SCIENCE DEPARTMENT

Primary 4

Briefing on Subject Based Banding

Outline

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

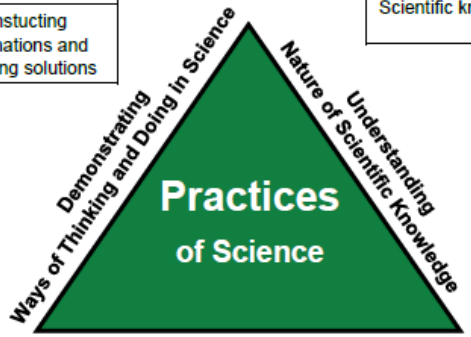
Science Curriculum Framework

https://www.moe.gov.sg/-/media/files/primary/syllabus/2023-primary-science.pdf

Science Curriculum Framework

Demonstrating WOTD		
Investigating ⇄	Evaluating and Reasoning ⇄	Developing and Evaluating Solutions
Posing questions and defining problems	Communicating, evaluating and defending ideas with evidence	Using and developing models
Designing investigations	Making informed decisions and taking responsible actions	Constructing explanations and designing solutions
Conducting experiments and testing solutions		
Analysing and interpreting data		

Understanding NOS
Science is an evidence-based, model-building enterprise to understand the real world.
Science assumes natural causes, order and consistency in natural systems.
Scientific knowledge is generated through established procedures and critical debate.
Scientific knowledge is reliable, durable, open to change in light of new evidence.



Relating
Science-Technology-Society-Environment

Relating STSE
There are risks and benefits associated with the applications of Science in society.
Applications of Science often have ethical, social, economic and environmental implications.
Application of new scientific discoveries often drive technological advancement while advances in technology enable scientists to make new or deeper inquiry.

https://www.moe.gov.sg/-/media/files/primary/syllabus/2023-primary-science.pdf

Inspiring Children…..Joy of Learning

- **Develop the love for science in your child**
  - encourage their questions
  - bring them outdoors to appreciate nature & Science
  - Bring them to Science Centre
  - relate science concepts to daily phenomenon

Basically Explore Together!






In Shuqun We have……

SQ Garden

Farming Zone

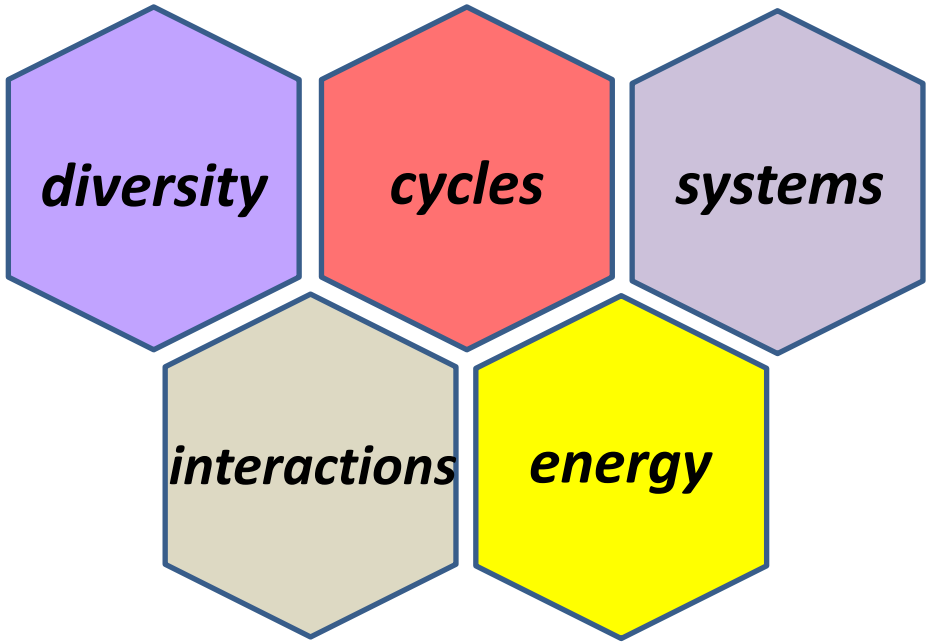
Imaginarium

Stemtopia

PRIMARY SCIENCE SYLLABUS

Shuqun Primary

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) • Cycles in plants and animals (Reproduction)	• Cycles in matter and water (Matter) • Cycles in matter and water (Water)
Systems	• Plant system (Plant parts and functions) • Human system (Digestive system) • Plant system (Respiratory and circulatory systems) • Human system (Respiratory and circulatory systems)	• Electrical system
Interactions	• Interaction within the environment	• Interaction of forces (Magnets) • Interaction of forces (Frictional, gravitational, springs)
Energy	• Energy forms and uses (Photosynthesis)	• Energy forms and uses (Light) • Energy forms and uses (Heat) • 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) • Human system (Digestive system)	
Interactions		• Interaction of forces (Magnets)
Energy		• Energy forms and uses (Light) • Energy forms and uses (Heat)

