Shuqun Primary

# SCIENCE DEPARTMENT

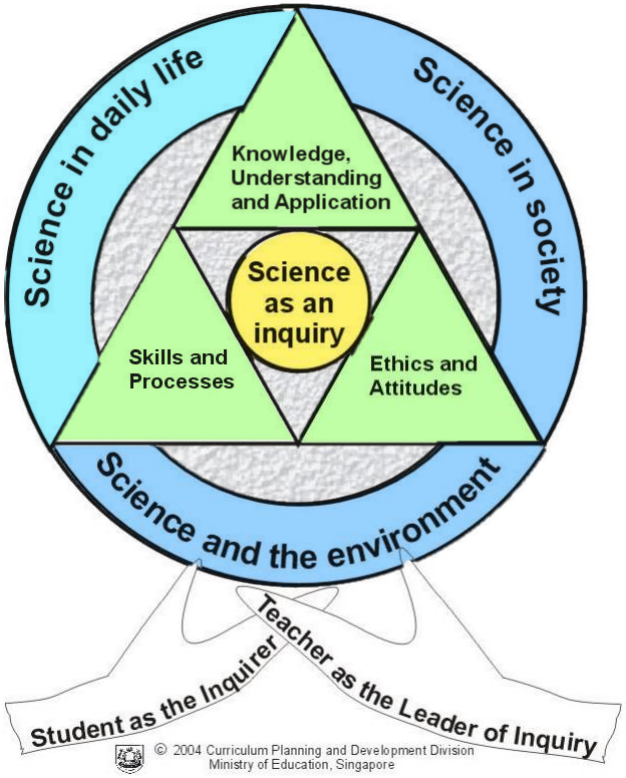
## Primary 4

## Briefing on Subject Based Banding

# Outline

- Overview of Primary Science Syllabus
- Assessment Objectives
- How you can support your child's learning

# Science Curriculum Framework




www.moe.gov.sg/docs/default-source/document/education/syllabuses/sciences/files/science-primary-2014.pdf

# PRIMARY SCIENCE SYLLABUS

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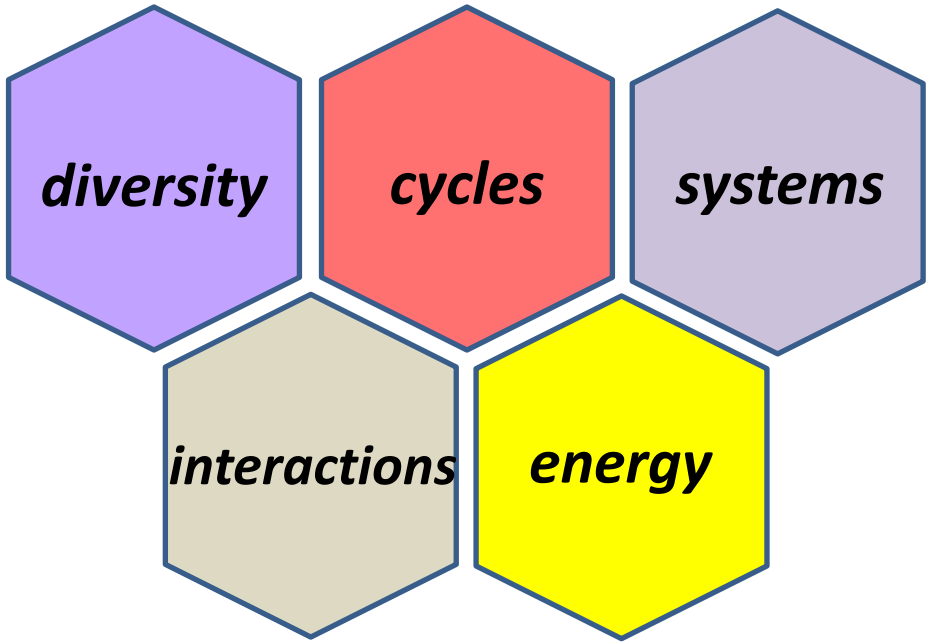
## Themes in Primary Science




