



Mauritius Examinations Syndicate

PRIMARY SCHOOL ACHIEVEMENT CERTIFICATE

SCIENCE

Specimen Assessment Booklet

GRADE 5

This document contains the Science specimen assessment booklet for Grade 5. This is the first part of the modular PSAC assessment in Science. It also contains the specimen mark scheme and relevant information in connection with the development of the assessment.

February
2017

Background

The introduction of the Primary School Achievement Certificate (PSAC) in replacement of the Certificate of Primary Education (CPE) has prompted a major review of the end of primary cycle assessment. In particular, the assessment has been reviewed in line with the new goals and objectives of the revised National Curriculum Framework, Grades 1 to 6. It seeks to enhance the pedagogical experience pupils would derive from the assessment.

The paper design has changed with the focus being on the assessment of inquiry skills and competencies across the ability range. Simultaneously, the modular assessment in Science is being introduced as from 2017. The modular assessment will contribute to the award of the PSAC at the end of Grade 6.

In line with these changes, a specimen assessment booklet for assessment in Grade 5 Science has been developed.

This document contains the following:

1. The guiding principles underlying the assessment
2. The Grade 5 paper design
3. The Grade 5 specimen assessment booklet
4. The Grade 5 specimen mark scheme

Modular Assessment

The modular assessment in Science is being introduced as part of the new end of primary cycle assessment, the Primary School Achievement Certificate. The modular assessment will be taken in two parts: the first part of the assessment will be at the end of Grade 5 and the second part of the assessment will be towards the end of Grade 6. The Grade 5 assessment will be introduced in 2017 and will be based on the Grade 5 syllabus. Pupils will take the second part of their modular assessment when they will be in Grade 6 in 2018. The Grade 6 assessment will be based on the Grade 6 syllabus mainly. The weighting given to each part assessment is 50%.

Guiding Principles

The current Standard V assessment was mainly meant to be used as a classroom tool to provide feedback to Educators. It principally assessed the recalling of facts. In addition, the assessment in Standard V was not part of the end of primary cycle certification process.

With the introduction of the modular assessment in Science as part of the PSAC Assessment, a complete review of the assessment has been carried out. The new Grade 5 specimen assessment booklet has been designed and developed guided by principles of fairness, the need to set learning standards, the importance of ensuring positive washback, the educational value of the inquiry based approach and the contribution of the subject to the overall education of the learner. It will provide greater opportunity for pupils to demonstrate their understanding and to apply their knowledge of Science.

The following guiding principles and considerations informed the development of the assessment booklet:

1. Closely linked to the Teaching and Learning Syllabus:

Educators and learners are encouraged to familiarise themselves with the content and specifications of the NCF and the Teaching and Learning Syllabus. Reference to the textbook alone would not provide a complete understanding of the learning aims, outcomes and objectives.

2. To have a positive washback on teaching and learning:

The assessment of the knowledge acquired, as well as that of the important skills and competencies in Science, is expected to feed positively in the learning process. This will encourage the development of scientific literacy instead of knowledge of content only.

3. To discourage teaching to the test:

At classroom level, the teaching should be rich and the pupils should be motivated to learn more and to ask questions rather than to learn content by heart. With the new design proposed, the paper becomes less predictable so that teaching to the test is discouraged and the teaching is rather focused on nurturing pupils' liking for and their interest in the subject.

4. To promote a deeper understanding of concepts and critical thinking:

By encouraging a deeper understanding of scientific concepts, the Science assessment seeks to discourage pupils from rote learning. Pupils will be assessed not only on their ability to recall scientific facts and phenomena but also on their ability to apply their knowledge to a given context. They will be encouraged to think and bring their own reasoning to the assessment rather than just try to remember or reproduce what they have learnt by heart.

5. To promote the development of inquiry skills:

The curriculum and the Teaching and Learning Syllabus put much emphasis on the development of inquiry skills. Inquiry skills, as defined in the syllabus, relate to a pupil's ability to do the following:

- Questioning
- Predicting
- Observing
- Investigating and experimenting
- Classifying
- Measuring
- Comparing
- Drawing conclusions
- Communicating
- Explaining based on observations
- Problem-solving
- Decision making

The assessment takes into consideration the above skills and provides opportunities for pupils to show their understanding and the mastery of these skills.

