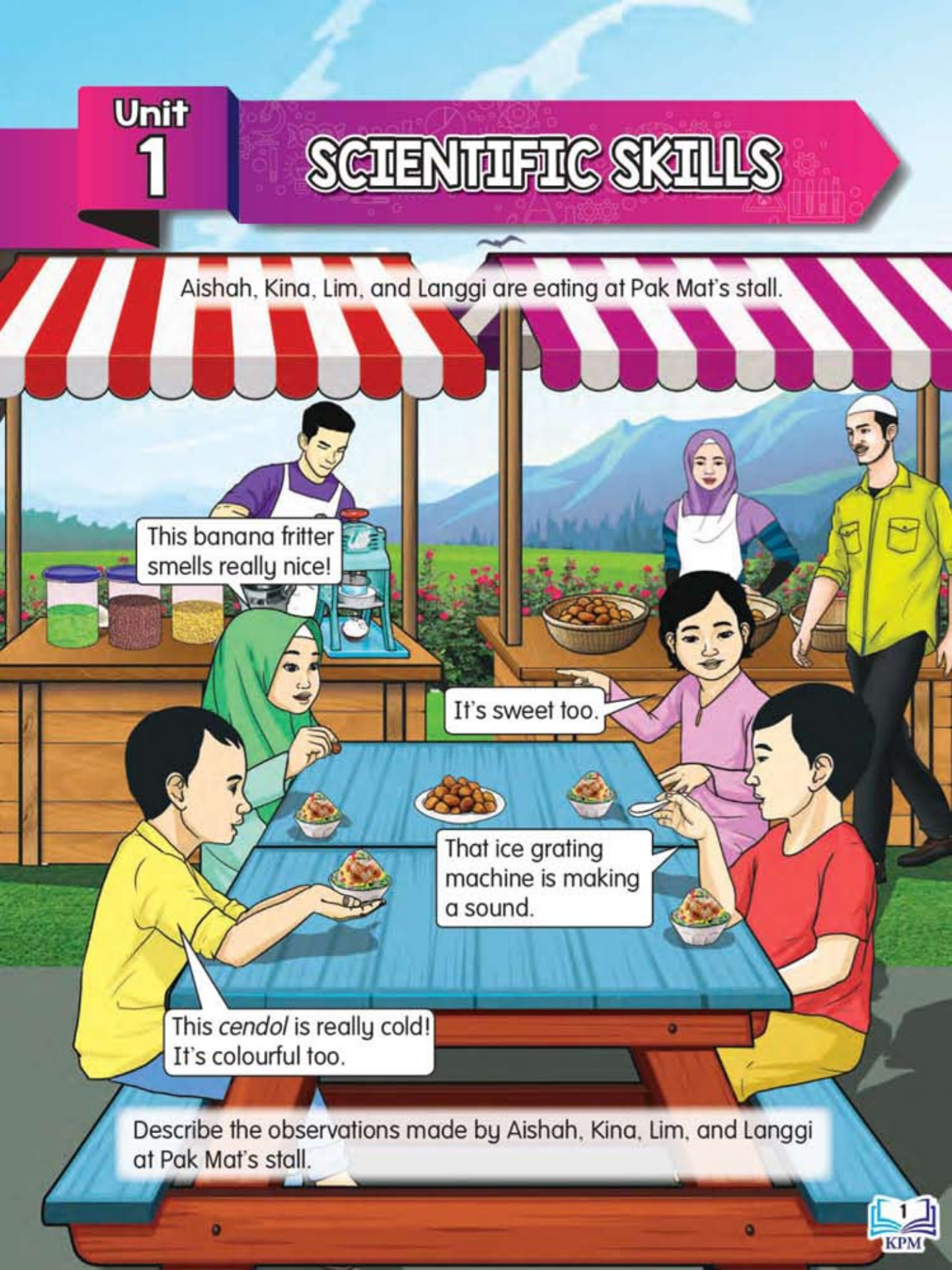
Unit 1 SCIENTIFIC SKILLS



Describe the observations made by Aishah, Kina, Lim, and Langgi at Pak Mat's stall.

Science Process Skills

Observing

Observing is a skill that uses all of our senses to obtain information about an object or a phenomenon.

What are the senses used to make observations in the situations below?

How do our senses help us to observe?

1.1.1

What are the changes you observe to the mimosa plant in the situations below?

Before being touched	When touched	After being touched
		

Fun Activity What Am I?

ACTIVITY GROUP

Apparatus and Materials

- blindfold
- box


rubber


hibiscus

soap


bell


lime

Steps

1. Select one member of your group as a referee while the rest as the players.
2. Blindfold the players.
3. The referee puts the objects into the box without being seen by the players.
4. Each player picks an object from the box and guesses it using his/her senses excluding the sense of sight.
5. The referee listens to the player's guess. If it is wrong, the player takes off the blindfold and looks at the object.
6. The next player takes his/her turn. Repeat steps 2 to 5 with other objects until a winner is determined.
7. The player who guesses the most objects correctly wins.

Question

Which senses helped you to recognise the objects correctly in this activity?