Life Science

Physical Science

# SYLLABUS COVERAGE (P3 – P6)

| Themes | Life Science | Physical Science |
|---|---|---|
| **Diversity** | • Diversity of living and non-living things | • Diversity of materials |
| **Cycles** | • Cycles in plants and animals (Life cycles)<br>• Cycles in plants and animals (Reproduction) | • Cycles in matter and water (Matter)<br>• Cycles in matter and water (Water) |
| **Systems** | • Plant system (Plant parts and functions)<br>• Human system (Digestive system)<br>• Plant system (Respiratory and circulatory systems)<br>• Human system (Respiratory and circulatory systems)<br>• Cell system | • Electrical system |
| **Interactions** | • Interaction within the environment | • Interaction of forces (Magnets)<br>• Interaction of forces (Frictional, gravitational, springs) |
| **Energy** | • Energy forms and uses (Photosynthesis) | • Energy forms and uses (Light)<br>• Energy forms and uses (Heat)<br>• Energy Conversion |

# SYLLABUS COVERAGE (P3 – P4)

| Themes | Life Science | Physical Science |
|---|---|---|
| **Diversity** | • Diversity of living and non-living things | • Diversity of materials |
| **Cycles** | • Cycles in plants and animals (Life cycles) | • Cycles in matter and water (Matter) |
| **Systems** | • Plant system (Plant parts and functions)<br>• Human system (Digestive system) | |
| **Interactions** | | • Interaction of forces (Magnets) |
| **Energy** | | • Energy forms and uses (Light)<br>• Energy forms and uses (Heat) |

# ASSESSMENT FORMAT

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The end-of-year examination consists of one written paper comprising two booklets, Booklet A and Booklet B.

| Booklet | Item Type | Number of Questions | Number of marks per question | Marks |
|---|---|---|---|---|
| A | Multiple-choice | 30 | 2 | 60 |
| B | Structured /Open-ended | 14 | 2, 3 | 40 |
| **Total: 100 marks** | | | | |

Duration of Paper: 1 hour and 45 minutes

Students can attempt any of the booklets first.

# ASSESSMENT OBJECTIVES

| Assessment Objectives | Weighting |
|---|---|
| **Basic Questions**<br>(MCQ & Structured Questions) | **30%** |
| **Knowledge with Understanding *(K/U)***<br>Demonstrate knowledge and understanding of fundamental scientific facts, concepts and principles. | 20% |
| **Application of Knowledge and Process Skills *(A)***<br>Apply scientific facts, concepts and principles to new situations.<br>• Use one or a combination of **process skills**. | 50% |

# ITEM TYPE:MULTIPLE-CHOICE QUESTION (BASIC)

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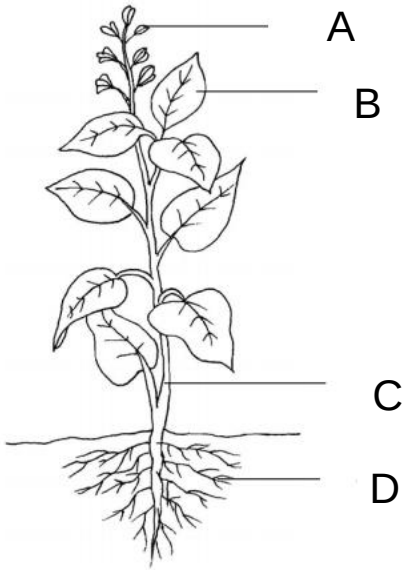
Study the diagram below.




Which one of the parts, A, B, C or D, keeps the plant upright?

(1) A
(2) B
(3) C
(4) D

# ITEM TYPE: STRUCTURED QUESTION (BASIC)

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Sue observed and grouped some things as shown in the table. [2]

| A | B |
|---|---|
| tiger | pen |
| mould | car |
| butterfly | fan |

What are the suitable headings for groups A and B?