In addition, the assessment will encourage a greater understanding of the scientific method. While carrying out experiments at classroom level is not new in itself, often the reason and the purpose of each step undertaken in a scientific experiment are not explained. It is expected that a proper understanding of the scientific method (adapted to the level of pupils) will be helpful to the pupils not only in Science but across subjects and also as they continue their learning process in the higher grades.

6. To be fair:

A key consideration is that of fairness. The assessment has to be fair in the way it assesses the pupils and the level at which they are assessed. The assessment should provide the opportunity for less performing pupils to show what they can do while at the same time enabling the more able pupils to demonstrate their capabilities as well. The mark allocation has also been reviewed in view of allowing a fairer marking of the paper, where all marks are accounted for.

Paper Description

The purpose of the specimen assessment booklet is to give an idea of the design of the assessment, the types of questions that might be set and the level at which the syllabus content and subject skills are treated. It should not be seen as fixed in terms of types of items for the different questions nor in terms of the way the different topics are treated. For instance, if the question on 'Animals' in the specimen paper is principally assessing knowledge and understanding, it can also be treated in a question which is more inquiry based.

The specimen assessment booklet also respects the weighting of the assessment objectives given in the Annual Programme for the PSAC Assessment 2018. It caters for the whole ability range of pupils with a number of items assessing knowledge while also having items assessing understanding, application and inquiry skills.

The description for the Science assessment in Grade 5 is given in the Annual Programme for the PSAC Assessment 2018. The following is an extract from the document:

The assessment will have a modular approach. The first assessment will be carried out at the end of Grade 5 based on the Grade 5 syllabus and the second assessment will be set towards the end of Grade 6 and will be essentially based on the Grade 6 syllabus in Science. Each paper will be of a duration of 1 hour and will each carry a total of 50 marks. Each assessment paper will carry a weighting of 50%.

The papers will comprise 5 - 6 questions each with a number of items graded in terms of difficulty level. Questions will be set based on the different assessment objectives. Questions may be contextualised. The items will be a mix of objective-type, fixed response, short-structured and open-ended items.

Learners may also have to draw, label, fill in tables, complete and interpret simple charts.

For private candidates, the assessment will be carried out through a single external assessment conducted by the MES.

Table 4 shows the weighting of the different assessment objectives in Science.

Table 4: Weighting of the Assessment Objectives in the Science Paper

Assessment Objectives	Weighting / %
<i>Knowledge & Understanding</i>	40
<i>Application</i>	40
<i>Inquiry Skills</i>	20

In this document, the specimen assessment booklet is given along with a brief description of each item. For each item or question, the following details are given:

1. The assessment objective (AO)
2. The learning objective (LO) from the Teaching and Learning Syllabus
3. The topic being covered
4. Where possible, a reference to the textbook.

This information is provided as guidance for Educators. It will give an indication of how the different learning objectives are being assessed and how the questions/items can be grouped under the different assessment objectives.

The assessment booklet also takes into consideration the scope of the learning domains for Science as defined in the Teaching and Learning Syllabus. There are three main learning domains:

- Knowledge and Understanding
- Inquiry Skills and Processes
- Attitudes and Values

Refer to the *Teaching and Learning Syllabus (December 2015)* published by the MIE for more details.

Paper Design

The first question in the assessment booklet consists of 5 multiple choice questions (MCQs). The MCQs can be on any of the three assessment objectives but are expected to be within the reach of all pupils. The questions within the assessment booklet will be graded in terms of difficulty level and the items within a question will also be graded in terms of difficulty level with the easier questions at the beginning. The questions will not be of a fixed type and can be based on any of the topics covered in Grade 5.

Specimen Mark Scheme

The specimen mark scheme is also included in this document. This specimen mark scheme gives the expected answers for the different items. However, during an assessment, each answer given by the pupils which is not found in the mark scheme has to be considered and a decision made as to whether it is correct, wrong or an answer deserving a lower weighting mark. As such the answers given in the mark scheme are not exhaustive.

References:

1. Mauritius Institute of Education (November 2015); *National Curriculum Framework Grades 1 – 6*
2. Mauritius Institute of Education (December 2015); *Science Teaching and Learning Syllabus Grades 3 to 6*
3. Mauritius Examinations Syndicate (January 2017); *Annual Programme for the Primary School Achievement Certificate (PSAC) Assessment for 2018*



Let the mind manage the body
Que l'esprit gère le corps

SCIENCE

(Subject Code No. P141/1)

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Index Number:

MAURITIUS EXAMINATIONS SYNDICATE

Primary School Achievement Certificate Assessment
Specimen assessment booklet for Grade 5 for assessment
as from 2017.

