

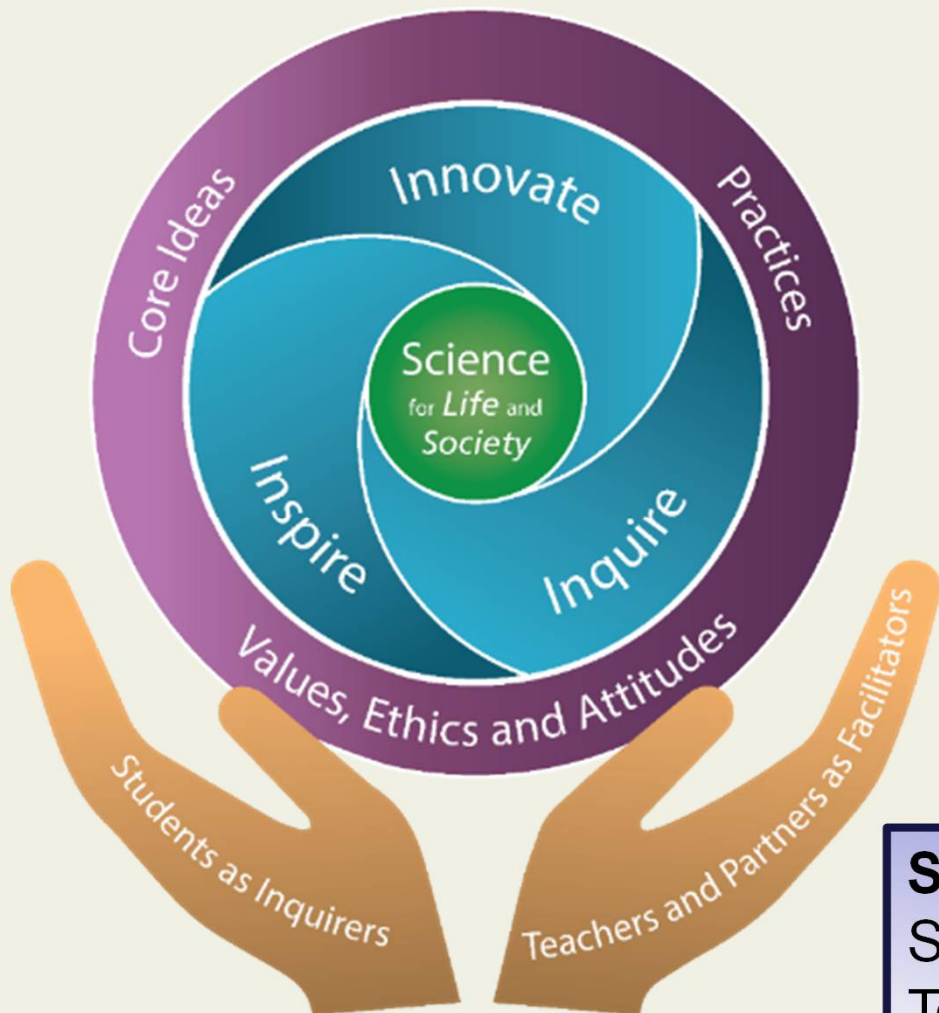
Curriculum Briefing

Primary 3 Science

8 Jan 2024

By Mrs Claire Tay
Subject Head Science

Science Curriculum Framework



Goals

Science for Life and Society

Vision - 3Ins

Inspire

Inquire

Innovate

Three Domains

Core Ideas

Practices

Values, Ethics and Attitudes

Stakeholders

Students as Inquirers

Teachers & Partners as Facilitators

21st Century Competencies Framework



Primary Science Syllabus

It aims to :

- **build on their interest** in and **stimulate their curiosity** about their themselves and their environment
- provide students with **basic scientific terms and concepts** to help them understand themselves and the world around them
- provide students with opportunities to **develop skills, dispositions and attitude and attitudes** for scientific inquiry
- prepare students towards **using scientific knowledge and methods** in making responsible decisions
- help students **appreciate how science influences** people and the environment

P3 Science

Science as an Inquiry

1. Question - Learner engages in scientific questions
2. Evidence - Learner collects data in response to questions
3. Explanation - Learner formulates explanations from evidence
4. Connection - Learner connects explanations to scientific knowledge
5. Communication - Learner communicates and justifies explanations

P3 Science

What is central to science inquiry?

Helping students use evidence to create explanations for natural phenomena.

P3 Science

SCIENTIFIC ARGUMENTATION

How do you know that?

(Data in graphical,
tabular or pictorial form)

CLAIM + EVIDENCE + REASONING = EXPLANATION

What do you know?

