

# SCIENCE @ RMPS

## 2020



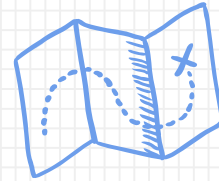
# Vision

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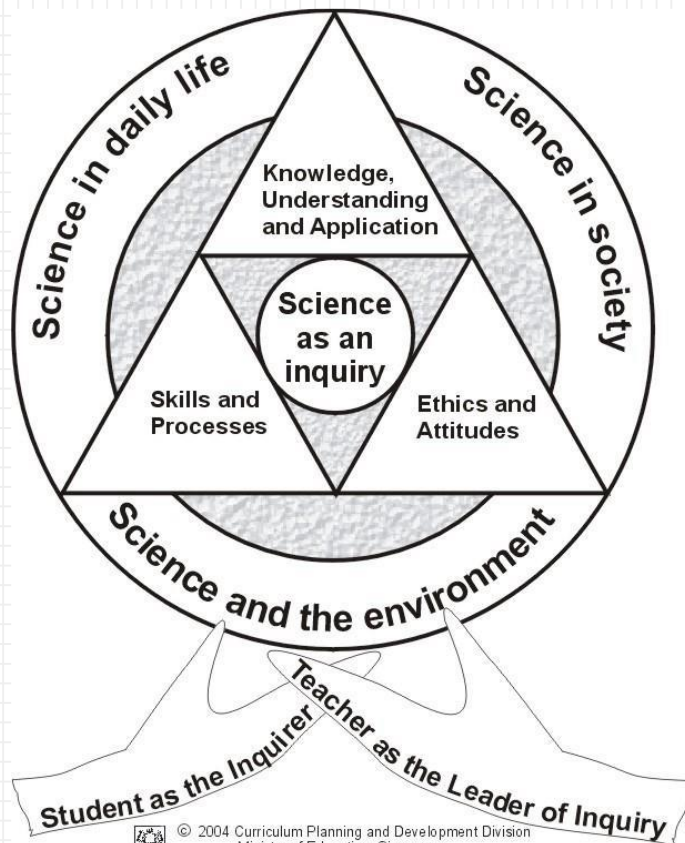
**An inquirer with a passion for Science.**

## 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** 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, Open-mindedness, 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...

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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.**



- 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.

# Strategies

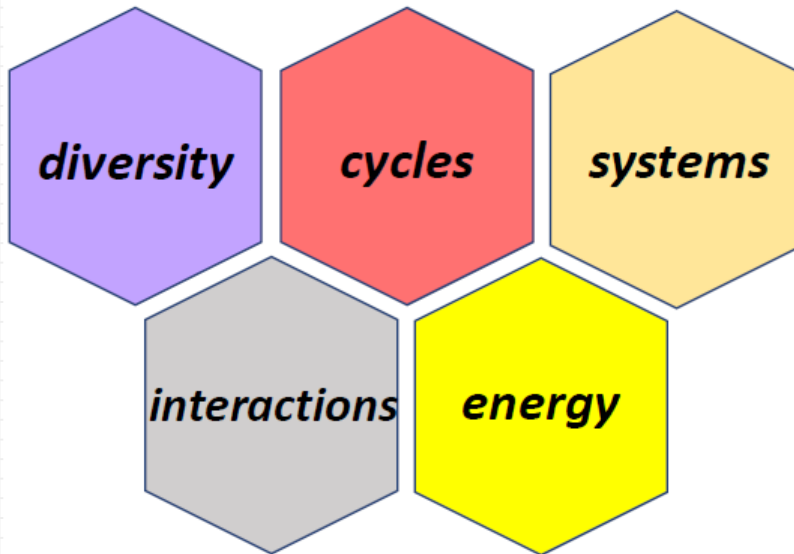
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- **Read the questions carefully.**
- Identify key phrases and words in the question stem before attempting to answer.
- **Identify the concept** tested.
- **Model** answering techniques.
- Reinforce use of **Concept – Apply – Link (CAL)** answering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



## Themes in Primary Science

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# Primary Science Syllabus Overview

Themes	Lower Block (P3 & P4)
Diversity	<ul style="list-style-type: none"><li>• Diversity of living and non-living things</li><li>• Diversity of materials</li></ul>
Cycles	<ul style="list-style-type: none"><li>• Cycles of plants and animals (Life cycles)</li><li>• Cycles in matter and water (Matter)</li></ul>
Systems	<ul style="list-style-type: none"><li>• Plant system (Plant parts and functions)</li><li>• Human system (Digestive system)</li></ul>
Interactions	<ul style="list-style-type: none"><li>• Interaction of forces (Magnets)</li></ul>
Energy	<ul style="list-style-type: none"><li>• Energy forms and uses (Light)</li><li>• Energy forms and uses (Heat)</li></ul>

[illegible]

- \*Please keep the P3-P6 work for revision!*

[illegible]

- Performance Task in Term 3 (5% of SA2)

<u>Multiple Choice</u>	<u>Open-Ended</u>
28 questions	12-13 questions
56 marks	44 marks



# Assessment

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<u>SA1 Topics</u>	<u>SA2 Topics</u>
<ul style="list-style-type: none"><li>• All P3 topics</li><li>• Magnets</li><li>• Matter</li><li>• Heat &amp; Temperature</li></ul>	<ul style="list-style-type: none"><li>• All P3 topics</li><li>• All SA1 topics</li><li>• Light &amp; Shadow</li></ul>

# Parents as Facilitators

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- ✓ Speaking
- ✓ **Doing**
- ✓ **Visiting**
- ✓ **Reading**





# Speaking

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

**Why do your legs feel cold when you put them in the water in the swimming pool?**

- The water is cold.
- Your body is warm.
- I'm not wearing any clothes.



- **Concept:** Heat travels from a hotter to a colder place.
- Your body temperature ( $37^{\circ}\text{C}$ ) is higher than the temperature of the water in the swimming pool.
- Your body **loses heat** to the water in the swimming pool (and the water gains heat). Thus, you feel cold.

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

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# Doing – E.g. growing green beans

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## 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

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

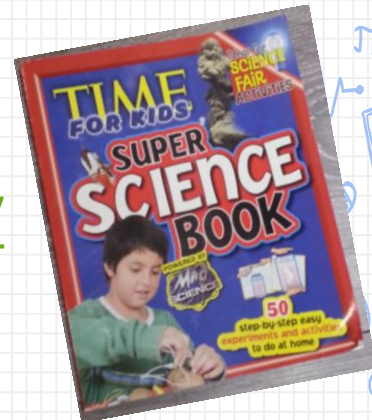
**Observing, Comparing, Classifying, Using apparatus and equipment, Communicating, Predicting, Formulating Hypothesis**



- Singapore Zoo / Night Safari / River Safari
- Jurong Bird Park
- S.E.A. Aquarium, Sentosa
- Marina Barrage
- Artscentre 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:
- <https://www.youtube.com/user/1veritasium>
- MythBusters:  
<http://dsc.discovery.com/tv-shows/mythbusters>



## Our Contacts

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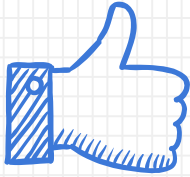
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**Thank you.**