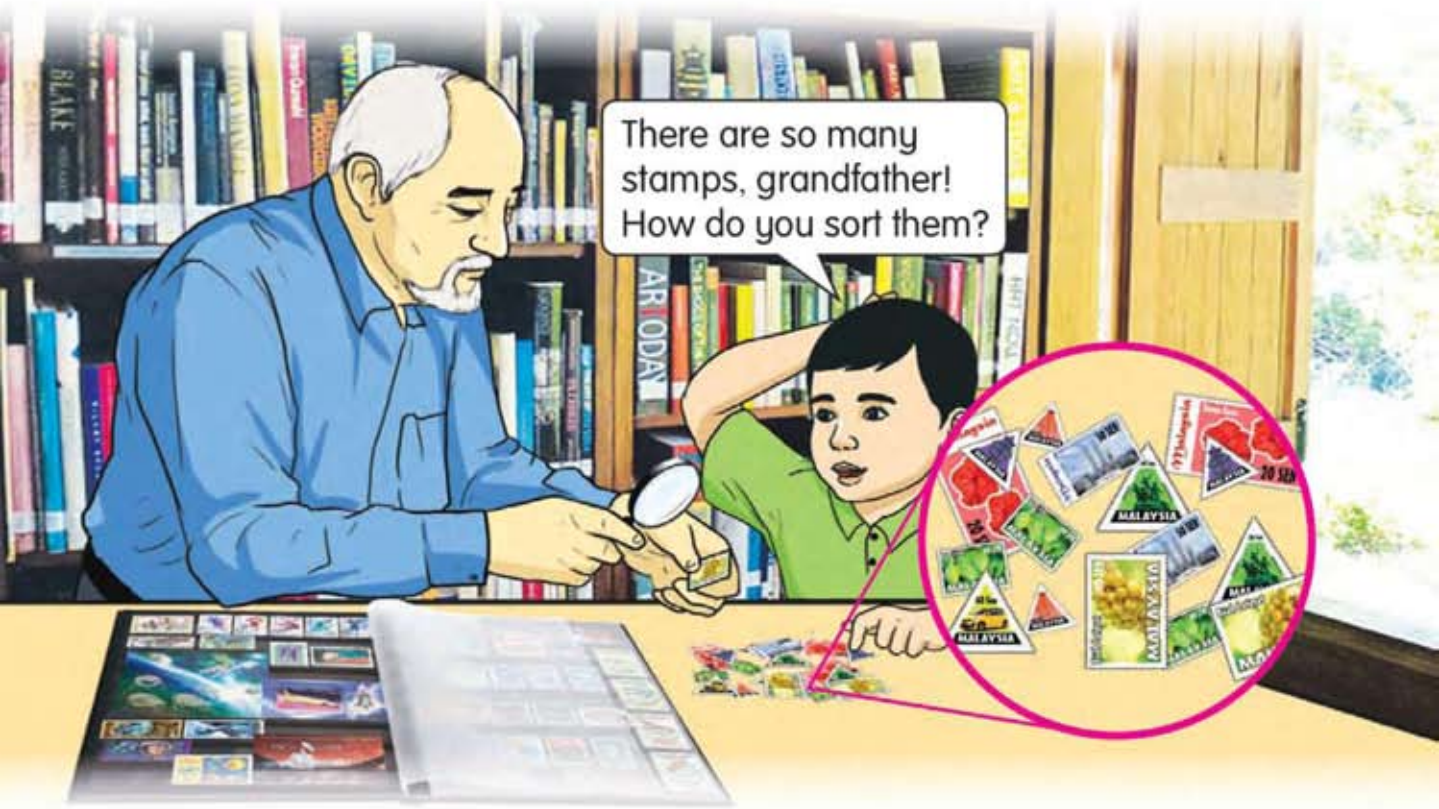
TEACHER'S NOTES

- Teachers may use other suitable objects for this activity.

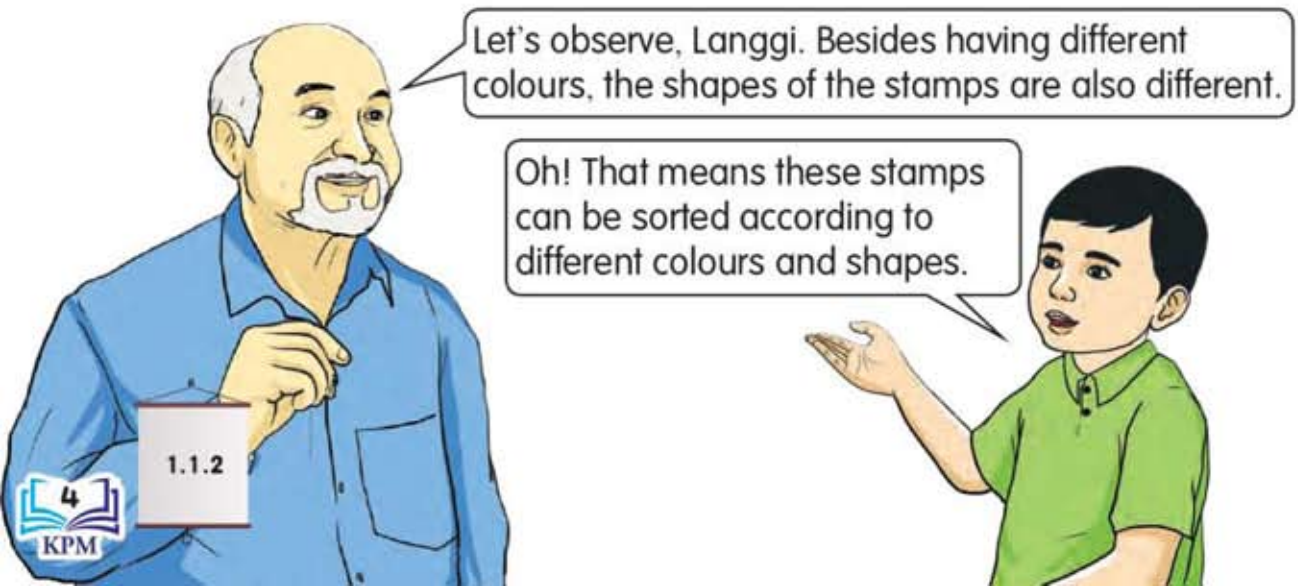
Activity Book Pages: 1-2

Classifying

Langgi wants to help sort his grandfather's stamps into an album. What are the characteristics of these stamps that you observe?



How can you help Langgi sort out the stamps?



Stamp Collection

Shape

Triangle

Rectangle

What other characteristics do you use to sort these stamps?

Fun Activity — Tidy Up Your School Bag

ACTIVITY INDIVIDUAL

Apparatus and Materials

- books in your school bag

Steps

1. Identify the characteristics of the books in your school bag.
2. Separate and group the books according to the characteristics you have identified.

Question

What are other characteristics that can be used to classify the books in your school bag?

TEACHER'S NOTES

- Other materials such as coins, banknotes, postcards, and greeting cards can be used for the classifying activity.

Activity Book Page: 3

Measuring and Using Numbers

Measuring is a skill to make observations using numbers and standard unit tools.

Step 1

Push this button to reset the time to zero.

Step 2

Push this button to start recording the time.