Group A: _____

Group B: _____

# ASSESSMENT OBJECTIVES

| Assessment Objectives | Weighting |
|---|---|
| **Basic Questions**<br>(MCQ & Structured Questions) | **30%** |
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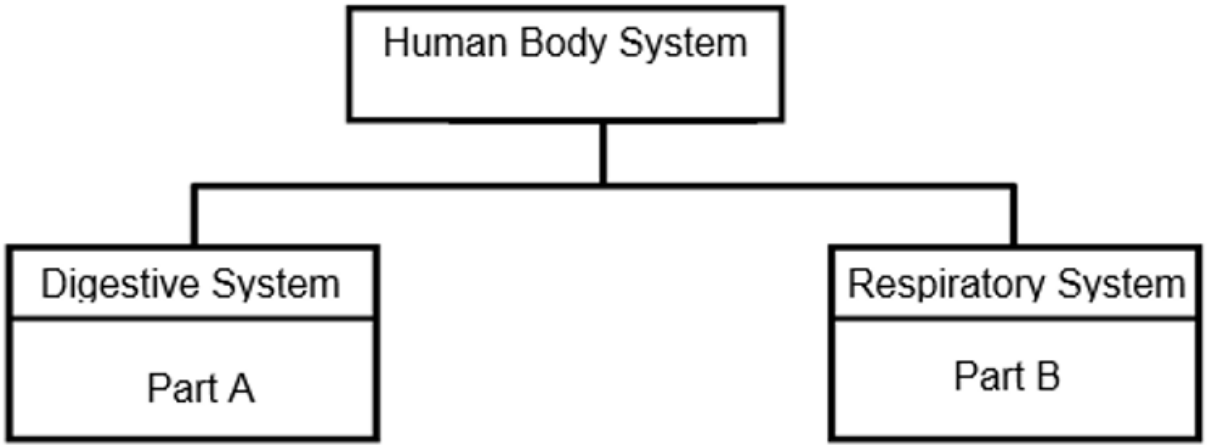
| **Application of Knowledge and Process Skills *(A)***<br>Apply scientific facts, concepts and principles to new situations.<br>• Use one or a combination of **process skills**. | 50% |

# ITEM TYPE:MULTIPLE-CHOICE QUESTION

## Knowledge with Understanding

Study the classification chart below.




Which of the following pair matches parts A and B?

| | Part A | Part B |
|---|---|---|
| (1) | large Intestine | windpipe |
| (2) | stomach | gullet |
| (3) | lung | small intestine |
| (4) | windpipe | mouth |

(  )

# ITEM TYPE: Open-ended questions

## Knowledge With Understanding

The diagram below shows a toy car and a zebra.

toy car

zebra

Based on the characteristics of living and non-living things, state two differences between a zebra and a toy car. [2]

_____

# ASSESSMENT OBJECTIVES

| Assessment Objectives | Weighting |
|---|---|
| **Basic Questions**<br>(MCQ & Structured Questions) | **30%** |
| **Knowledge with Understanding *(K/U)***<br>Demonstrate knowledge and understanding of fundamental scientific facts, concepts and principles. | 20% |
| **Application of Knowledge and Process Skills *(A)***<br>Apply scientific facts, concepts and principles to new situations.<br>• Use one or a combination of **process skills**. | 50% |

- Inferring
- Predicting
- Analysing
- Evaluating
- Generating Possibilities
- Formulating Hypothesis
- Communicating

# ITEM TYPE: MULTIPLE-CHOICE QUESTION (Application)

Meimei heated some buns with a liquid filling as shown in Diagram 1.