ASSESSMENT FORMAT

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

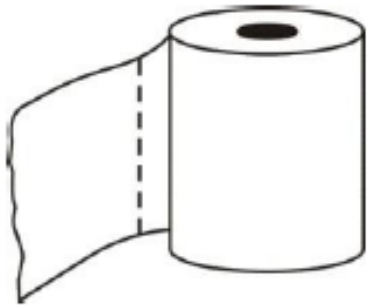
ITEM TYPE:MULTIPLE-CHOICE QUESTION (BASIC)

Which of the following objects is **not** made of waterproof material?

(1)

plastic umbrella

(2)*



toilet paper

(3)

metal fork

(4)

rubber gloves

ITEM TYPE: STRUCTURED QUESTION (BASIC)

M and N are stages in the life cycle of a butterfly.

M

N

Choose the correct words from the box to answer the questions below.

larva	eats	pupa	reproduces

(a) Name stages M and N. [2]

M: _____

N: _____

(b) At stage M, it _____ a lot. [1]

ASSESSMENT OBJECTIVES

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

ITEM TYPE:MULTIPLE-CHOICE QUESTION

Knowledge with Understanding

Study the two groups of objects below.

group A	group B
 ceramic teapot	 rope
 metal fork	 blanket

Which headings correctly describe groups A and B?

	group A	group B
(1)	floats on water	sinks in water
(2)	allows light to pass through	does not allow light to pass through
(3)	not flexible	flexible
(4)	breaks easily	does not break easily

ITEM TYPE: Open-ended questions

Knowledge With Understanding

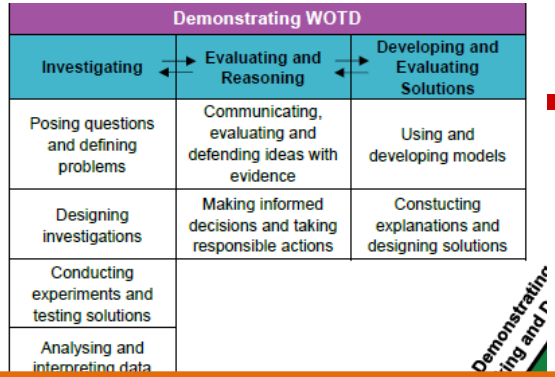
Tom saw animal G as shown below.

Which animal group does G belong to? State one characteristic of animal G.

[1]

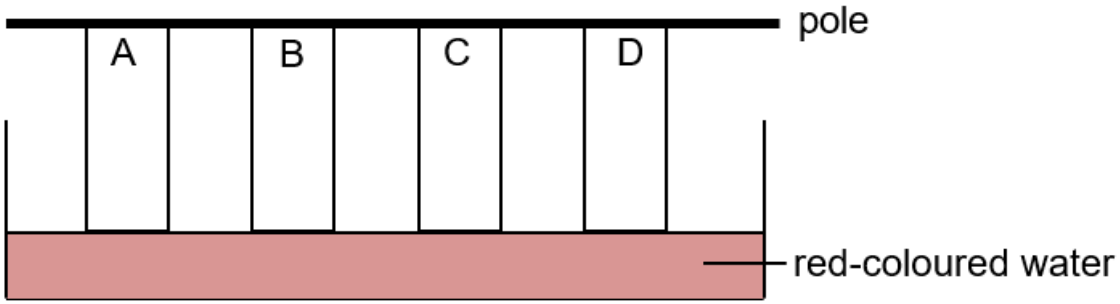
ASSESSMENT OBJECTIVES

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

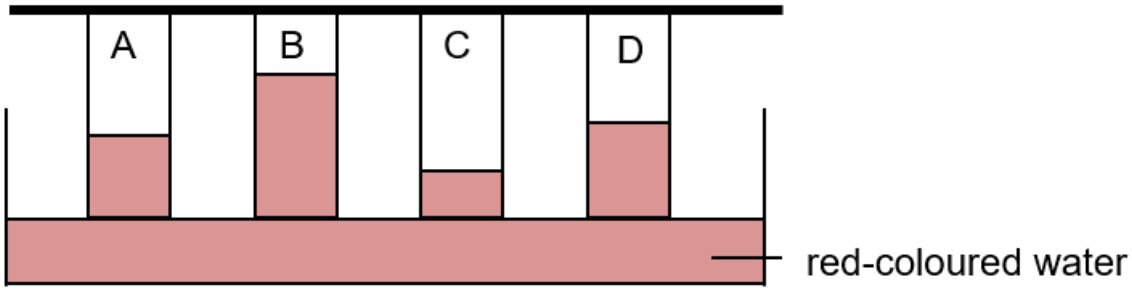


ITEM TYPE: MULTIPLE-CHOICE QUESTION (Application)

