Curriculum Briefing
Primary 4 Science
9 Jan 2025

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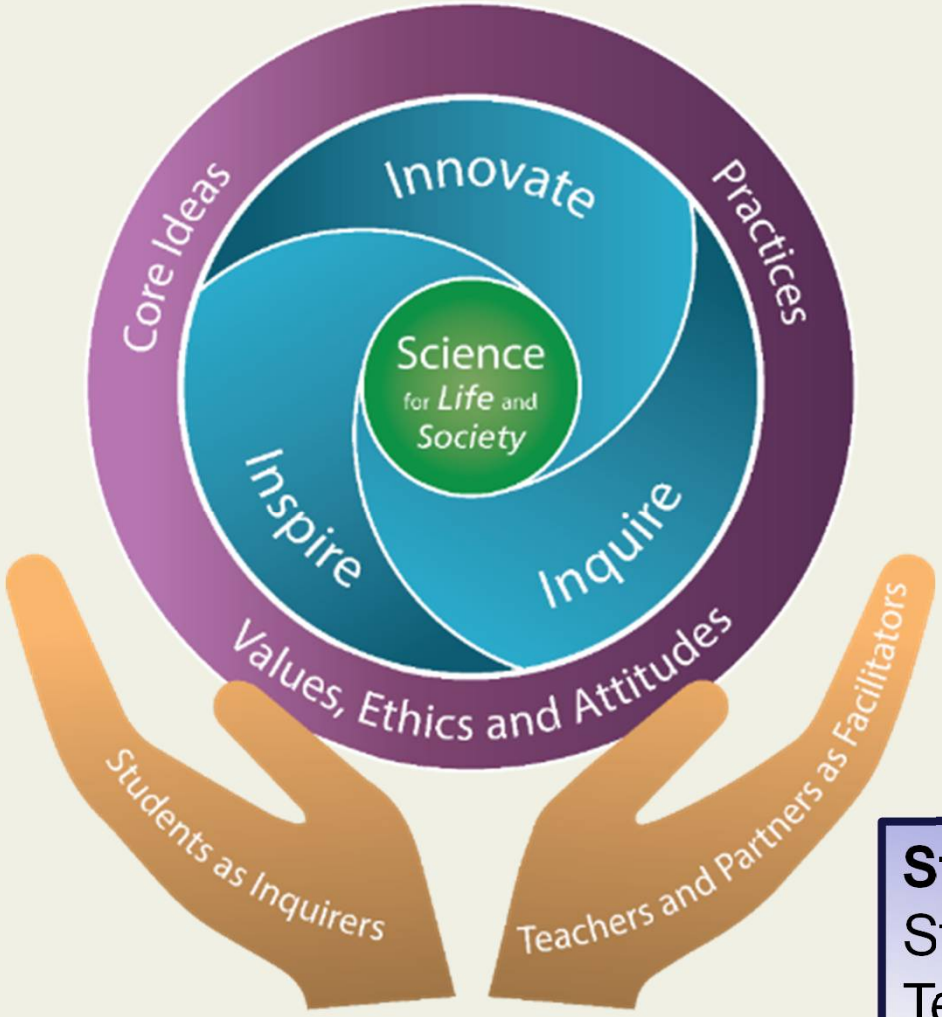
SH, Science

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 :

- provide students with experiences which build on their interest in and stimulate their curiosity about 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, habits of mind and attitudes necessary for scientific inquiry

- prepare students towards using scientific knowledge and methods in making personal decisions

- help students appreciate how science influences people and the environment

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P4 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

P4 Science

What is central to science inquiry?

Helping students use evidence to create explanations for natural phenomena.

P4 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)

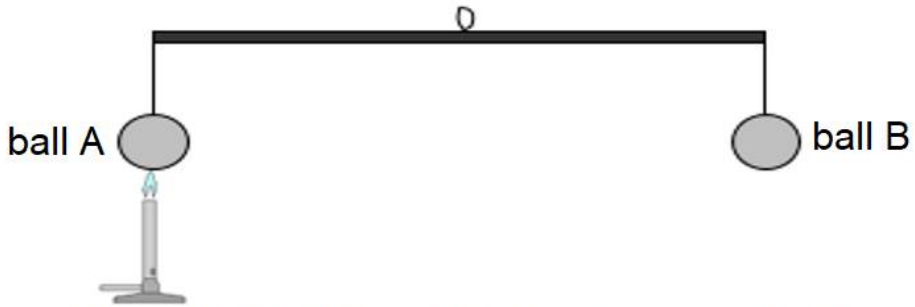
Why does your evidence support your claim?

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

P4 Science (feature in topical worksheet)

Sam hung two identical metal balls, A and B, on a rod such that the rod was balanced.

Then he heated ball A as shown in the diagram below.



Sam predicted that ball A would move downwards after being heated.