Step 3

Push this button again to stop recording so that you can take the reading.

What is the actual time taken on this digital stopwatch?

1.1.3

TEACHER'S NOTES

- There are two types of stopwatch: digital and analogue.
- The accurate time taken on the stopwatch above is 3 minutes and 59.29 seconds.

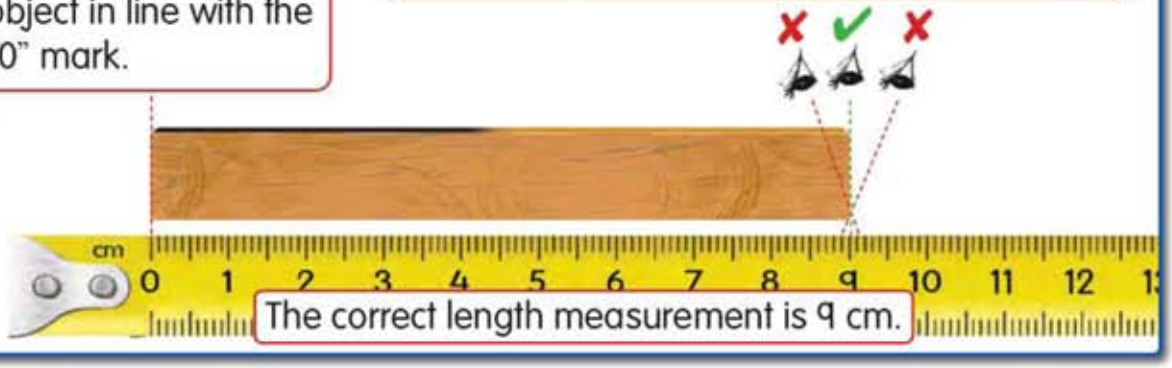
How do we measure length correctly?

Step 1

Place the end of an object in line with the "0" mark.

Step 2

The correct position of the eyes is at the tick ✔.



Let's Test — Measuring Correctly

ACTIVITY IN PAIRWORK

Apparatus and Materials

- digital stopwatch
- pencil
- ruler
- toy car
- paper clip
- marble

Steps

1. Measure the length of the pencil and the paper clip using suitable apparatus with the correct technique.
2. Push the toy car on the floor and start the stopwatch. Measure the time taken until it stops.
3. Roll the marble on the floor and start the stopwatch. Measure the time taken until it stops.
4. Record the readings of steps 1 to 3 as in Table A using the correct standard unit.

Table A

Object/Activity	Measurement	Measuring tools	Reading (Unit)
Pencil	Length		
Paper clip	Length		
Movement of toy car	Time		
Movement of marble	Time		

Question

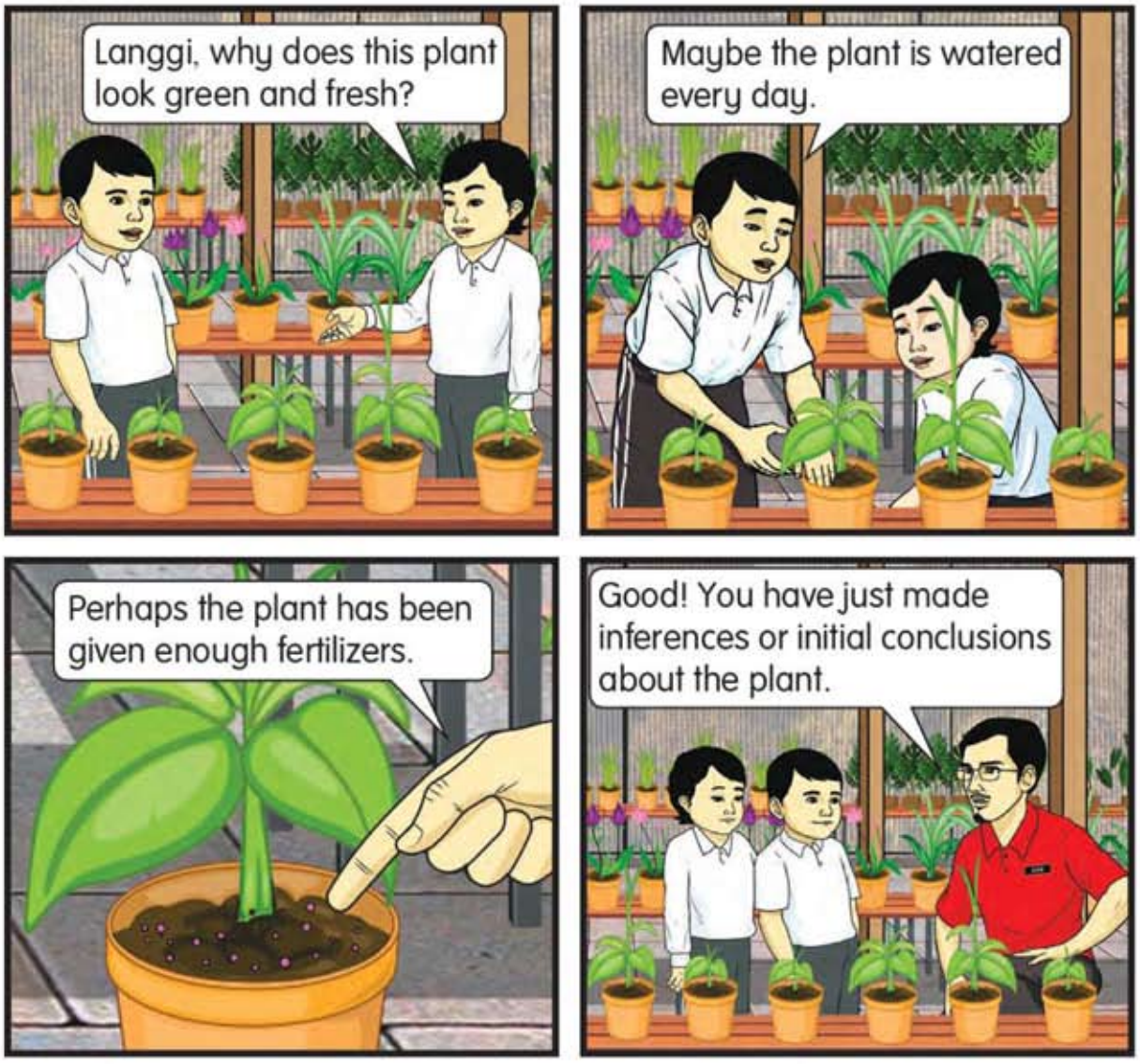
HOTS Can length measurement be used to record time? Why?