Alan wanted to measure the absorbency of four materials, A, B, C and D. He hung the materials in a container of red-coloured water, as shown below. The materials are of identical size and thickness.



He observed the amount of water absorbed by each material after five minutes, as shown below.



ITEM TYPE: MULTIPLE-CHOICE QUESTION (Application)

Shuqun Primary

Based on his observation above, which material is most suitable for making part X of a mop?

(1) A

(2) B

(3) C

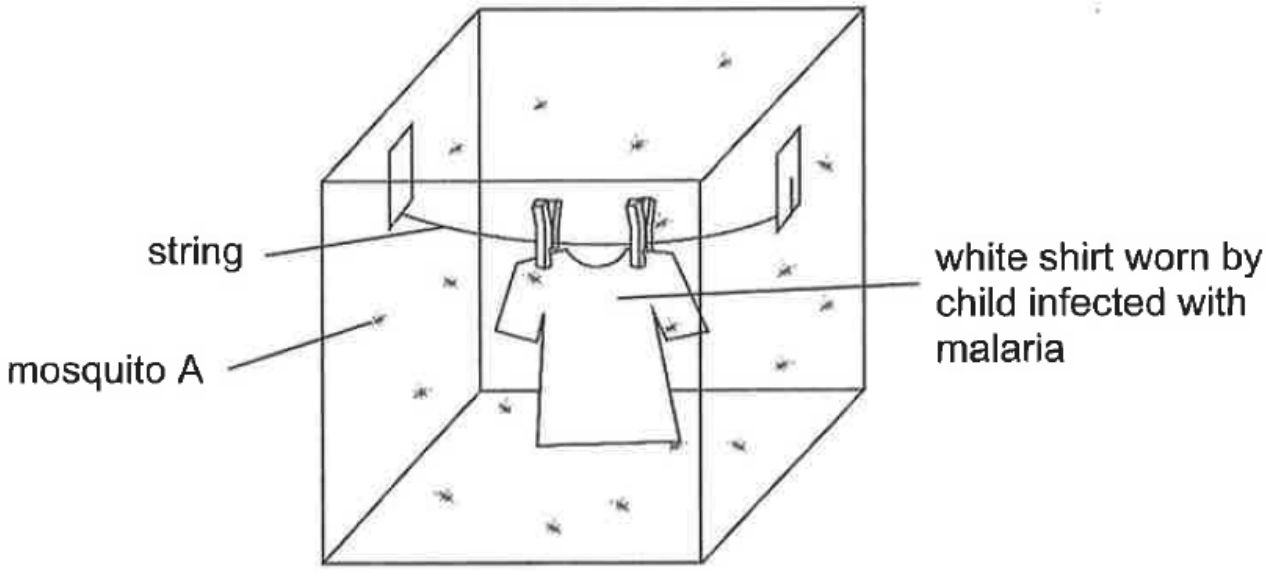
(4) D

Demonstrating WOTD		
Investigating	Evaluating and Reasoning	Developing and Evaluating Solutions
Posing questions and defining problems	Communicating, evaluating and defending ideas with evidence	Using and developing models
Designing investigations	Making informed decisions and taking responsible actions	Constucting explanations and designing solutions
Conducting experiments and testing solutions		
Analysing and interpreting data		

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)

Shuqun Primary

(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]

Demonstrating WOTD		
Investigating	Evaluating and Reasoning	Developing and Evaluating Solutions
Posing questions and defining problems	Communicating, evaluating and defending ideas with evidence	Using and developing models
Designing investigations	Making informed decisions and taking responsible actions	Constucting explanations and designing solutions
Conducting experiments and testing solutions		
Analysing and interpreting data		

RISE Strategy

(Multiple-Choice Questions)

Read the question carefully. Study the given diagrams, tables or graphs.

Identify concepts being tested.

Study all the options carefully.

Eliminate distractors to arrive at the best possible answer.

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.

<u>DO NOT</u> 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: Therefore, Heat would flow from the surroundings to the water faster (as X is a better/good conductor of heat).