Do you agree with him? Explain your answer clearly. [2]

Thought box: List out ideas that you have. Cross out those that are improbable. Sequence your ideas (where applicable)

1) For the ball to move upward, what change must occur to the ball?
2) What change occurs when the metal ball interacts with heat?
3) What is the definition of volume?
4) What is the definition of mass?

*While crafting your answer, remember to use the **CER** approach.*

Checklist:

- ❑ **CLAIM:** Do you agree?
- ❑ **EVIDENCE:** Scientific data/information (e.g. table, graphical, pictorial, text, provided in the question that supports the claim.)
- ❑ **REASONING:** Explanation(s) using scientific concepts that 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	• 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)	• **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)**	• 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	• Energy forms and uses (Photosynthesis) • Energy conversion • Interaction of forces (Frictional force, gravitational force, elastic spring force) • Interactions within the environment

P4 Science

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

P4 Science

Skills and Processes at P5 level
Skills • Observing • Comparing • Classifying • Using apparatus and equipment • Communicating • Inferring • Predicting • Analysing • Generating possibilities • Formulating hypothesis

Skills and Processes
Processes • Creative Problem Solving • Decision Making • Investigation **At the level appropriate to P4*

P4 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 (concept map:last reflection) by pupil for each unit

6) Learning Log: Pupil's self-evaluation of their own learning(checklist)

7) Topical Review (at the end of each unit)

P4 Science

Written Assignments

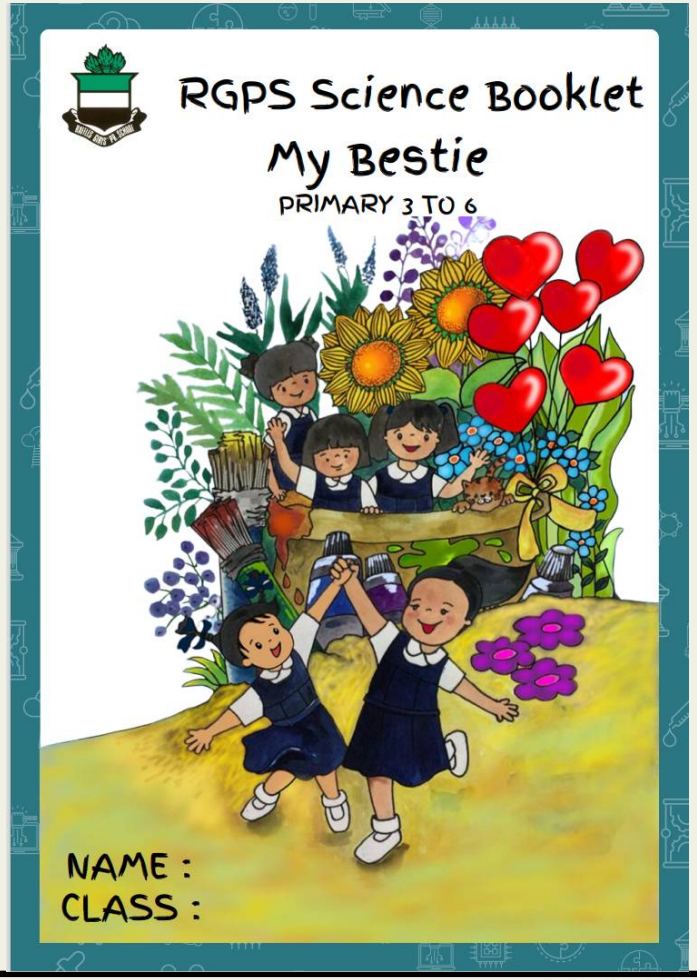
1) Inspiring Science Activity Worksheets
2) Topical unit Supplementary Worksheets
3) Topical Reflections (on Learning Log)

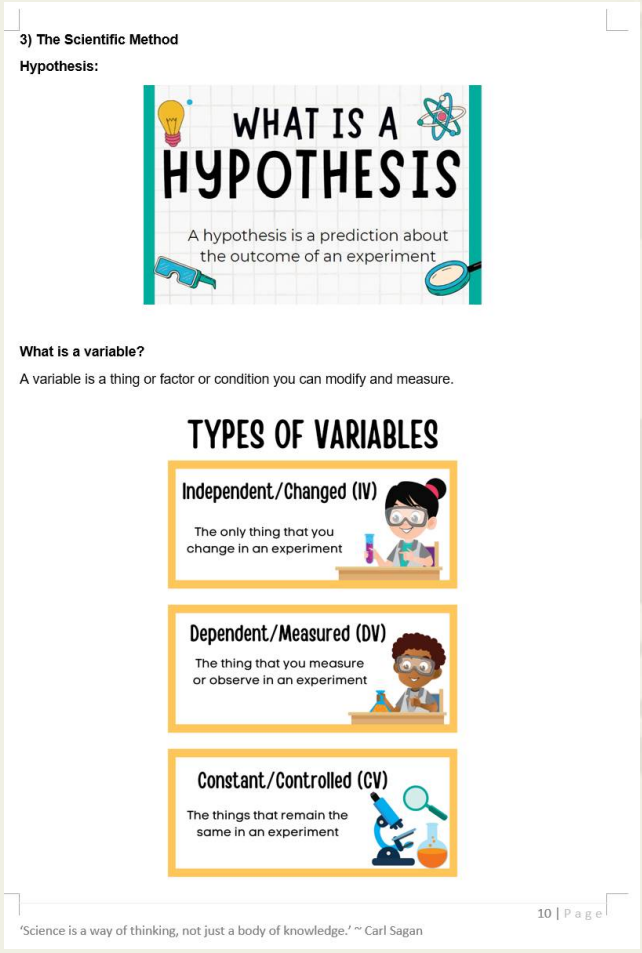
NOTE : Topical Worksheets will be returned for parents' checking and signature upon completion of each topic.