Activity Book Pages: 4-5

Making Inferences

Making an inference is a skill to reasonably explain an initial conclusion of an observation.

Let us read the conversation between Langgi and his friends below.



"Maybe **the plant is watered every day**" and "Perhaps **the plant has been given enough fertilizers**" are **inferences** made from the observations above.

1.1.4

Based on the situation above, can you state any inference about the wilted and yellowish plant?

Activity Book Pages: 6-7

Inferences that are made may be true or false.

Inferences can be made based on the following steps.

Fun Activity — Picture Story

PAIRWORK

Apparatus and Materials

- marker pens
- glue
- manila cardboard
- magazines
- scissors Caution

Steps

1. Choose and cut two pictures from the magazines.
2. Paste the pictures on a manila cardboard.
3. Discuss and write inferences based on the situations shown in the pictures.
4. Present to the class.

Question

What is the difference between observing and making an inference?

TEACHER'S NOTES

- The activity above can be carried out using the One Stay, Three Stray method of the 21st Century Learning Skills.

Activity Book Pages: 6-7

Predicting

Predicting is a skill to state an expectation of an event that will happen.

Predict what might happen if one of the children does not move his/her feet in this race.

Predictions may be true or false.

Look at the situation below.

Predict the colour of the cream that comes next.

1.1.5

Activity Book
Pages
7-8

KPM

Predicting is not the same as guessing because prediction is made based on **observations, previous experiences, data** or **patterns**.

Based on this picture, predict what will happen next.
What is your evidence to support the prediction?

More than one prediction can be made.

Look at the situation below.

What is your prediction on the movement of the ball?

Activity Book
Pages:
7-8

Communicating

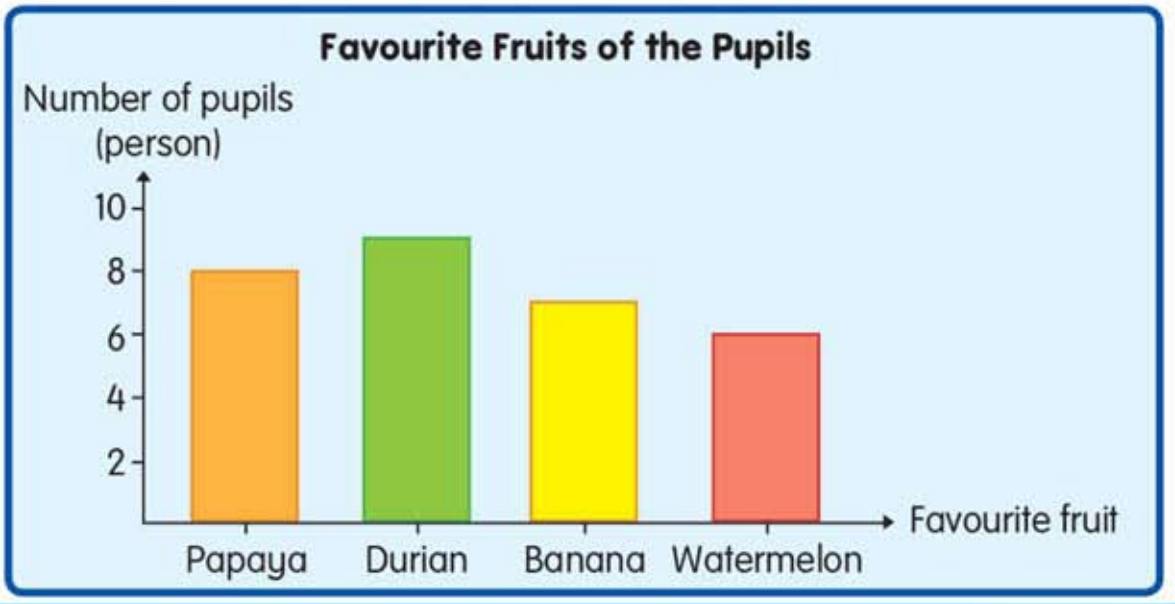
Communicating is a skill to describe an action, object or phenomenon using words or graphic symbols such as tables, graphs, diagrams or models.

Let us look at the example below.

Year 3 pupils collected information about the number of pupils in their class and their favourite fruits. The information was recorded in a table.

Favourite fruit	Number of pupils (person)
Papaya	8
Durian	9
Banana	7
Watermelon	6

Information from the table can be transferred to other forms such as a bar chart.



1.1.6

Activity Book
Page
9

Let's Test Recording Information

INDIVIDUAL

Apparatus and Materials

- pencil
- graph paper

Steps

1. Identify five different hobbies among your classmates.
2. Collect information on the number of pupils for each hobby.
3. Record the information as in Table A.
4. Transfer the information in the table to another form of communication creatively.

Table A

Hobby	Number of pupils (person)

Question

Which is the most favoured hobby among your classmates?

Fun Activity Sketch a Face

PAIRWORK

Apparatus and Materials

- pencil
- A4 paper

Steps

1. Observe your friend's face.
2. Sketch your friend's face on an A4 paper.
3. Label each part of the face that you have sketched.
4. Present your sketch in front of the class.

Question

Besides sketching, suggest other forms of communication.