Time: 1 hour

Total marks: 50

INSTRUCTIONS TO CANDIDATES

1. Check that this assessment booklet contains 6 questions printed on 13 pages numbered 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 and 14.
2. Write your Index Number on the assessment booklet in the space provided.
3. You should not use red, green or black ink in answering questions.
4. Write all your answers clearly on the assessment booklet.
5. Attempt all questions.

Question	Marking		Revision		Control	
	Marks	Sig	Marks	Sig	Marks	Sig
1						
2						
3						
4						
5						
6						
TOTAL						
Signature (HoG)						

Question 1 (5 marks)

Circle the correct answer.

LO: Measuring: Selecting and handling simple apparatus for various uses
AO: Knowledge & Understanding
Topic: Water (pg 2)

1. **Diagram 1** shows an instrument used to measure temperature.
This instrument is called a _____.

- A bulb
- B switch
- C tester
- D thermometer

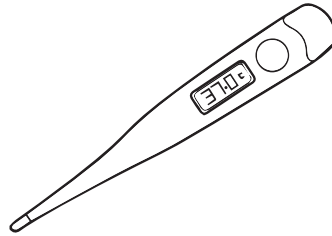


Diagram 1: An instrument

2. **Diagram 2** shows a man using an electric iron.



LO: State some examples of energy transformations in everyday life.
AO: Application
Topic: Transformation of energy (pg 67)

Diagram 2: Electric Iron

In an **electric iron**, **most** of the electrical energy changes into _____.

- A movement energy
- B light energy
- C heat energy
- D chemical energy

3. Which one of the following is a function of the **flowers** in a plant?

- A They attract insects for pollination.
- B They manufacture food for the plant.
- C They carry water to other parts of the plant.
- D They hold the plant in the soil.

LO: State the functions of the parts of a plant
AO: Knowledge and Understanding
Topic: Plants around us (pg 47)

4. One way of **saving** water is by _____.

- A using tap water for irrigation
- B collecting rain water for watering plants
- C evaporating seawater to make salt
- D taking many showers every day

LO: State some measures that we can take to save water.
AO: Application
Topic: Water

5. **Diagram 3** shows the cactus plant.

Which one of the following helps the **cactus** to live in **dry places**?

- A It has a short stem.
- B It has short roots.
- C It stores water in its stem.
- D It stores water in its flowers.

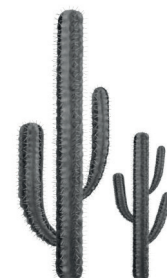


Diagram 3: Cactus

LO: Demonstrate appreciation that most plants live in habitats that are suitable for them
AO: Knowledge and Understanding
Topic: Plants in their habitats (pg 71)

Please turn over this page

Question 2 (8 marks)

LO: Sources of energy
AO: Application/ Knowledge & Understanding
Topic: Energy (pg 37)

a) **Diagram 4** shows some children playing football.



Diagram 4: Children playing football

(i) From where do the children obtain energy to play football?

_____ [1]

(ii) A car needs energy to move. Name a **source** of energy for the car.

_____ [1]

(iii) What is the source of energy for plants?

_____ [1]

(iv) Give **one** reason why plants need energy.

_____ [2]

b) **Diagram 5** shows octopuses drying on a line.



Diagram 5: Octopuses drying

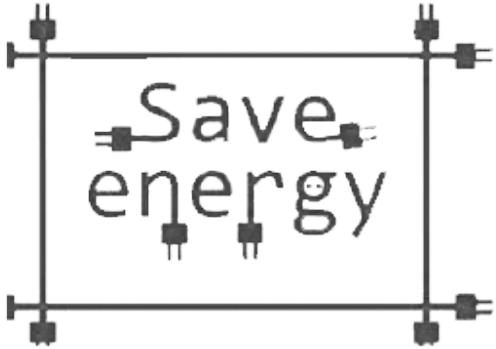
What **form** of energy is needed to dry the octopuses?

_____ [1]

c) Your teacher wants the class to make a poster to show how to save energy.
In the poster below, write down **two ways** how you can save energy **at home**.