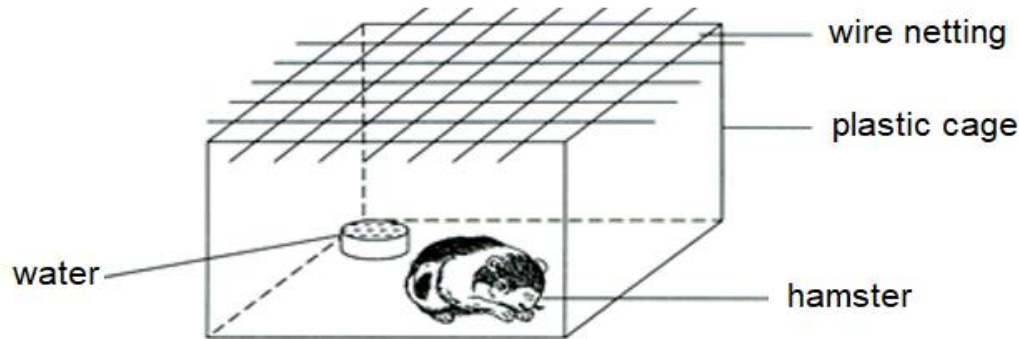
(The answer to the question)

**Why does your evidence
support your claim?**

(Connects evidence to claim
which involves the **use of a
scientific concept** to describe
why the evidence support the claim)

P3 Science (feature in topical worksheet)

Sally put a hamster that was alive in a plastic cage containing a bowl of water. Next, she put a wire netting across the cage as shown below.



After one week, Sally observed that the hamster had died.

Based on the information above, answer the following questions:

(a) Explain why the hamster died.

Thought box:

When crafting your answer, remember to use the CER approach.

Checklist:

- CLAIM:** Your answer to the question.
- EVIDENCE:** Scientific data/information (e.e. table, graphical, pictorial, text provided in the question) that supports the claim.
- REASONING:** Explanation(s) using scientific concepts that supports the evidence.

There are 5 characteristics of a living thing.

Which of the characteristic is this question focused on?

Living things need _____, _____ and _____ to stay alive.

Make use of **Claim** for the reason for the death of the hamster.

What do you see from the diagram?

What **Evidence** supports your claim?

The thought box after each part question is meant for the pupils to make their **thinking visible** by **organising** and sequence random thoughts that the pupils pen down before they craft their responses as well as guiding the pupils to use **CER** to frame **sound scientific explanations**.

Syllabus Organisation

| Levels | P3 | P4 | P5 | P6 |
|--------|---|---|--|---|
| Themes | Diversity . Cycles . Systems . Interactions . Energy | | | |
| Topics | <ul style="list-style-type: none"> • Diversity of living and non-living things (General characteristics and classification) • Diversity of materials • Cycles in plants and animals (Life cycles) • Interaction of forces (Magnets) | <ul style="list-style-type: none"> • Cycles in matter and water (Matter) • Human system (Digestive system) • Plant system (Plant parts and functions) • Energy forms and uses (Light) • Energy forms and uses (Heat) | <ul style="list-style-type: none"> • Cycles in matter and water (Water) • Cycles in plants and animals (Reproduction) • Plant system (Respiratory and circulatory systems) • Human system (Respiratory and circulatory systems) • Electrical system | <ul style="list-style-type: none"> • Energy forms and uses (Photosynthesis) • Energy conversion • Interaction of forces (Frictional force, gravitational force, elastic spring force) • Interactions within the environment |

P3 Science

Attitude Coverage

- 1) Curiosity
- 2) Creativity
- 3) Integrity
- 4) Objectivity
- 5) Open-mindedness
- 6) Perseverance
- 7) Responsibility

P3 Science

Skills and Processes at P3 Level

- **Observing**
- **Comparing**
- **Classifying**
- **Using apparatus and equipment**
- **Inferring**
- **Predicting**
- **Analysing**
- **Evaluating**
- **Generating possibilities**
- **Communicating**

P3 Science

Skills and Processes

Processes

- Creative Problem Solving
- Decision Making
- Investigation

**At the level appropriate to P3*

SKILL : *OBSERVING*

- Using the **5 senses (sight, hearing, touch, smell, taste)** to find out about objects and events: their characteristics, properties, differences, similarities, and changes.
- Using **instruments** to *extend the range of the senses and accuracy of the observation (eg. the use of magnifying glass, magnets)*
- Identifying observations** that are relevant to a particular investigation

SKILL : *COMPARING*

- **Identifying factors/criteria** for the purpose of comparison, eg, when comparing a bus and a car, the factors could be function, capacity or cost.