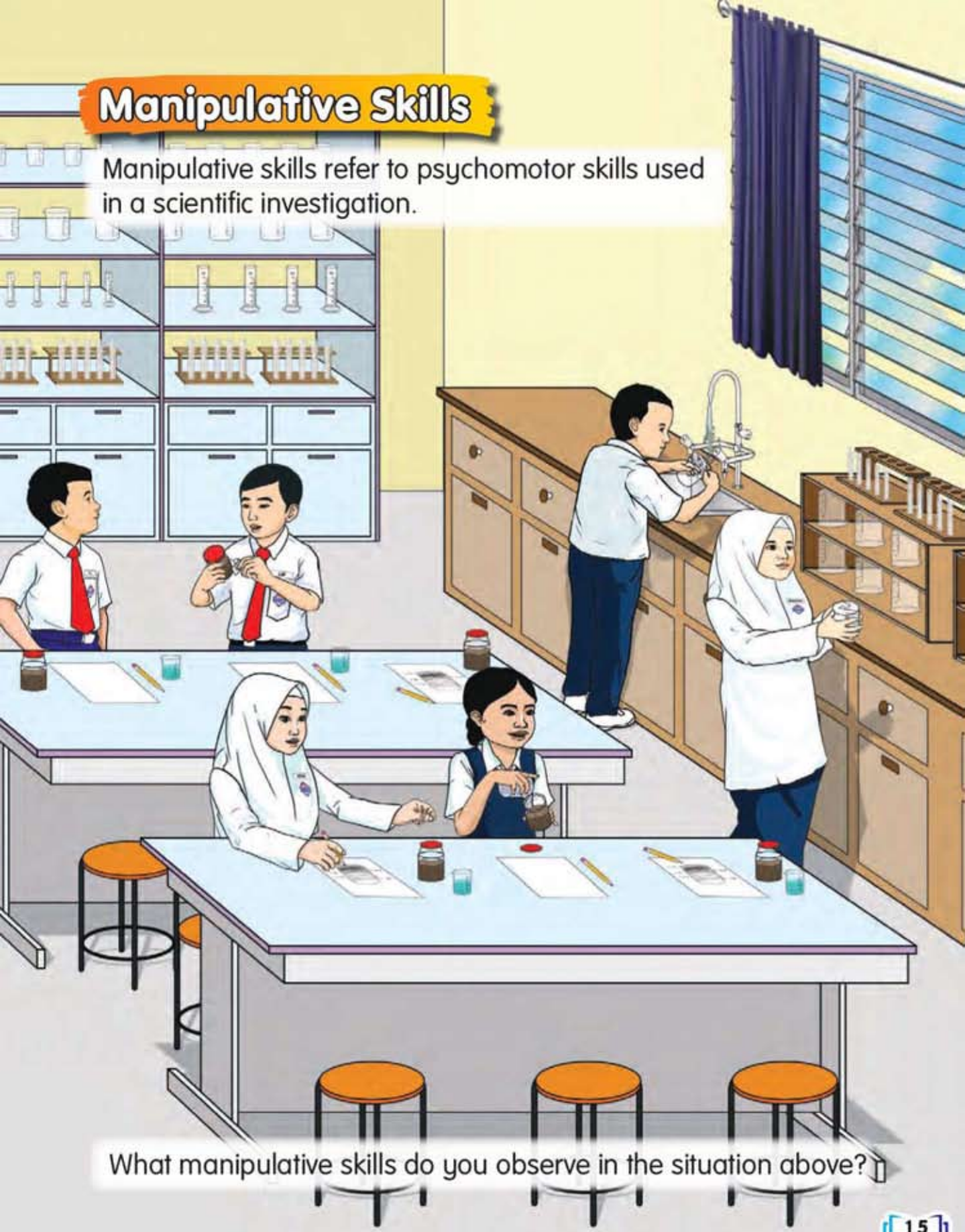
TEACHER'S NOTES

- Other forms of communication include drawing posters, picture charts, pie charts, and storytelling.

Activity Book Page: 9

Manipulative Skills

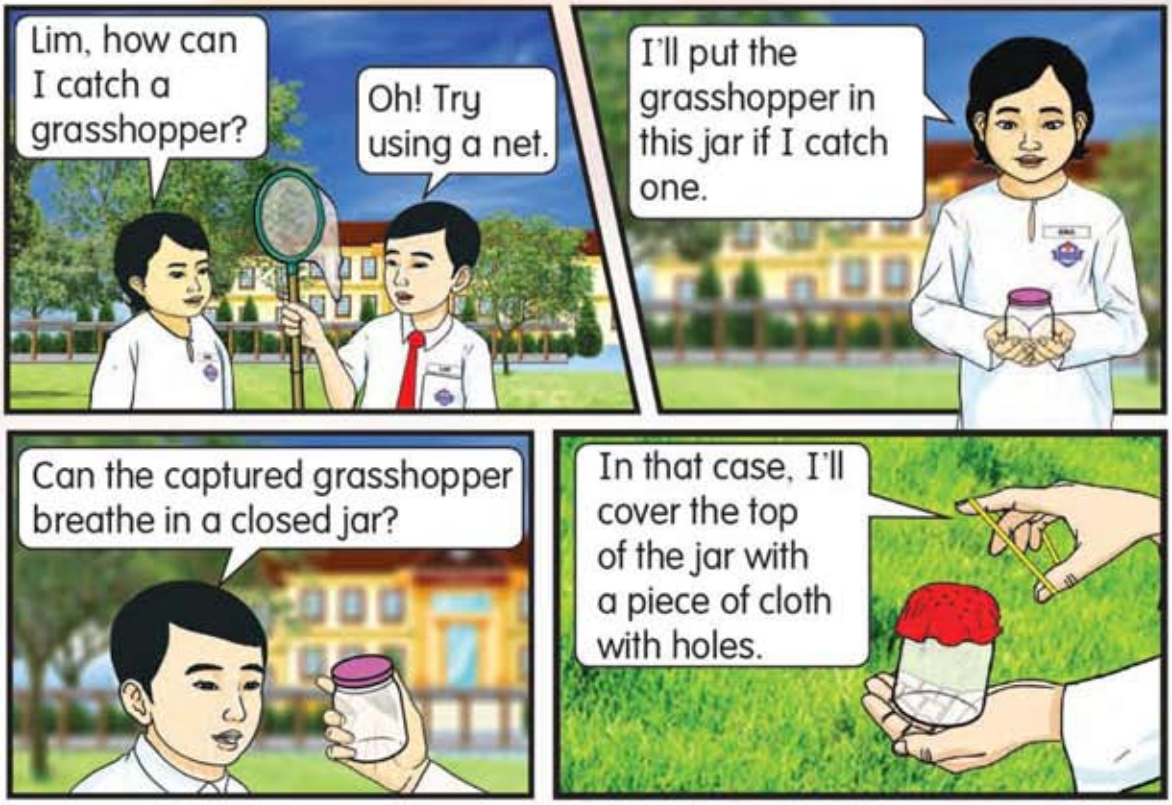
Manipulative skills refer to psychomotor skills used in a scientific investigation.