[2]

1. _____



2. _____

LO: State some measures that we can take to save energy

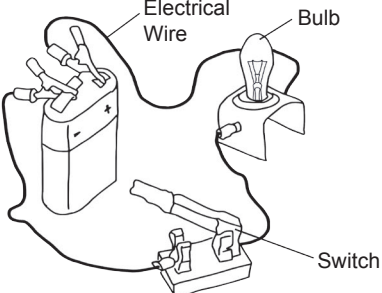
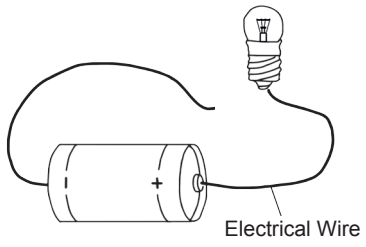
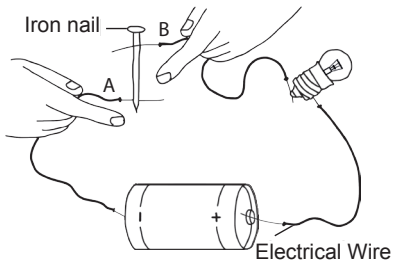
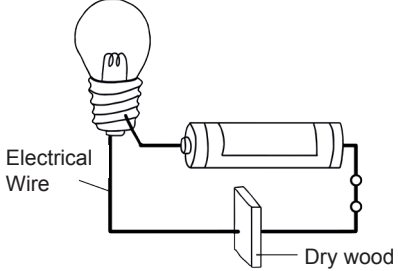
AO: Application

Topic: Transformation of energy (Pg 76)

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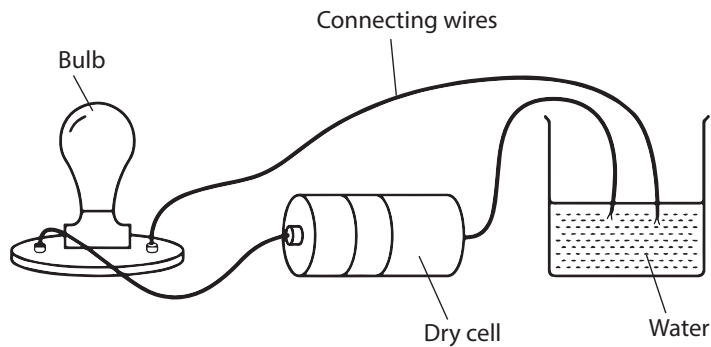
Question 3 (8 marks)

a) Study the circuits below. Put a tick if the bulb will light up and a cross if the bulb will not light up. An example is given. [3]

Electric Circuit	Tick <input checked="" type="checkbox"/> if the bulb will light up and cross <input type="checkbox"/> if it will not light up
<p>1.</p> 	<input type="checkbox"/>
<p>2.</p> 	<input type="checkbox"/>
<p>3.</p> 	<input type="checkbox"/>
<p>4.</p> 	<input type="checkbox"/>

LO: Identify components that can make a complete circuit
AO: Application
Topic: The simple electric circuit (pg 87)

- b) A material that allows electricity to flow through it is called a _____ of electricity. [1]
- c) Study the electric circuit shown in **Diagram 5** and answer the questions which follow.



LO: Safe use of electricity/ Insulators and conductors
AO: Inquiry Skills/ Knowledge & Understanding
Topic: The simple electric circuit (pg 106)

Diagram 5: Electric circuit

- (i) Will the bulb light up? _____ [1]
- (ii) Explain your answer.

_____ [1]

- d) **Diagram 6** shows a child playing with an electrical socket.



LO: Safe use of electricity
AO: Application
Topic: The simple electric circuit (pg 106)

Diagram 6: A child playing with an electrical socket

- (i) What danger is the child facing? _____ [1]
- (ii) What should be done to **avoid** this type of danger? _____ [1]

Please turn over this page

Question 4 (8 marks)

LO: The water cycle
AO: Knowledge & Understanding
Topic: Water (pg 21-23)

a) Study **Diagram 7** which shows the water cycle.

