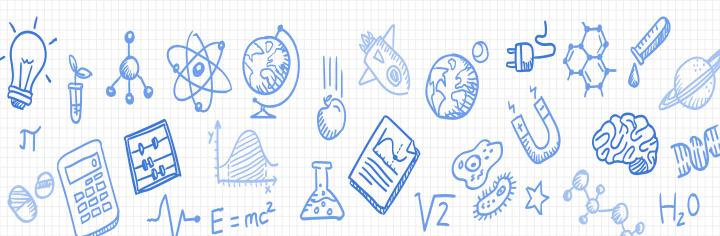
SCIENCE @ RMPS 2019



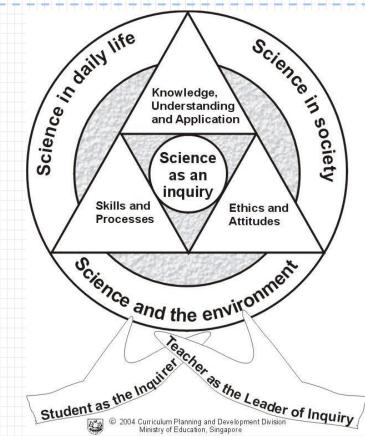
Vision

An inquirer with a passion for Science.

Mission

- To develop students with an inquiring mind.
- To equip students with scientific knowledge and skills.
- To make the learning of Science fun, meaningful and relevant.

Science Curriculum Framework



Inquiry-based Learning

Inquiry-based learning starts by posing questions, problems or scenarios rather than simply presenting established facts or portraying a smooth path to knowledge. The process is facilitated by the teacher.



Content

- Scientific phenomena, facts, concepts and principles
- Scientific vocabulary, terminology and conventions
- Scientific instruments and apparatus including techniques and aspects of safety
- Scientific and technological applications

Ethics & Attitudes

Curiosity, Creativity, Integrity, Objectivity, Openmindedness, Perseverance, Responsibility

Skills & Processes Observing, Comparing, Classifying, Using Apparatus & Equipment, Communicating, Inferring, Formulating hypothesis, Predicting, Analysing, Generating possibilities, Evaluating

Good content knowledge is not enough...

Content Knowledge Skills and Processes (Scientific Method and **Experimental Design**) +**Application** and articulation of concepts into authentic situations



What is Conceptual Understanding?

- Conceptual understanding requires students to organise facts and ideas into a meaningful concept and making connections in science.
- Moving beyond rote memorisation of facts. Therefore, students can apply their understanding of concepts to multiple contexts.

(Kang, N. G., & Howren, C., 2004)

- While there are certain scientific terms and concepts taught, pupils can demonstrate their understanding by using their own words.
- The focus of learning science is not on giving "standard answers" or keywords, but on developing students' ability to inquire, understand and explain scientific phenomena.

(Mr Sng Chern Wei, Director, CPDD1 From The Straits Times Forum, May 09, 2015)

- The learning of science does require a certain level of clarity though, in the way concepts are explained, given the context of the question.
- Otherwise, we may end up endorsing misconceptions in students or rewarding them for ambiguous responses.

(Mr Sng Chern Wei, Director, CPDD1 From The Straits Times Forum, May 09, 2015)

Strategies

- Read the questions carefully.
- Identify key phrases and words in the question stem before attempting to answer.
- Identify the concept tested.
- Model answering techniques.
- Reinforce use of
 Concept Apply Link (CAL) answering technique.



Primary Science Syllabus Overview

Themes	Lower Block (P3 & P4)
Diversity	 Diversity of living and non-living things
	 Diversity of materials
Cycles	Cycles of 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)

Primary Science Syllabus Overview

Themes	Upper Block (P5 & P6)	
Cycles	 Cycles in plants and animals (Reproduction) Cycles in matter and water 	
Systems	 Plant System Human System Cell System Electrical System 	
Interactions	Interaction of forcesInteraction within the Environment	
Energy	Energy forms and uses (Photosynthesis)Energy Conversion	

Assignments

- Activity Book
- Worksheets (filed in the Science file)
- Revision material



Assessment

Paper format

Multiple Choice	Open-Ended
28 questions	12-13 questions
56 marks	44 marks



Assessment

SA1 Topics	<u>Preliminary</u>
	Examination
• All P3, P4, P5 topics	• All P3-P6 topics
Energy	
 Energy Conversion 	
Forces	
 Interactions within 	
the Environment	



Parents as Facilitators

- ✓ Speaking
 ✓ Doing
 ✓ Visiting
- ✓ Reading

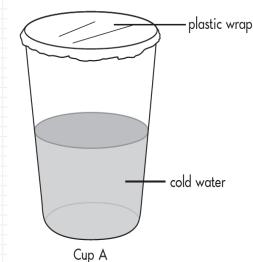


Speaking

Language used in Science is very often different from our day-to-day language.

Why does the cup feel wet?

- The water came from the fridge.
- The coldness of the cold water can be felt.
- The cold water came out of the cup.



Speaking

- Concept: Condensation
- Water vapour in the surrounding air came in contact with the cooler outer surface of the cup.
- The water vapour lost heat and condensed into water droplets.

Doing

Growing

- Green beans
- Chili seeds
- Peanuts
- Bread mould
- Mould on oranges

Keeping small animals

- Mealworms
- Fish
- Crayfish
- Snails

•

Bear in mind – responsibilities involved in pet ownership



Doing – E.g. growing green beans

Science Concepts:

- Living things need food, air and water.
- What are the conditions needed for germination?
 - How can I prevent my green bean from germinating?
- When does the developing seed need sunlight?

Doing – E.g. growing green beans

- Plants need sunlight to make their own food.
- Plants can reproduce from seeds.
- How to conduct a fair test?
- And more ...

Observing, Comparing, Classifying, Using apparatus and equipment, Communicating, Predicting, Formulating Hypothesis

Visiting

- Singapore Zoo / Night Safari / River Safari
- Jurong Bird Park
- S.E.A. Aquarium, Sentosa
- Marina Barrage
- Artscience Museum
- Kranji Farms
- Parks (E.g. Hortpark)
- Gardens by the Bay
- Sungei Buloh Wetland Reserve
- Singapore Science Centre
- Everywhere and Anywhere!

Reading

- Science Books
- Newspapers
- Magazines
- Youtube channel: <u>https://www.youtube.co</u> <u>m/user/1veritasium</u>
- MythBusters: <u>http://dsc.discovery.com/</u> <u>tv-shows/mythbusters</u>



100% Pure? New Zealand's deteriorating water raises a stink



FSI

SPH Websites

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FRAITS

How to save the planet: Eat less meat, more greens,

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No.