What manipulative skills do you observe in the situation above?

Using and Handling Science Apparatus, Substances, and Specimens

Kina and Lim want to carry out a scientific investigation. Let us read their conversation.



Suddenly, at the field...

1.2.1
1.2.2

What should Kina do with the grasshopper?

Fun Activity — Dragonfly, Oh Dragonfly!

ACTIVITY GROUP

Apparatus and Materials

- hand lens
- net
- jar
- rubber band
- cloth with holes
- dragonfly

Steps

1. Capture a dragonfly in the Science Garden using a net.
2. Put the dragonfly in the jar. Cover it using a cloth with holes.
3. Observe the dragonfly using a hand lens. Sketch it in the Science exercise book.
4. Release the dragonfly.

Question

Why do we use a hand lens in this activity?

1.2.1
1.2.2
1.2.3
1.2.4
1.2.5

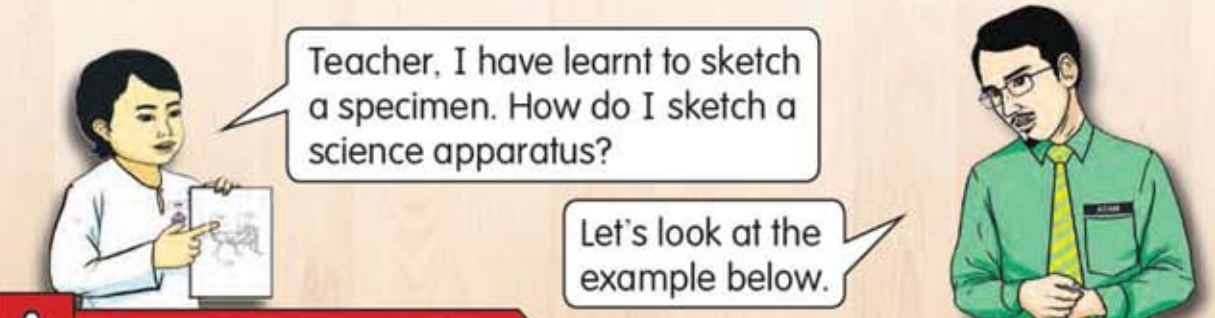
TEACHER'S NOTES

- The dragonfly may be replaced with another specimen such as a butterfly, cockroach, ant or other insects.

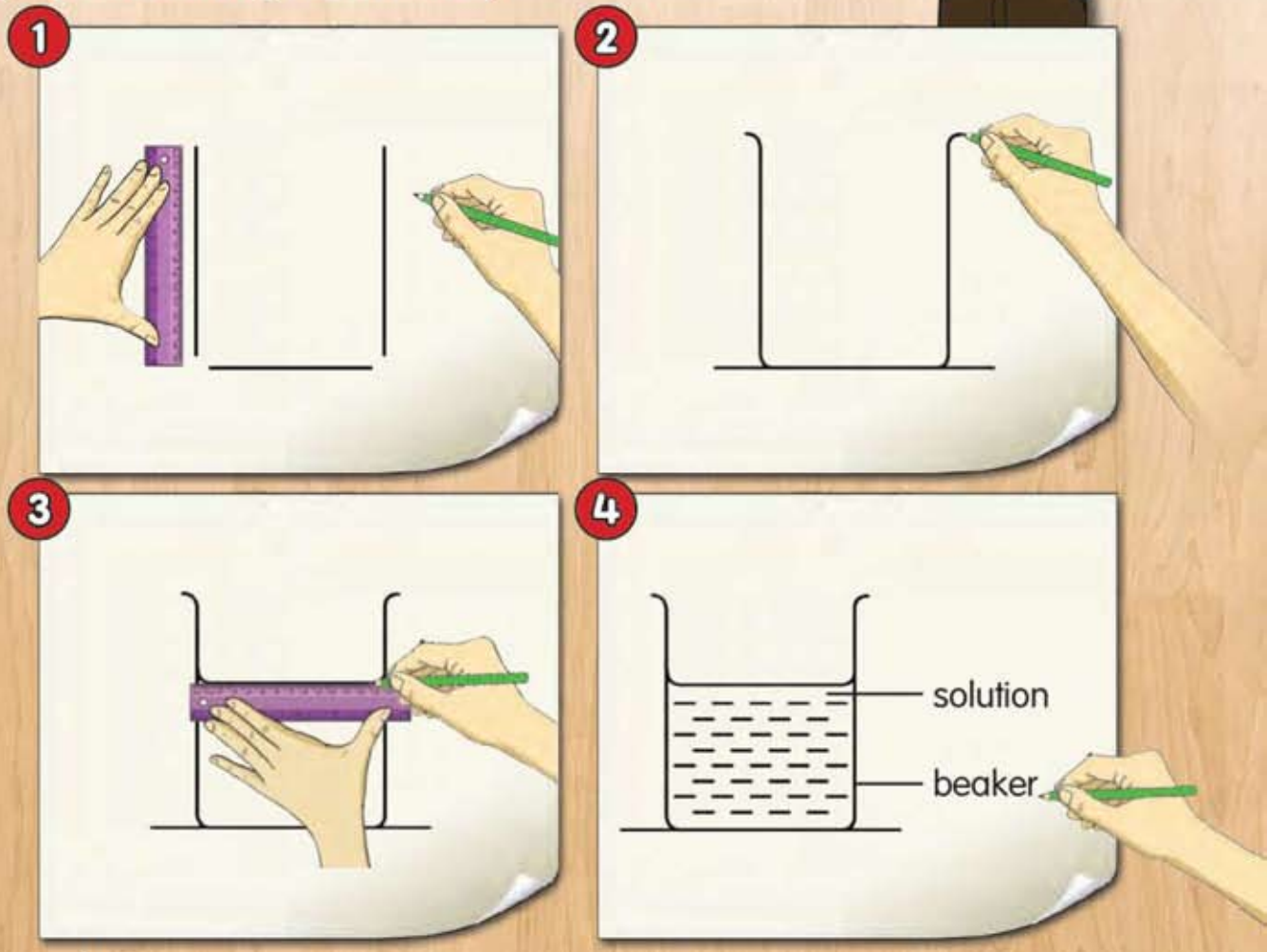
Activity Book Pages: 10-11

Sketching

Sketching is a method to record information in the form of a diagram. The sketch should be clear, accurate, and labelled.