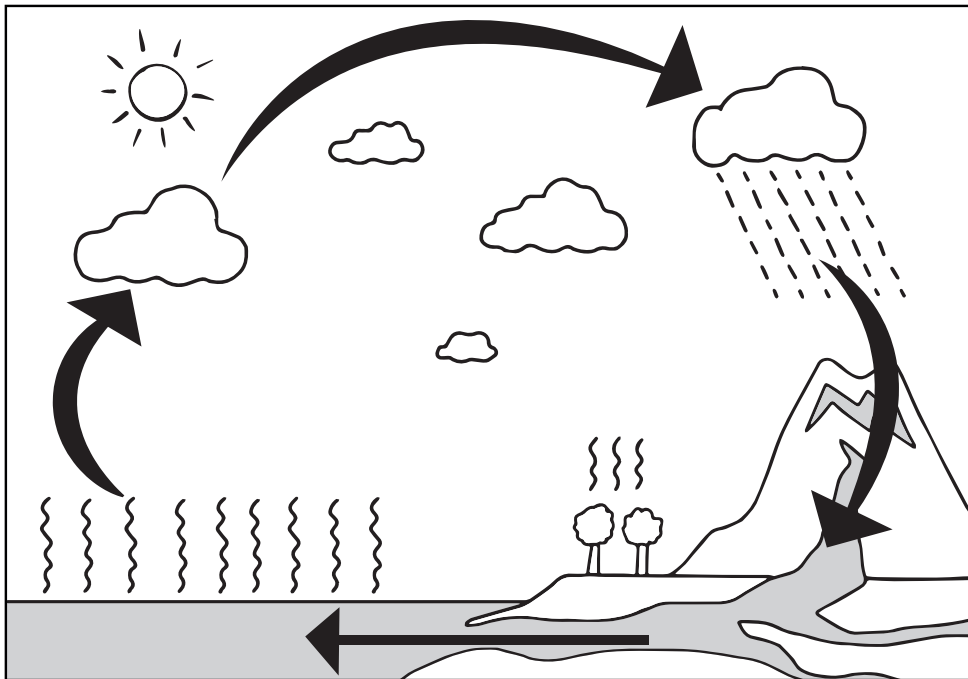


Diagram 7: Water Cycle

Fill in the blanks in the sentences below, using the following words:

sun **condenses** **rain** **wind**
evaporates **reservoirs**

- (i) Water from the surface of the sea, rivers and lakes _____ to form water vapour.
- (ii) Energy from the _____ changes liquid water into its gaseous form.
- (iii) As it is cold high up in the atmosphere, the water vapour _____ into tiny droplets of water.
- (iv) The liquid water falls as _____ .
- (v) This water can be collected in _____ .

[5]

b) Sam wants to investigate the effect of the water cycle on a small pond.

Diagram 8 shows the pond.

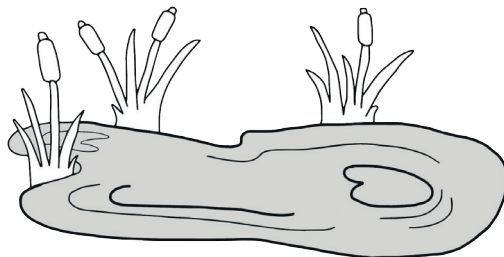


Diagram 8: A small pond

He records the depth of the pond at the same place every week in the table below.

Week	Depth of water in the pond
1	30 cm
2	31 cm
3	32 cm
4	34 cm
5	32 cm
6	30 cm
7	27 cm
8	26 cm
9

LO: The water cycle
AO: Inquiry Skills/
Application
Topic: Water
(pg 13-18)

(i) Suggest what type of weather occurred on **week 4**.

_____ [1]

(ii) On **week 9**, the weather was very **dry and sunny**. What could be the depth of the water at the end of week 9? Circle your answer.

A 23 cm **B** 30 cm [1]

(iii) Explain your answer in b (ii).

_____ [1]

Please turn over this page

Question 5 (10 marks)

- a) Ile aux Aigrettes is a small island which has been declared a nature reserve. It is the habitat of animals such as the Pink Pigeon, the Mauritian Fody and the Telfair's Skink.

Diagram 9 shows the island and the animals mentioned above.



Ile aux Aigrettes



Pink Pigeon



Mauritian Fody



Telfair's Skink

© Mauritius Wildlife Foundation

LO: Endangered and rare animals. Measures for protecting endangered animals
AO: Knowledge & Understanding, Application
Topic: Animals (pg 95-102)

Diagram 9: Ile aux Aigrettes and some of its animals

- (i) The Pink Pigeon is endemic to Mauritius. What does the term 'endemic' mean?

[1]

- (ii) Why is it important to protect endemic animals?



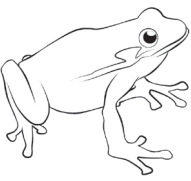

[2]

- (iii) Visitors are not allowed to eat and throw away food remains on the island. Suggest **one** reason why.

[2]

b) The table below shows different animals and some of their characteristics.

