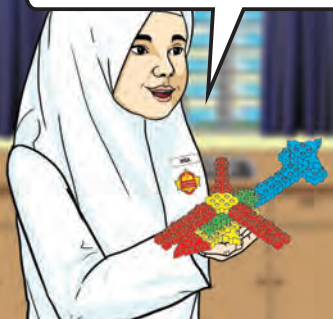


Keep all the components of the building sets.

Alright, teacher!



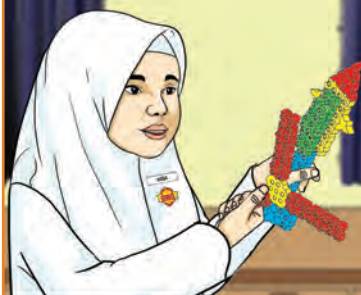
Teacher, how do I disassemble this model?



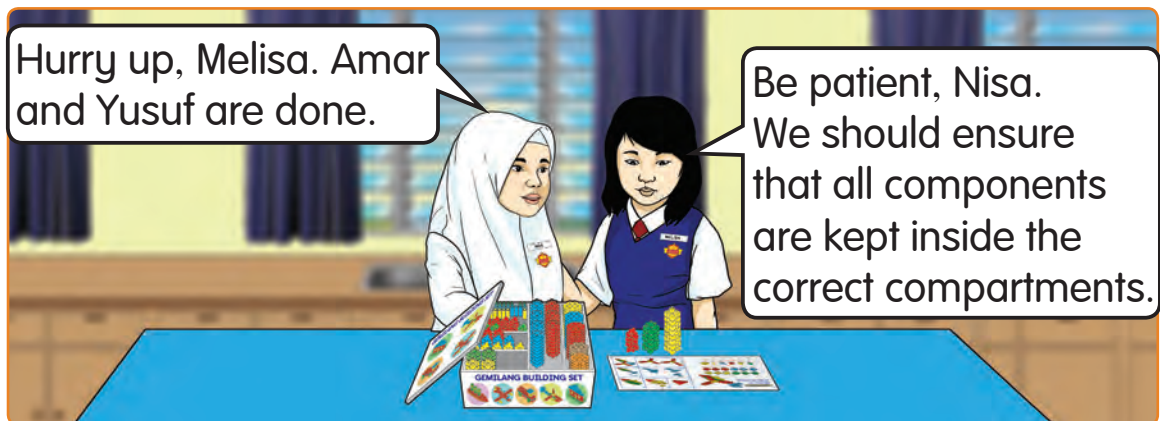
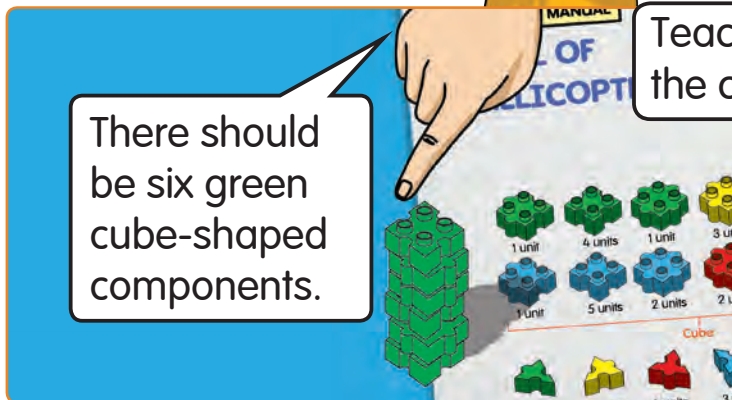
Disassemble the model in sequence. Start from the final step of installation.



First, we must disassemble the blade section.



We should arrange the components according to their shapes and colours.



How do you arrange the used components of a building set?



HOTS

You noticed that one of your group's building set components is missing. What would you do? Why?





Science Recreation

My Flower Pot

Produce a flower pot using ice cream sticks. Arrange the flowers creatively.



I Remember

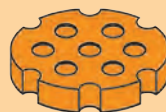
1. A building set is a set of components that is used to build several types of models and it includes an illustrated manual.
2. A building set has components of various shapes and colours, such as:



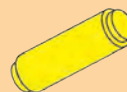
cube-shaped



prism-shaped



cylinder-shaped



3. The components of a building set are assembled based on the illustrated manual.
4. The illustrated manual is a guide to assemble a model correctly.
5. A new model can be built by using components of different models.
6. The components should be disassembled and stored neatly.
7. Make sure all components are counted and are in good condition before storing inside the building set box.





I Answer



Answer all the questions below in your Science activity book.

1. The models below can be built from a building set.

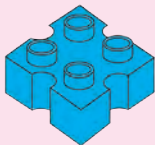
a) Name the following models:



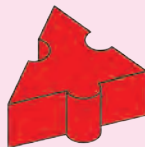
b) Name two other models that can be built.

2. Name the shape of these components.

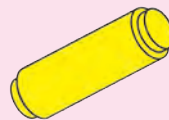
a)



b)



c)



3. What is an illustrated manual?

4. Why should you arrange all components neatly after using them?

5. What should you do when you find that all the components are scattered in the building set box?



HOTS

You are given the components below.