- Identifying the **similarities** and **differences**

Similarities : recognise any commonality that exists between seemingly different object, events or outcome

Differences : finding subtle differences between otherwise similar object, events or outcome

- Draw a **conclusion** about the significance of similarities or differences

SKILL : *CLASSIFYING*

• **Grouping** or **ordering objects** or events according to similarities or differences in **properties**:

- Grouping a set of objects into **two** groups **based on any one common property**
- *Grouping a set of objects into **two or more** groups **according to one or more common property***
- Identifying the **basis of classification**
- *Identifying a **common pattern** in events or a **behaviour pattern** in organisms*
- Generating **criteria for grouping**
- *Use simple **classification schemes**: (**Lists, tables, or charts are generated**)*

P3 Science

Components of Lessons

- 1) Theory - Concept teaching
- 2) Hands-on : Practical Sessions in the Science Laboratory
- 3) Topical notes
- 4) Topical Supplementary Worksheets :
 - Worksheet 1 : Misconception
 - Worksheet 2 : MCQ
 - Worksheet 3 : Open-ended
- 5) Learning Log: Topical reflections by pupil for each unit;
concept-map (last reflection)
- 6) Learning Log: Pupil's self-evaluation of their own learning(checklist)

P3 Science

Written Assignments

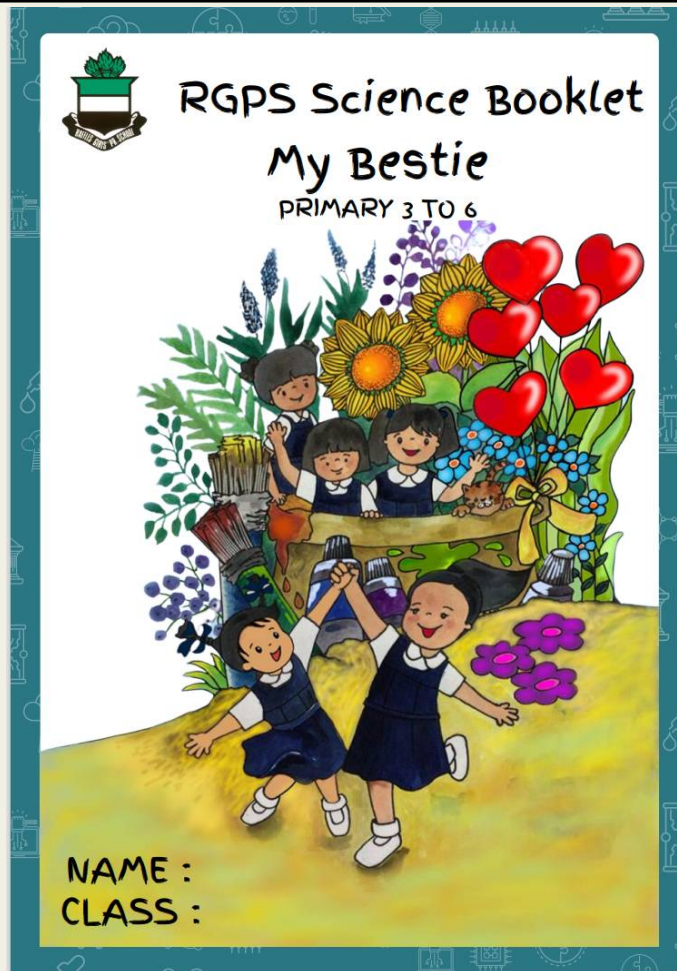
- 1) Science Activity Book
- 2) Topical unit Supplementary Worksheets
- 3) Topical Reflections (on Learning Log)

NOTE : Worksheets and activity books will be returned for parents' checking and signature upon completion of each topic.

Worksheets are to be filed in the Science File

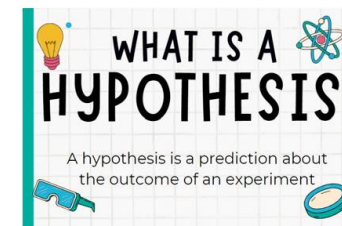
P3 Science

RGPS Student Science Resource Book



3) The Scientific Method

Hypothesis:



What is a variable?

A variable is a thing or factor or condition you can modify and measure.