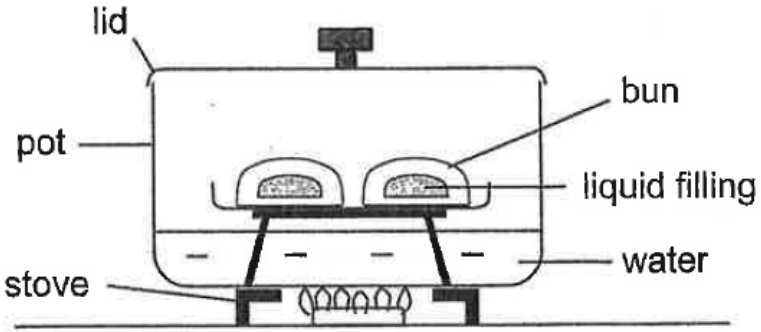



Diagram 1

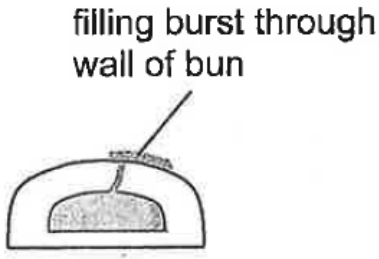



Diagram 2

After a while, the filling burst through the wall of the bun as shown in Diagram 2.

Which of the following best explains why?

(1) The wall of the bun is not waterproof.

(2) The filling expanded more than the bun.

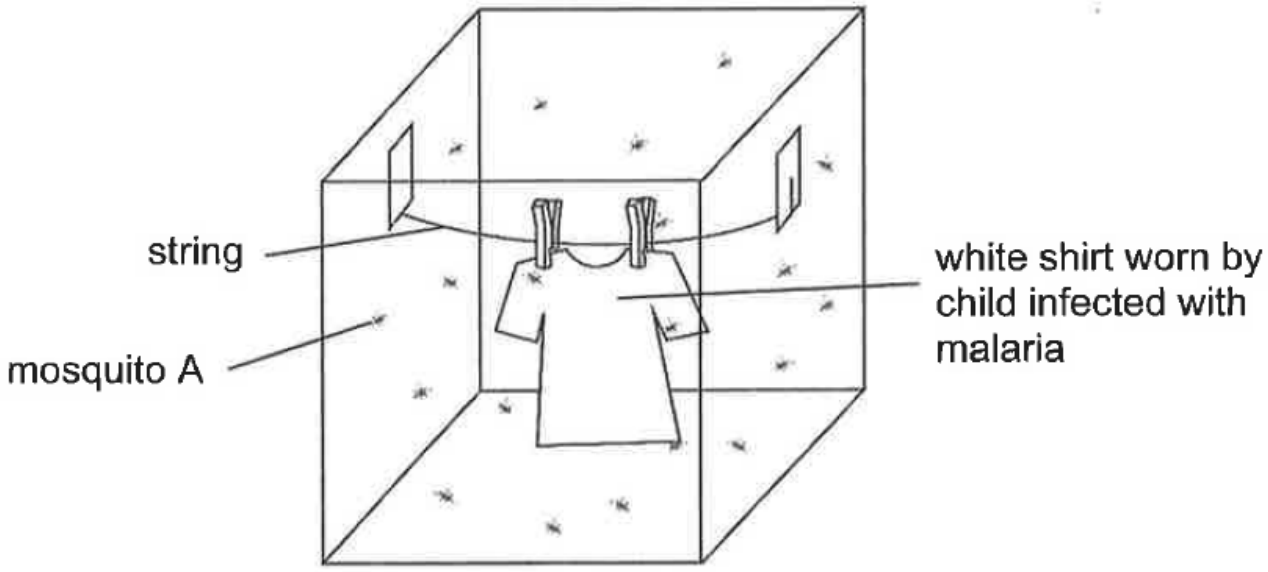
(3) The filling is hotter than the bun.

(4) Air trapped in the wall of the bun expanded.

# ITEM TYPE: OPEN-ENDED QUESTION (Application)

Malaria is a disease spread by mosquito A. Children infected with malaria are found to be bitten more often by mosquito A.