10 units



10 units



10 units

Sketch a model that can be built using these components based on your creativity.





ANSWERS

Unit 1: SCIENTIFIC SKILLS

Suggested answer for HOTS (page 10)

No. Human growths are different among individuals of the same age because of the difference in day of birth, food consumption, lifestyle, environmental factors, and others.

Suggested answer for HOTS (page 14)

The garden snail is a live specimen. Releasing the snail after conducting an experiment is an ethical practise and it is vital to maintain a balanced habitat.

I Answer (page 16)

- a) Stethoscope – hearing
b) Magnifying glass – sight
- Similarities: All of them have legs and tails.
Differences: The eagle, duck, and chicken have wings, but the lizard, monitor lizard, and crocodile have no wings.
- a) 120 cm b) 25 kg
- Sketching a specimen correctly.

Unit 2: SCIENCE ROOM RULES

Let's Think (page 21)

Report any damaged equipment or apparatus to the teacher immediately.

I Answer (page 22)

- To ensure their safety and the safety of other users.
- No. Liquid wastes should be disposed of in the sink.
- To make it easy for other users.

Unit 3: HUMANS

Suggested answer for HOTS (page 30)

No. The palm size, height, and weight are not the same as these traits are inherited from our own parents and ancestors. Furthermore, food consumption and environmental factors also affect the different traits in individuals.

I Answer (page 34)

- a) size, height, and weight
b) same, different
- features, ancestors

Suggested answer for HOTS (page 34)

Some people may be able to do certain activities such as sports activities better than others.

Unit 4: ANIMALS

I Answer (page 48)

- | Lay eggs | | Give birth | |
|----------|------|------------|------|
| lizard | crab | bat | deer |
- Some animals lay a few eggs because the eggs are taken care of by the parents. Examples are chickens, birds, and penguins.
- Some animals lay many eggs because the eggs are not taken care of by the parents. The eggs are easily eaten by other animals. Examples are fish, frogs, and turtles.
- egg: 1, chicken: 4, chick: 3, hatchling: 2
- young squirrel and duckling
- The life cycle of the butterfly starts with the eggs. When the eggs hatch, they become larvae. The larvae change to pupae. Finally, they turn into butterflies.

Suggested answer for HOTS (page 48)

Monkeys reproduce by giving birth to a few young. The young are similar to their parents. The parents take care of their young until they reach adulthood to ensure the young survive.

Unit 5: PLANTS

I Answer (page 59)

- Food, medicine, habitat, and air to breathe.
- Water, air, and suitable temperature.
- A-D-C-B
- Increase in the number of leaves, size of leaf, height of plant, and circumference of stem.
- Water, air, and sunlight.
- C-B-A-E-D

Unit 6: LIGHT AND DARK

Suggested answer for HOTS (page 63)

Fireflies are not a source of light as they emit light at certain times only.

Suggested answer for HOTS (page 65)

Yes. Light is important to humans because most of the daily activities are done in the presence of light. For example, to see, play sports, complete works, have fun, and others.

Suggested answer for HOTS (page 69)

Two shadows are formed because the light from two sources are blocked by the tree.

I Answer (page 72)

- a) sun, fire, lamps b) light c) objects
- a) easy b) difficult
- Position A – torch
Position B – paper windmill
- tracing paper – less clear frosted glass – less clear
pencil – clear steel ruler – clear
glass – less clear

Suggested answer for HOTS (page 72)

Human daily activities need to be done in bright conditions. Light is reflected into our eyes and enable us to see. If there is no light, it would be hard for us to conduct our daily activities.

Unit 7: ELECTRICITY

Suggested answer for HOTS (page 78)

The brightness of the bulb will decrease because the dry cell will run out of energy.

Let's Think (page 78)

Dry cell, bulb, and switch.

Suggested answer for HOTS (page 80)

The other predictions could be due to faulty bulb holder, wire, dry cell holder, and switch.

I Answer (page 85)

- a) dry cell.
b) complete and break an electric circuit.
- a) Circuit C because the circuit is complete.
b) Circuit A and B because the circuits are incomplete.
- a)

Electrical conductors	Electrical insulators
fork	banknotes
nail	leaf
screw	thread

- a) An electrical conductor is a material or an object that allows electric current to flow through it.
b) fork, nail, and screw
- a) An electrical insulator is a material or an object that does not allow electrical current to flow through it.
b) banknotes, leaf, thread

Unit 8: MIXTURE

I Answer (page 100)

- a) Hand-picking
b) Magnetic attraction
c) Flootation
d) Sieving
- Sugar and salt
- i. Using hot water
ii. Stirring
iii. Using small-sized materials

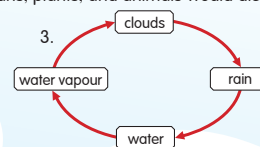
Unit 9: EARTH

Suggested answer for HOTS (page 103)

The earth would dry up. All humans, plants, and animals would die.