Worksheets are to be filed in the Science File

P4 Science

RGPS Student Science Resource Book





P4 Science

Enrichment

Science Supplementary Reading Material (Optional):

The Young Scientists (Level 2)

Online Subscription via:

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

P4 Science

Sony Creative Science Award (SCSA)

Objective:

- **To encourage P4 pupils to embark on their creative toy making journey**
- **To impart selected elements of Design Thinking Skills to pupils.**
- **To allow pupils to build Science knowledge and apply scientific concept and skills learnt.**

- **Veridis Programme**

ASSESSMENT MODES

- **FORMATIVE ASSESSMENT**
  (includes open resource assessment for identified topics)
- **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

Feedback 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.			
▪ Able to provide scientific explanation by making an **accurate and complete claim** which is **supported with appropriate and sufficient evidence; provides accurate and complete reasoning** that **links evidence to claim** which includes **appropriate and sufficient scientific concepts/principles**			
▪ Made concerted effort to **do timely corrections.**			
▪ **Updated** the content page			
▪ **Organised** the **complete** set of unit worksheets for filing.			

Feedback on the pupil's performance.

After the completion of the topic:

Parent's Signature: _____ **Date :** _____

TIME FOR REFLECTION!

Before the start of unit lesson

- What do I already know about the various plant parts and their functions?
- What are the questions that I have about plant parts and their functions?

For Self-Evaluation (by pupil) – After the topic

How well have I understood the science ideas/concepts? Put a (✓) in the box.
1 - Science ideas I understood the **least** 4 - Science ideas I understood the **most**

	Science Ideas/ concepts	1 (least)	2	3	4 (most)
1	I am able to **identify** the different parts of a plant and **state** their functions.				
2	I am able to **compare** the characteristics of the different plant parts.				
3	I am able **appreciate and show concern** by being responsible towards plants.				
4	I am able to **determine** the aim, hypothesis IV, DV and CVs of an investigative protocol.				
5	I am able to **apply** 'CER' technique to craft my scientific explanation [CER: C – Claim, E – Evidence, R – Reasoning]				

Post-lesson REFLECTIONS

- What are the scientific concept(s) I have learnt about plant parts and their functions?
- How can the scientific concept(s) that I have learnt about plant parts and their functions be applied in daily life? Explain in detail.
- What is/are the previous wrong science concept(s) that I had which had been corrected?

Assigned as homework before the introduction of the unit

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

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

Rubrics related to the activity

Raffles Girls' Primary School
Science
Rubics: Designing a Scientific Experiment

Name: _____ Class: _____

Topic: _____ Date: _____

Assessment*
*(*put a tick if criteria is observed)*

	Performance Criteria	Self	Peer	Teacher
1	There is a testable question for the experiment			
2	Research (literature review) was done to learn more about the question.			
3	The design of the experiment tests the hypothesis.			
4.	A list of all necessary materials and apparatus was included.			
5	A detailed step-by-step procedure is included.			
6.	The procedures were written clearly enough so that another person could repeat the experiments			
7.	The procedures shows that repeated trials were done			
8.	Data were collected and recorded for each trial			
9.	An appropriate graph was created to display the data			
10	Conclusion were drawn using the data and refer back to the hypothesis			
11.	A 3 or more sentence was written explaining and describing what was discovered or learned			

Assessment Modes :Summative

Type	Weighted Assessment 1 Term 2	Weighted Assessment 2 (Science Practical Test) Term 3	End of Year Exam (EYE) Term 4
Format	Open-ended: 5 questions	3 questions on 1) Life Science 2) Physical Science	Section A (MCQ): 27 questions Section B (OE) : 11 questions
Duration	50 min	30 min	1 h 30 min
Overall Weightage	15%	15%	70%

P4 Science Teachers :

4AB - Ms Loo Ching Yee
4C - Ms Tan Li Peng
4D - Ms Santha Selva Raju
4E - Ms Tan Li Peng
4F - Ms Loo Ching Yee
4G - Mr Yeo Seah Ong
4HI - Ms Santha Selva Raju

Thank You