SCIENCE @ RMPS 2024



Vision

An inquirer with a passion for Science.

Mission

- \circ To develop students with an inquiring mind.
- To equip pupils with science knowledge, skills, dispositions and attitudes.
- To make the learning of Science exciting, 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.

- 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

Content

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 Mr Sng is now Deputy Director-General of Education (Curriculum)

- 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.

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Example

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

See the smoke coming out.
When water boils, you will see the white gas appearing.
Look at the heat in the air.



Example

Concept: Condensation

- SOURCE: Steam / hot water vapour
- from the kettle
- comes in contact with
- the cooler surrounding air
- loses heat and
- condenses into
- water droplets (mist).



Some common mistakes

- Not reading carefully and understanding the question Simply repeating the question/information given
- Writing too much or too little
- Misunderstanding or not following instructions
- Giving incomplete answers
- Writing disorganized answers (just writing whatever comes to mind without planning)
- Not providing evidence from the data given
- No link back to the question

Strategies

- Read the questions carefully. Look for clues in the question.
- Identify the concept tested.
- Identify aim and variables.
- Observe and study the data given in the graph / table / diagram / text.
- Provide evidence based on the data given and link back to the question context.

Strategies

- Annotate and plan key points before phrasing the final answer
- Model answering techniques (Concept-Apply-Link / Claim-Evidence-Reasoning)
- Answers should show use of correct scientific language expressed in a coherent and complete, yet concise way.



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	 Water and Changes of state Water Cycle Reproduction in Plants & Humans
Systems	 Plant Transport System Human Respiratory & Circulatory System Electrical System Cell System
Interactions	 Interaction of forces Interaction within the Environment
Energy	 Energy forms and uses (Photosynthesis) Energy Conversion

Assignments

- Activity Workbooks
- Topical Worksheets (filed in the Science file)
- Revision material
- Student Learning Space (SLS) / Online platforms



Enrichment

- STEAM Week
- Sustainability Programmes
- E2K Science (Sem 1 and Sem 2)*
- Science Olympiad*
- Competitions* such as STEM Challenge, Junior Science Whiz, etc.
- Learning Journey / Workshops



Assessment

Weighted Assessment

Performance Tasks/Topical Reviews

Term 2	Term 3
15%	15%

Semestral Assessment

- End-of-Year written examination (70%)
- Multiple Choice Questions (MCQ) and Open-Ended Questions (OEQ)
- All P3-P5 Topics



Visiting

- Singapore Zoo / Night Safari / River Safari
- Gardens by the Bay
- S.E.A. Aquarium, Sentosa
- Marina Barrage
- Artscience Museum
- Kranji Farms
- NParks
- Gardens by the Bay
- Sungei Buloh Wetland Reserve
- Singapore Science Centre
- Everywhere and Anywhere!



SPH Websites 👻

Reading

- Science Books
- Newspapers
- Magazines
- MythBusters
- Netflix, Disney+
- Youtube channels such as Veritasium, Sci Show Kids



ENVIRONMENTAL ISSUES

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



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(6 hours ago

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



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