Based on the characteristics provided, circle the most appropriate habitat for each animal. An example is given. [3]

Animal	Characteristics	Habitat
1.  Polar bear	It has a thick fur coat which is white in colour.	<p>A African plains</p> <p>B Arctic region</p> <p>C Mauritian plains</p>
2.  Emperor Penguin	It has a layer of fat under its skin and feathers which protect it against strong winds.	<p>A Cold Antarctic sea</p> <p>B Tropical lagoons</p> <p>C Lake inside a forest</p>
3.  Frog	It lays eggs in water and has powerful legs to hop.	<p>A Inside the bark of trees</p> <p>B Inside burrows in the soil</p> <p>C On land and in ponds</p>
4.  Bat	It can easily move in the dark and can cling to different things.	<p>A Sandy beaches</p> <p>B Caves</p> <p>C Wetlands</p>

c) The habitat of the polar bear is the arctic region. How does its **thick fur** help it to survive in this region?

[2]

LO: Habitats of animals, investigate the features of animals which enable them to live in a particular place

AO: Application

Topic: Animals in their habitats (pg 87)

Please turn over this page

LO: - Conditions for plants to grow
- State what is soil erosion
- State the functions of the parts of a plant
AO: Knowledge and Understanding
Topic: Plants around us, More about plants

Question 6 (11 marks)

- a) Match the three different processes shown in **Column A** to their definitions in **Column B**.

Column A

Pollination

Erosion

Breathing

Column B

Plants take in oxygen and give out carbon dioxide.

The pollen from the male part of a flower is transferred to the female part.

New flowers are formed.

Loss of soil or sand often caused by human activities.

[3]

- b) Suzy carries out an experiment on the **germination of lettuce seeds**.

Step 1: She sows **ten** seeds at each of the following temperatures:

5 °C

10 °C

25 °C

LO: Germination
AO: Inquiry Skills
Topic: More about plants

Step 2: She counts the total number of germinated seeds at each temperature from **Day 1** to **Day 5**.

Step 3: She records her observations in a table as shown below.

Temperature	Total number of germinated seeds by the end of:				
	Day 1	Days 1 & 2	Days 1, 2 & 3	Days 1, 2, 3 & 4	Days 1, 2, 3, 4 & 5
5 °C	0	3	4	5	5
10 °C	1	5	7	8	9
25 °C	0	1	1	1

(i) According to you, how many germinated seeds were there at **25 °C** on **Day 3**?

_____ [1]

(ii) Which **condition** about the germination of lettuce seeds did Suzy test?

_____ [1]

(iii) Which **conclusion** can Suzy draw **from her experiment**?

A Lettuce seeds need fertile soil to germinate

B Lettuce seeds germinate best at 10 °C

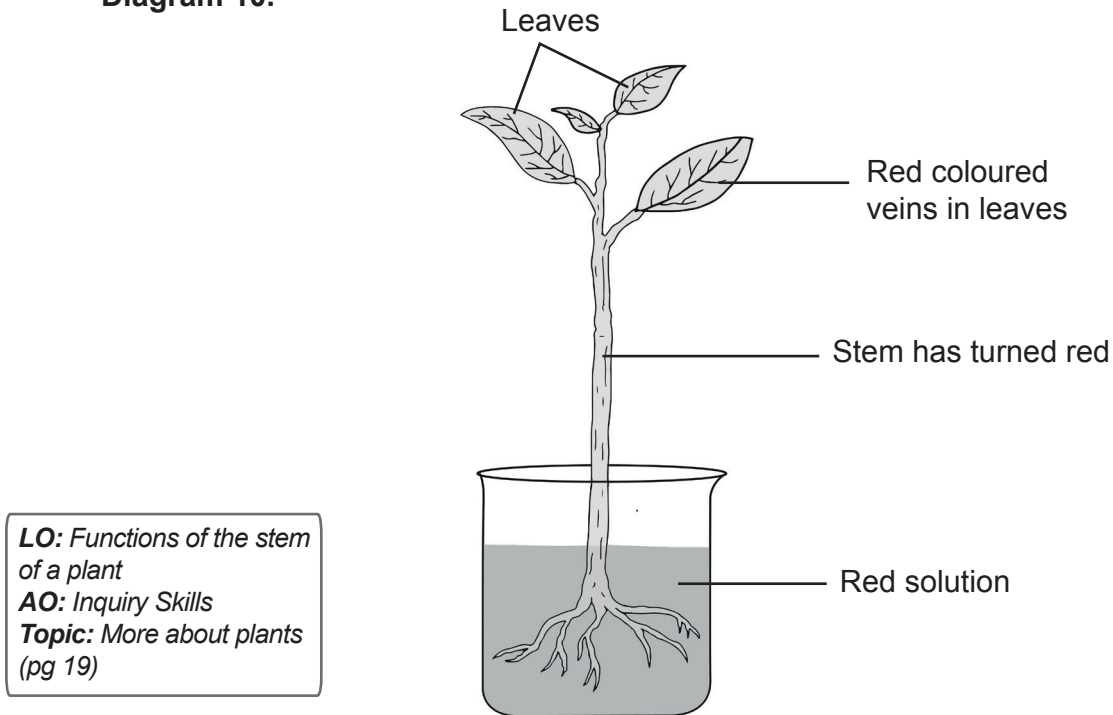
C Lettuce seeds need a lot of water to germinate