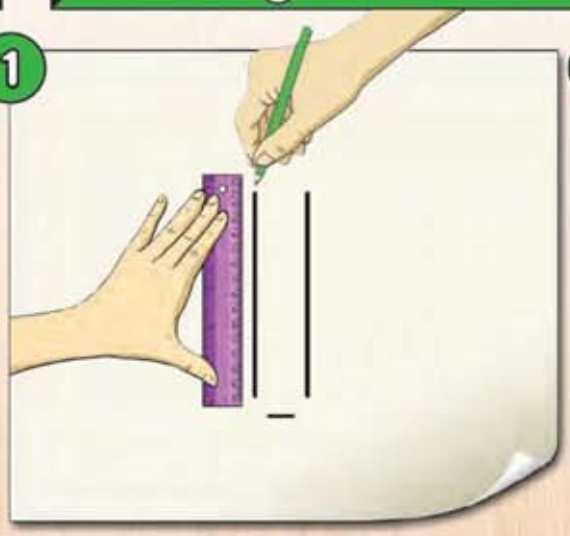
A Sketching a Beaker



1.2.3

B Sketching a Test Tube

1



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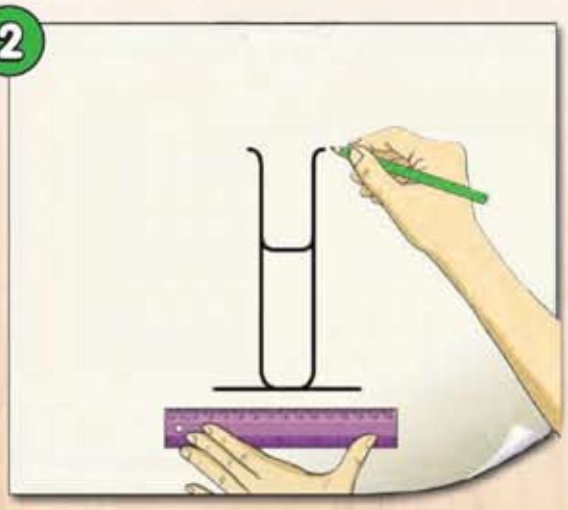

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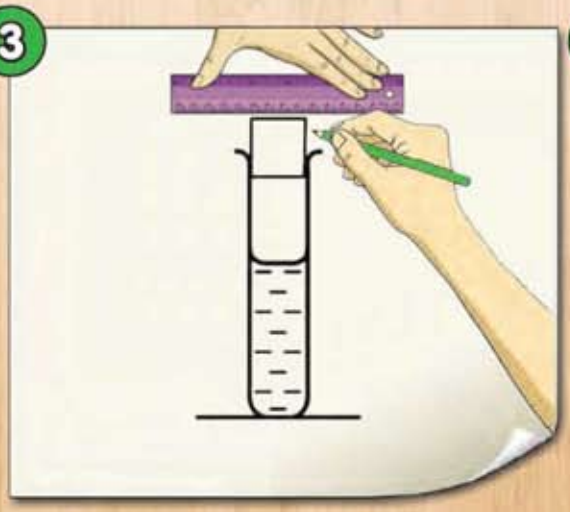