Joel wanted to find out if children infected with malaria are more attractive to mosquito A due to a certain smell that they produce. He used the set-up shown with 20 of mosquito A in box P.




Box P

Joel counted the number of times mosquitoes landed on the shirt for 3 minutes. He repeated the experiment using another shirt worn by an uninfected child in box Q.

# ITEM TYPE: OPEN-ENDED QUESTION (Application)

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(i) State a hypothesis on how the smell on a shirt affects its attractiveness to mosquito A. [1]

(ii) Joel used a white shirt instead of a black shirt for the experiment.
Suggest why using a white shirt allows him to obtain more accurate results. [1]

# RISE Strategy

(Multiple-Choice Questions)

**R**ead the question carefully. Study the given diagrams, tables or graphs.

**I**dentify concepts being tested.

**S**tudy all the options carefully.

**E**liminate distractors to arrive at the best possible answer.

# RISE Strategy

(Open-Ended Questions)

**R**ead the question carefully. Study the given diagrams, tables or graphs.

**I**dentify concepts being tested.

**S**elect relevant concepts to answer the question. Check mark allocation and answer to the point.

**E**xpress and **explain** your answer clearly.

# STRATEGIES IN ANSWERING OPEN-ENDED QUESTIONS

- Questions with the following terms:

  ***State***

  ***Identify***

  ***List***

  ***Name***

  ***Give an example***

**Requires short and direct answer. No explanation is needed.**

# STRATEGIES IN ANSWERING OPEN-ENDED QUESTIONS

- Questions with the following terms:

  ***Explain***
  ***Why***
  ***Infer***
  ***Describe***
  ***Conclude***
  ***Give a reason***

**Longer answers that require more details and scientific terms. Involve scientific reasoning and reference to science concepts.**

**DO NOT give one or two word answers.**

# STRATEGIES IN ANSWERING OPEN-ENDED QUESTIONS: C E R

- CLAIM
- EVIDENCE
- REASONING

# STRATEGIES IN ANSWERING OPEN-ENDED QUESTIONS: C E R

- C: Material X
- E: The temperature of water is lower after 15 minutes.
- R: Heat flows from the surroundings to the water faster (as X is a better/good conductor of heat).

- CLAIM
- EVIDENCE
- REASONING

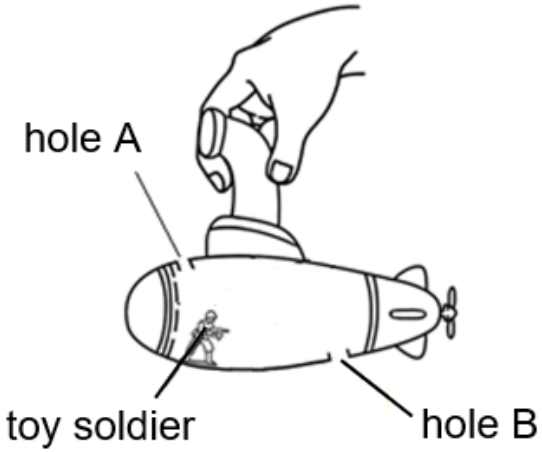
| Material of container | Temperature of water in container after 15 minutes (°C) |
|---|---|
| X | 70 |
| Y | 85 |

**(c)** Which material, X or Y, should Ziyan pick to make the tube of the water heater to heat the water in beaker B faster? [2]