TYPES OF VARIABLES

Independent/Changed (IV)

The only thing that you change in an experiment



Dependent/Measured (DV)

The thing that you measure or observe in an experiment



Constant/Controlled (CV)

The things that remain the same in an experiment



'Science is a way of thinking, not just a body of knowledge.' ~ Carl Sagan

10 | Page

P3 Science

Enrichment

- Zoo-Mazing (Term 2)
[Science & Maths interdisciplinary learning journey to the Zoo]



P3 Science

Enrichment

Science Supplementary Reading
Material (Optional):
The Young Scientists (Level 2)

Online Subscription via:



<https://youngscientistsreader.com.sg/product-category/subscriptions/>

ASSESSMENT MODES

- **FORMATIVE ASSESSMENT**

- **SUMMATIVE ASSESSMENT**



ASSESSMENT MODES : **FORMATIVE ASSESSMENT**

Purpose:

- ❖ Provides pupils continual feedback during the instructional and learning process to help pupils actively manage and adjust their own learning.
- ❖ Non-graded.
- ❖ Helps the pupils to answer these questions:
 - “Where am I going?”*
 - “Where am I now?”*
 - “How can I close the gap?”*

Through:

- ✓ **Teacher/ Self and peer assessment** on identified performance tasks using **rubric indicators**
- ✓ **Teacher’s feedback** on identified qualities of pupil’s learning on topical unit content page
- ✓ **Pupils’ self evaluation** of own learning for each topic
- ✓ **Pupils’ reflection** of own learning for each topic

From the Science Teacher:

| ASSIGNMENT | Needs improvement | Sometimes | Most of the time |
|---|-------------------|--------------------------------------|------------------|
| ▪ Completed assignments and submitted on time. | | | |
| ▪ Took initiative to clarify doubts by asking questions in class. | | Feedback on the pupil's performance. | |
| ▪ Made concerted effort to do timely corrections. | | | |
| ▪ Updated the content page | | | |
| ▪ Organised the complete set of unit worksheets for filing. | | | |

For Self-Evaluation (By pupil)

How well have I understood the science ideas/concepts?

1- Science ideas I understood the least

4 - Science ideas I understood the most

Put a (✓) in the box.

Provide opportunity for the pupil to take charge of her own learning.

| | Science Ideas/ concepts | 1 | 2 | 3 | 4 |
|---|--|---|---|---|---|
| 1 | I am able to identify the organ systems and state their functions in human (digestive, respiratory, circulatory, skeletal and muscular). | | | | |
| 2 | I am able to identify the organs in the human digestive system (mouth, gullet, stomach, small intestine and large intestine). | | | | |
| 3 | I am able describe the functions of the main organs in the human digestive system. | | | | |



TIME FOR REFLECTION!

When you reflect, spend time and think deep to make sense of

What you have learnt,

Why you learnt,

How you learnt,

How you apply the knowledge and skills learnt in real life.

My reflection on learning: Before the start of unit lesson

-What do I already know about this topic?

-What do I want to find out?

-What are the questions that I have for this unit?

Assigned as homework before the introduction of the unit

My reflection on learning: After the unit lesson

- What are the scientific concept(s) that I have learnt in this topic?

- How can the scientific concepts that I have learnt in this topic be applied in daily life? Explain in detail.

- What is/are the previous wrong science concepts(s) that I had which have been corrected?

Assigned as homework upon the completion of the unit : concept mapping

Parent's Signature: _____

Date: _____

Rubrics related to the activity

Raffles Girls Primary School
Science

Rubrics: Classifying Objects or Processes

Name: _____

Class: _____

Topic: _____

Date: _____

Assessment *

(*put a tick if criteria is observed)

| | Performance Criteria | Self | Teacher |
|----|---|------|---------|
| 1 | I classify the organisms based on the characteristics that can be observed directly . | | |
| | | | |
| 2 | The chosen characteristics are important and clearly tell the difference among the <u>organisms being classified</u> . | | |
| | | | |
| 3. | The classification system is clear and logical . | | |
| | | | |
| 4 | The characteristic of the chosen organisms starts with the most general (inclusive) and proceed to the most specific (discrete) | | |
| | | | |
| 5. | The language chosen to describe the characteristics is scientifically accurate, descriptive and useful . | | |

Assessment Modes :Summative

| Type | Weighted Assessment 1 (WA 1) Term 2 WK8 | Weighted Assessment 2 (WA 2) Term 3 WK7 | End of Year Exam (EYE) Term 4 |
|-------------------|---|--|--|
| Format | Structured Questions | Science Practical Test 3 Questions on <ul style="list-style-type: none">• Life Science• Physical Science | Section A (MCQ): 24 Questions Section B (OE) 13 Questions |
| Duration | 40 mins | 30 mins | 1h 30 mins |
| Overall Weightage | 15 % | 15 % | 70 % |

Science Teachers:

3A - Mrs Claire Tay

3B - Ms Santha Selva Raju (Mrs Tan Chwee Piow-Term 1)

3C - Ms Thivya Gopalkrishnan

3D - Mdm Janice Yeo

3E - Mrs Claire Tay

3F - Ms Santha Selva Raju (Mrs Tan Chwee Piow-Term 1)

3G - Mdm Janice Yeo

Thank You