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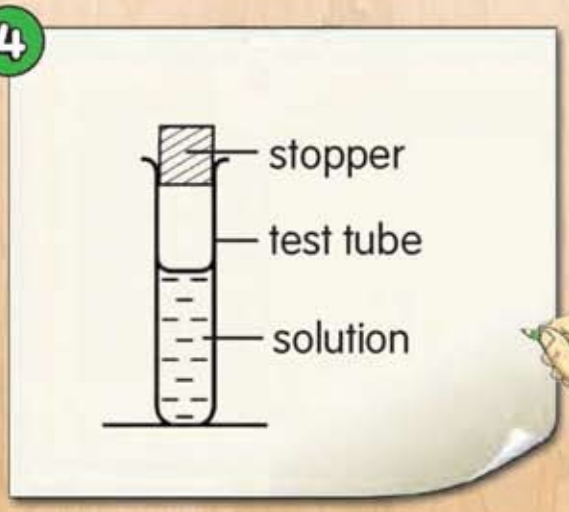
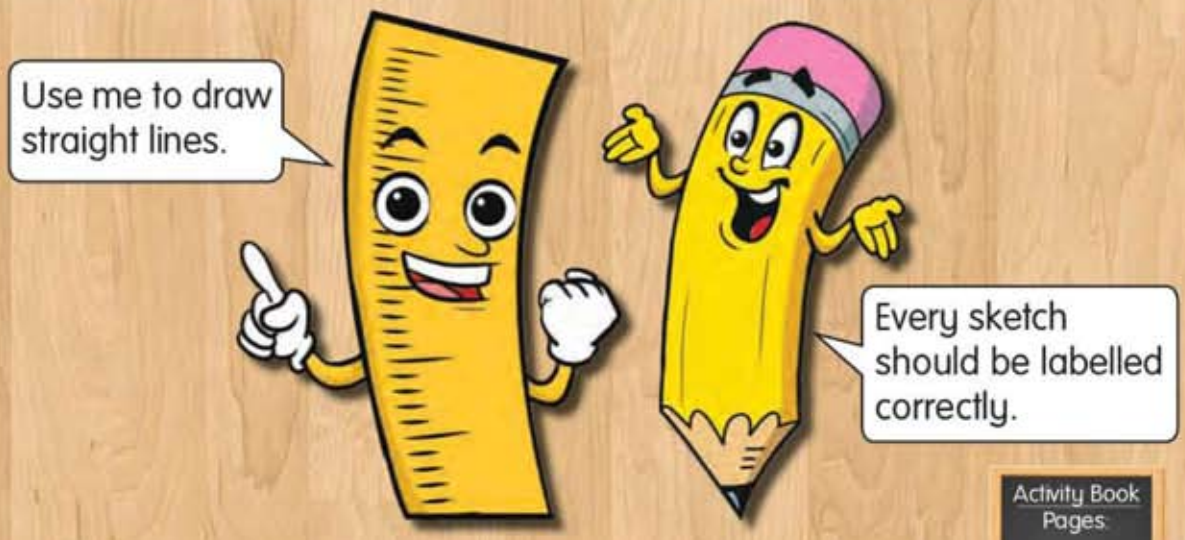
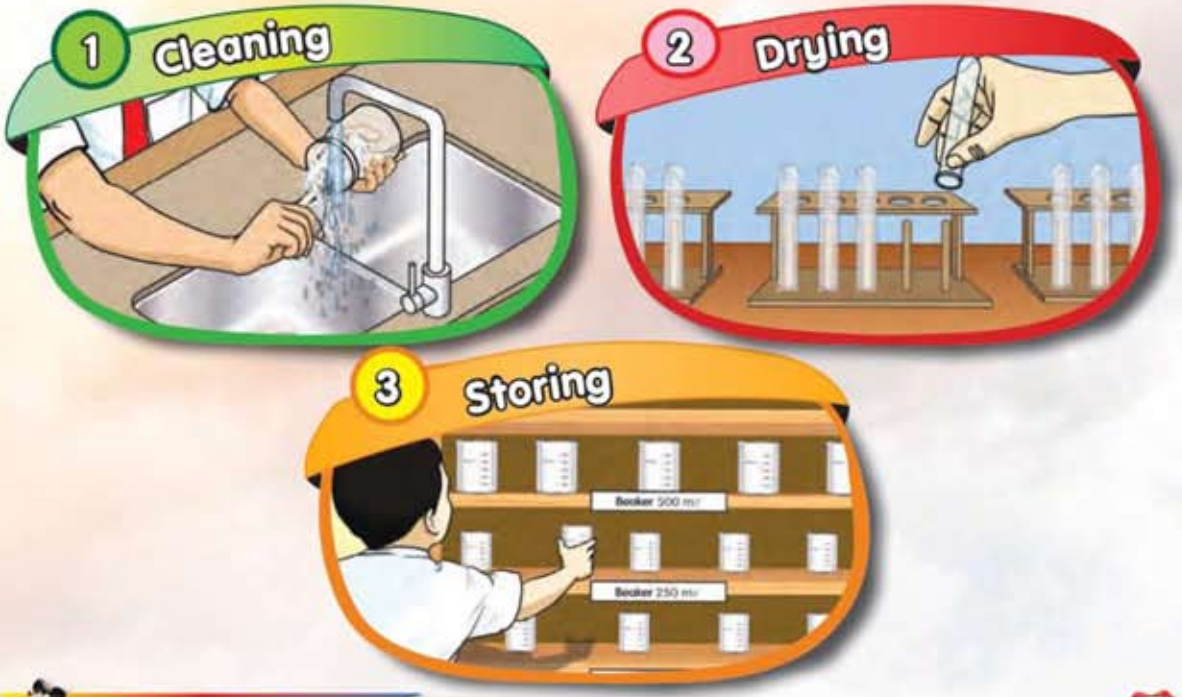




Activity Book Pages: 12-13

Cleaning and Storing Science Apparatus

After completing a science investigation, we must clean, dry, and store the science apparatus correctly.



Fun Activity Sketch It Right

INDIVIDUAL

Apparatus and Materials

- test tube
- beaker
- ruler
- pencil
- A4 paper
- coloured solution
- 300 mℓ of water

Steps

1. Pour the coloured solution into the test tube.
2. Put the test tube inside the beaker that is filled with 300 mℓ of water.
3. Sketch the test tube in the beaker according to the diagram shown.
4. Label the sketch.
5. Clean the test tube and beaker. Then, store them.

1.2.3
1.2.4
1.2.5

Activity Book
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Leisure Science — Magical Balloon

Steps

1. Attach a balloon to the rim of the bottle.
2. Put the bottle in a container filled with ice cubes.
3. Observe the result.
4. Predict what would happen to the balloon if it is put in a container filled with hot water. Caution

What was the result?
Did you make a correct prediction?

Let's Remember

1. **Science Process Skills**
   - observing
   - classifying
   - measuring and using numbers
   - making inference
   - predicting
   - communicating

2. **Manipulative Skills**
   - Use and handle science apparatus and substances correctly.
   - Handle specimens correctly and with care.
   - Sketch specimens and science apparatus correctly.
   - Clean science apparatus correctly.
   - Store the science apparatus and substances correctly and safely.

Let's Answer

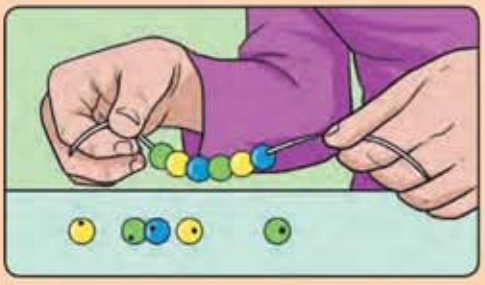
Answer all the questions in the Science exercise book.

1. What are the senses used to make an observation of the durian?

2. What characteristics do these animals share?

3. A ruler is an apparatus that we use to measure _____ in centimetres.

4. Aishah is making a bracelet using multicoloured beads. Predict the colour of the next bead.



5. Make an inference about a torch that does not have light.

6. Information and data may be presented in various forms such as a table, _____, diagram or model.

7. State **true** or **false** for the following statements:
   (i) We should throw specimens in the sink.
   (ii) We should use wooden tongs to hold a hot test tube.
   (iii) We should use specimens in large quantities.
   (iv) We should label each sketch of the science specimens, apparatus, and substances.

8. What must be done after completing a science investigation?

HOTS

Your friend threw soil specimen in the sink. What should you do? Why?