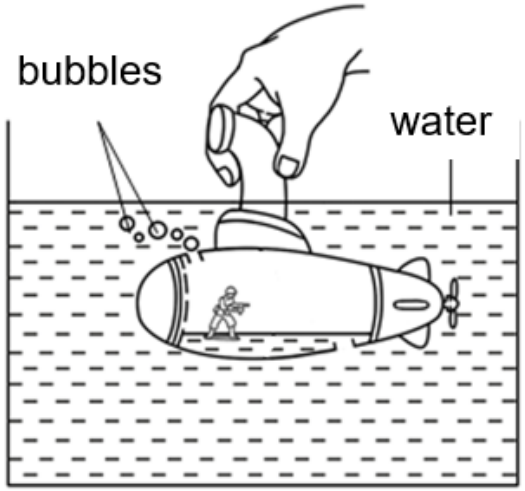
# COMMON OBSERVATIONS

## Students‘ answers lack precision and accuracy.

Eric placed a toy soldier in a submarine as shown below. There were two holes, A and B, on the submarine. When he pushed the submarine into a container of water, the toy soldier floated up and bubbles could be seen coming out from hole A.




**before putting in the tank**



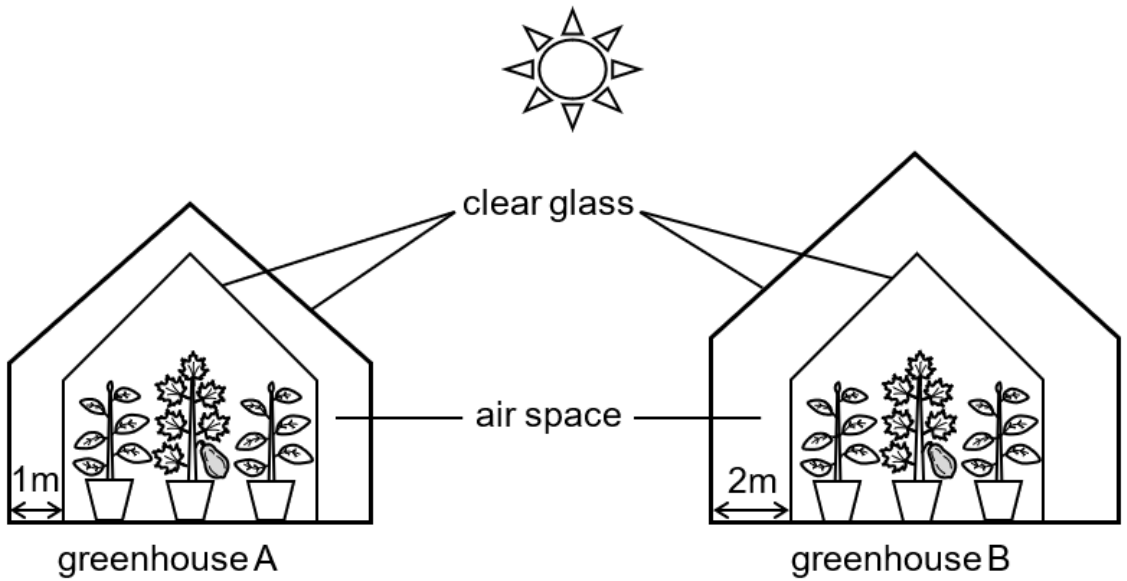

**after putting in the tank**

Air escapes from hole A [1] and then water enters from hole B to take the space previously occupied by the air [1].

# COMMON OBSERVATIONS

- Students do not show comparison.

The diagram below shows two greenhouses, A and B.




**(b)** Based on the diagram above, which greenhouse, A or B, is cooler on a hot day?

- C: Greenhouse B
- E: It has a thicker air space
- R: Less heat would flow from the surroundings into the greenhouse

# SUPPORTING YOUR CHILD IN SCIENCE

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- **Develop the love of science** in your child by encouraging their questions and relating science concepts to daily phenomenon.
- **Strengthen your child's conceptual understanding** by supporting your child to do the following:
    - Revising Primary 3 and 4 topics
    - Organising notes using concept/mind maps.
    - Using the scientific language associated to science concepts.
    - Going through questions in activity books, topical worksheets and exam practice papers.
    - Attempting practice papers within the stipulated time.

# Thank You!

For further queries, you may consult your child's 

teacher!