I Answer (page 116)

- A – lake
B – river
C – spring
- Q → R [✓]
R → S [✓]
- i. It helps to dry clothes.
ii. It helps to fly the kites in the sky
- A strong wind produces big waves.



Unit 10: TECHNOLOGY

Suggested answer for HOTS (page 123)

You will take a long time to finish.

Suggested answer for HOTS (page 127)

I will inform the teacher immediately because a model cannot be assembled if there is not enough components.

I Answer (page 129)

- a) aeroplane, deer, ship, tree, tortoise
b) helicopter, lorry
- a) cube
b) prism
c) cylinder
- An illustrated manual is a guide to assemble a model correctly.
- So that the building set looks neat and tidy./We will know which component is missing.
- I will arrange every component according to its shape, size, and colour.

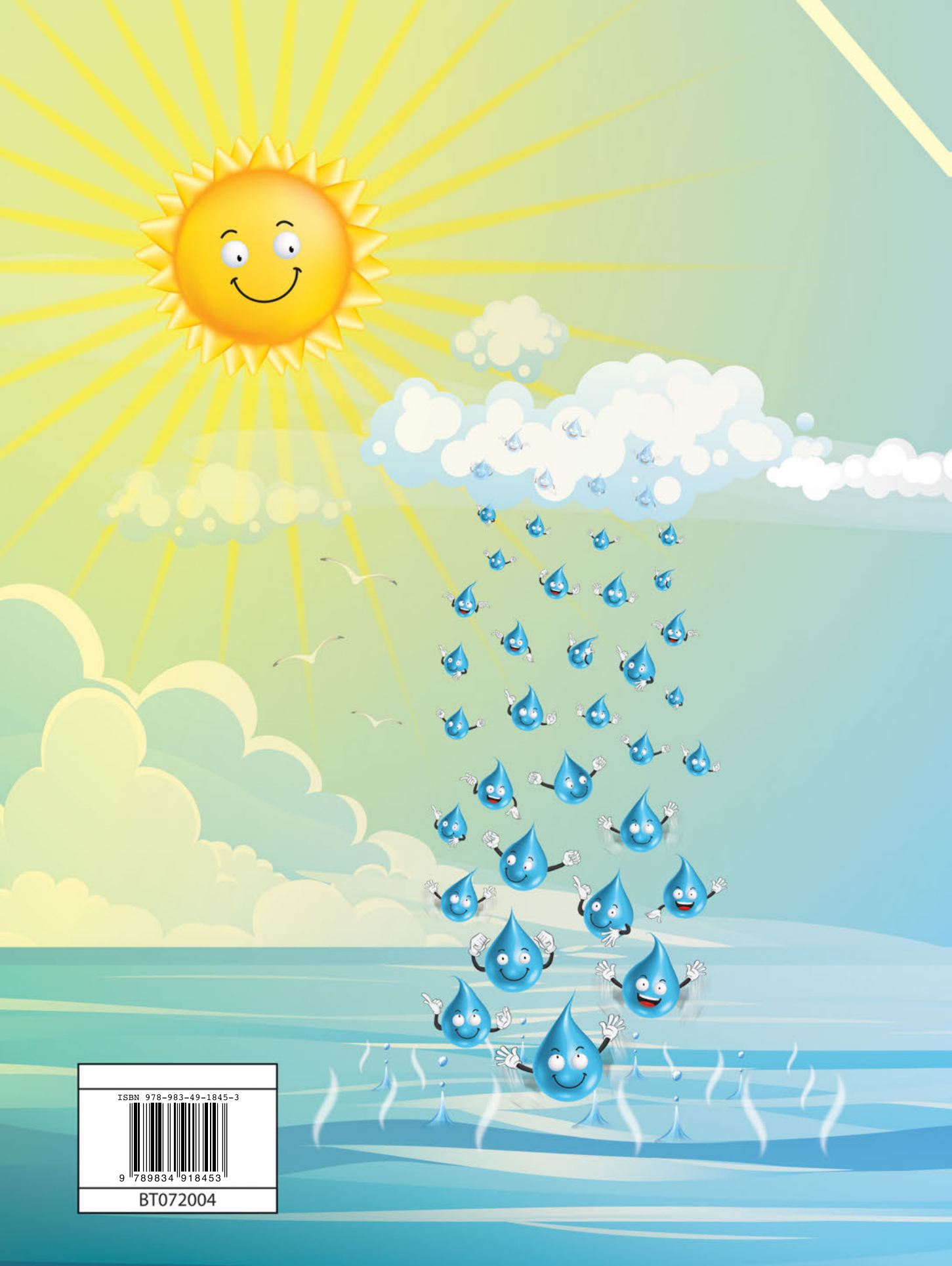


Dengan ini, **SAYA BERJANJI** akan menjaga buku ini dengan baik dan bertanggungjawab atas kehilangannya, serta mengembalikannya kepada pihak sekolah pada tarikh yang ditetapkan.

Skim Pinjaman Buku Teks			
Sekolah _____			
Tahun	Darjah	Nama Penerima	Tarikh Terima

Nombor Perolehan: _____
Tarikh Penerimaan: _____

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