[1]

(iv) Explain why **only** this conclusion in (b) (iii) is possible.

_____ [2]

- c) You want to observe the movement of water up a plant.
You use a balsam plant which you place in a coloured (red) solution as shown in **Diagram 10**.



LO: Functions of the stem of a plant
AO: Inquiry Skills
Topic: More about plants (pg 19)

Diagram 10: Balsam plant in a red solution

- (i) Why do you need to use a coloured solution in this experiment?

_____ [1]

- (ii) What does your observation tell you about the function of the stem in a plant?

_____ [2]



MAURITIUS EXAMINATIONS SYNDICATE

Primary School Achievement Certificate Assessment

Science Specimen Assessment Booklet
Grade 5

Specimen Mark Scheme

Note: The specimen mark scheme is provided for guidance purposes only and does not provide an exhaustive list of all acceptable answers. For the end of year assessment, the mark scheme is only finalised after a rigorous sampling exercise.

AW – accept alternative wording

AVP – accept alternative valid point

Question 1

Give one mark to each correct answer:

1. D

2. C

3. A

4. B

5. C

5 x 1 = 5 marks

Question 2

a) (i) Give one mark to:
• From food/ eating food/ a source of carbohydrate

1 mark

(ii) Give one mark to:
• Fossil fuels/ petrol/ diesel/ gas/ electricity

1 mark

(iii) Give one mark to:
• The sun/ solar energy

1 mark

(iv) Give two marks to:
• To manufacture their food.
• To grow
(AVP)

2 marks

Lower weighting:

Give one mark to incomplete answers

- b) Give one mark to:**
- Heat energy
 - Accept solar energy/ movement energy
- 1 mark

- c) Give one mark each to any two of the following ideas:**
- Switch off electrical appliances when not in use.
 - Switch off the lights when we are leaving a room.
 - Do not switch on lights when there is daylight.
 - Load the washing machine fully before running it.
 - Do not leave the door of the refrigerator open.
- (AVP/AW)
- 2 marks

Total = 8 marks

Question 3

- a) Give one mark to each of the following:**
- 2. X
 - 3. ✓
 - 4. X
- 3 marks

- b) Give one mark to:**
- conductor
- 1 mark

- c) (i) Give one mark to:**
- Yes
- 1 mark

- (ii) Give one mark to any of the following ideas:**
- Water is a conductor of electricity
 - Since water is a conductor of electricity it will allow the flow of electricity.
- (AW)
- 1 mark

- d) (i) Give one mark to:**
- He can get an electric shock.
- (AW)
- 1 mark

- (ii) Give one mark to:**
- Place all electrical equipment/ sockets/ plugs out of the reach of children.
 - Electrical wires should not be left on the floor.
- (AVP/AW)
- 1 mark

Total: 8 marks

Please turn over this page

Question 4

a) Give one mark to each of the following:

- (i) evaporates
- (ii) sun
- (iii) condenses
- (iv) rain
- (v) reservoirs

5 x 1 = 5 marks

b) (i) Give one mark to:

- Rainy (accept rainy even if given with another weather condition)

1 mark

(ii) Give one mark to:

- A

1 mark

(iii) Give one mark to the following idea:

- (Since the weather was dry and sunny) the water has evaporated and the depth is less than 26 cm.

(Important idea: water has evaporated)

1 mark

Total: 8 marks

Question 5

a) (i) Give one mark to:

- An animal (or plant) which is unique to a place/ which is found only in one place/ country.