She recorded her results in the table below.

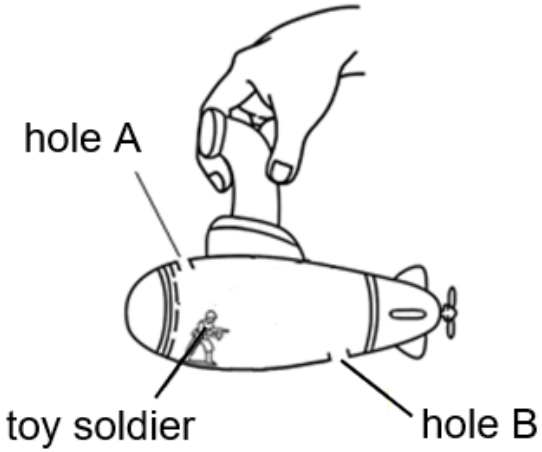
Material of container	Temperature of water in container after 15 minutes (°C)
X	70
Y	85

(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]

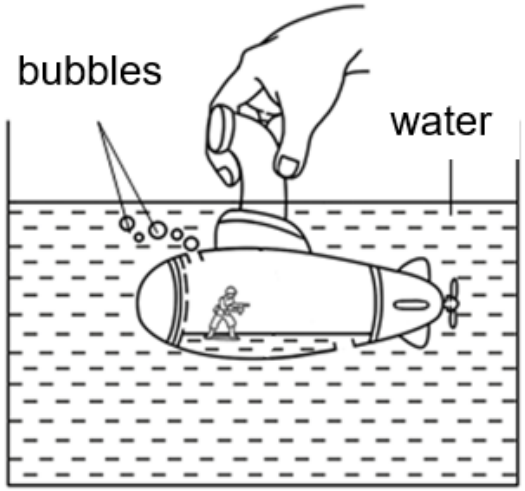
COMMON OBSERVATIONS

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



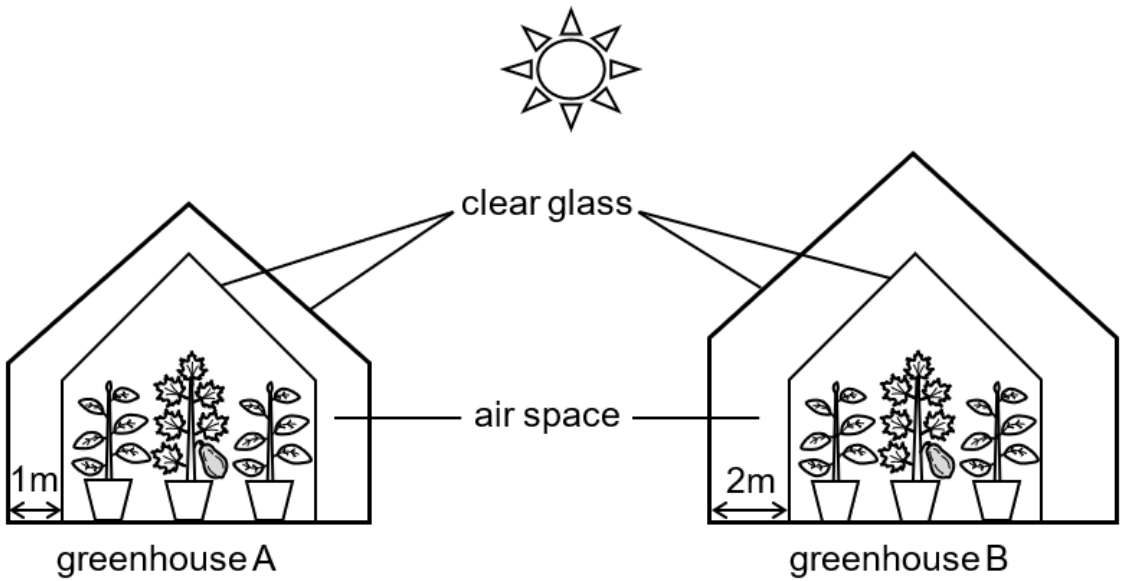
after putting in the tank

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

- **Strengthen your child's conceptual understanding** by supporting your child to do the following:
  - Revising Primary 3 and 4 topics
  - Organising notes using mind maps.
  - Using the scientific language associated to explain science concepts.
  - Going through questions in activity books, topical worksheets and exam practice papers.
  - Attempting practice papers within the stipulated time.
  - Allowing them to carry out scientific investigations at home and discuss their results with you.

Shuqun Primary

Thank You!

For further queries, you may consult your child's 

teacher!