(AW)

1 mark

(ii) Give two marks to any of the following ideas:

- Because they might become extinct/ endangered
- Because they play an important role in nature/ the environment/ the ecosystem
- Because they are beneficial/ helpful/ useful to other plants and animals
- Since they are endemic they can easily become endangered and risk extinction
- Because we have to preserve them for future generations
- To preserve the natural beauty

2 marks

Lower weighting:

Give one mark to incomplete answers (AVP/AW)

- (iii) **Give two marks to any of the following ideas:**
- The food can be poisonous to the animals.
 - Food remains will litter the island, making it dirty.

2 marks

Lower weighting:

Give one mark to incomplete answers

- b) **Give one mark to each of the following:**

2. A
3. C
4. B

3 marks

- c) **Give two marks to:**

- The thick fur protects it from the cold.

2 marks

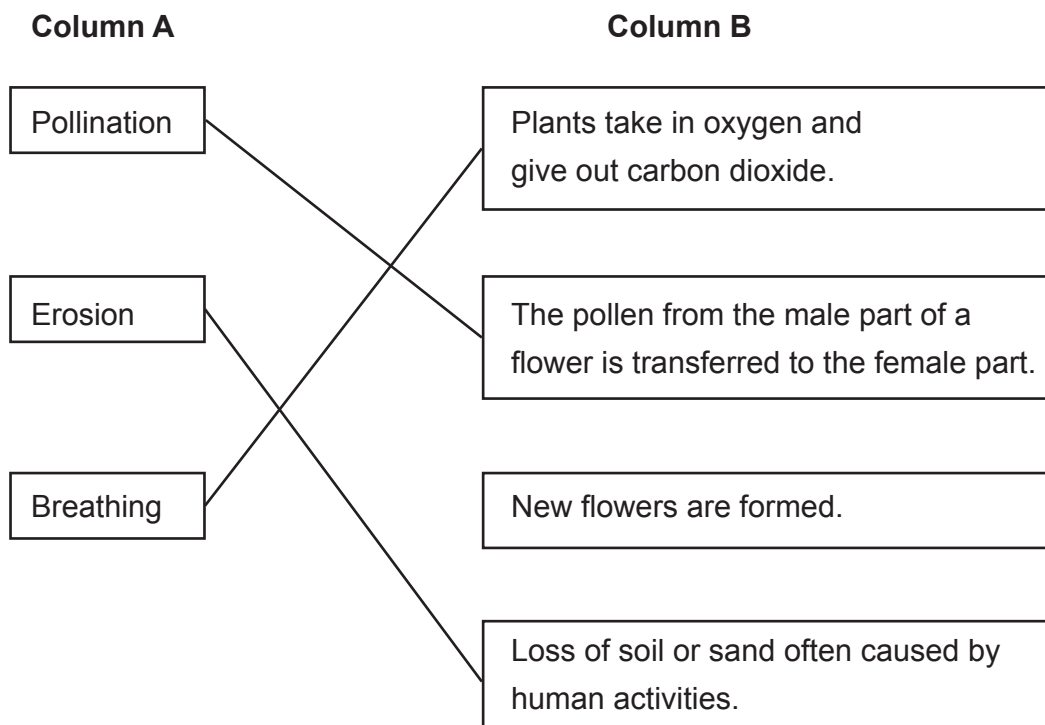
Lower weighting:

Give one mark to incomplete answers

Total: 10 marks

Question 6

- a) **Give one mark to each correct matching:**



3 marks

Please turn over this page

- b) (i) Give one mark to:**
- 1
- 1 mark
- (ii) Give one mark to:**
- Temperature/ effect of temperature (on the germination of seeds)
- 1 mark
- (iii) Give one mark to:**
- B
- 1 mark
- (iv) Give two marks to any of the following ideas:**
- Because in the experiment, only the effect of temperature was being tested.
 - Because we have not tested the effect of fertile soil or water on the seeds.
- (AW)
- 2 marks
- Lower weighting:
Give one mark to incomplete answers
- c) (i) Give one mark to any of the following ideas:**
- To be able to observe/ to observe
(as a coloured solution will be more visible)
 - Because with a coloured solution we can see the movement of water up the plant.
- 1 mark
- (ii) Give two marks to any of the following ideas:**
- The stem distributes water to the different parts of the plant.
 - The stem carries water from the root to the other parts of the plant.
- 2 marks
- Lower weighting:
Give one mark to incomplete answers

Total: 11 marks

