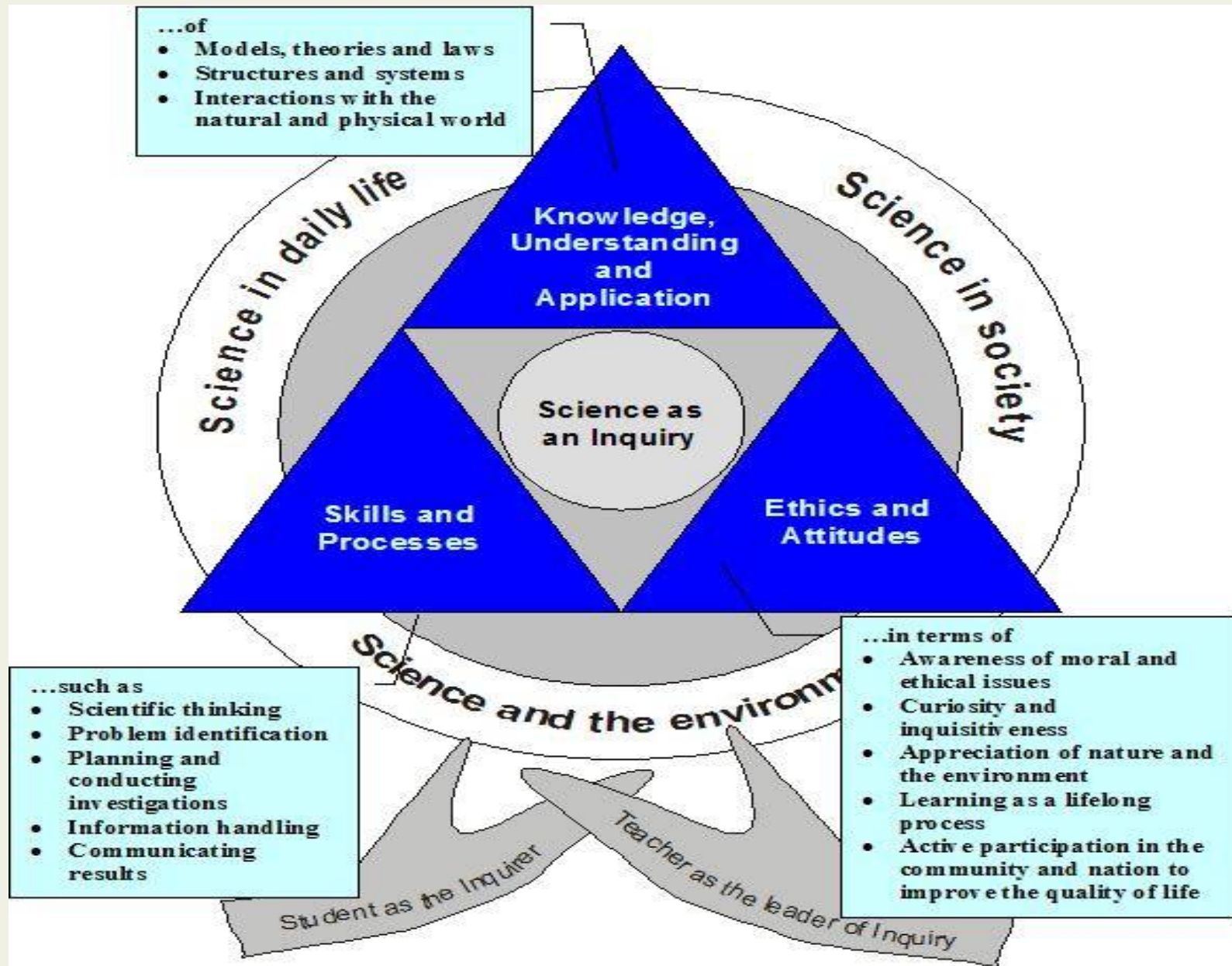


Curriculum Briefing Primary 5 Science 5 Jan 2024

By Mrs Claire Tay
Subject Head Science

Primary Science Framework



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

P5 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

P5 Science

What is central to **science inquiry**?

Helping students use **evidence** to create **explanations** for natural phenomena.

P5 Science

SCIENTIFIC ARGUMENTATION

How do you know that?
(Data in graphical,
tabular or pictorial form)

CLAIM + EVIDENCE + REASONING = EXPLANATION

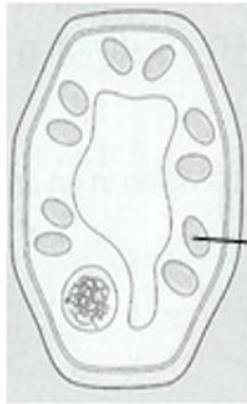
What do you know?
(The answer to the question)

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)

P5 Science (feature in topical worksheet)

2. The diagrams below show a plant cell and some root cells.



plant cell



root cells

Z contains a substance which traps light energy.

- (a) Predict what would happen to the plant when Z was removed from the plant cell. Give a reason for your answer. [1]

Checklist:

- CLAIM: Your answer to the question.
- 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 the evidence.

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**.

Themes and Units taught at P5

Themes	Lower Block (P3 & 4)	Upper Block (P5 & 6)
Diversity	<ul style="list-style-type: none"> • Diversity of living and non-living things • Diversity of materials 	
Cycles	<ul style="list-style-type: none"> • Cycles of Plants and Animals (Life Cycles) • Cycles in matter and water (Matter) 	<ul style="list-style-type: none"> • Cycles in plants and animals (Reproduction) • Cycles in matter and water (Water)
Systems	<ul style="list-style-type: none"> • Plant system (Plant parts and functions) • Human system (Digestive system) 	<ul style="list-style-type: none"> • Plant transport system • Human system (Respiratory and circulatory systems) • Cell system • Electrical system
Interactions	<ul style="list-style-type: none"> • Interaction of forces (magnets) 	<ul style="list-style-type: none"> • Interaction of forces (Frictional, gravitational forces, force in springs) • Interaction within the environment
Energy	<ul style="list-style-type: none"> • Energy forms and uses (light and heat) 	<ul style="list-style-type: none"> • Energy forms and uses (photosynthesis) • Energy conversion

P5 Science

Attitude Coverage

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

P5 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

P5 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)

P5 Science

Written Assignments

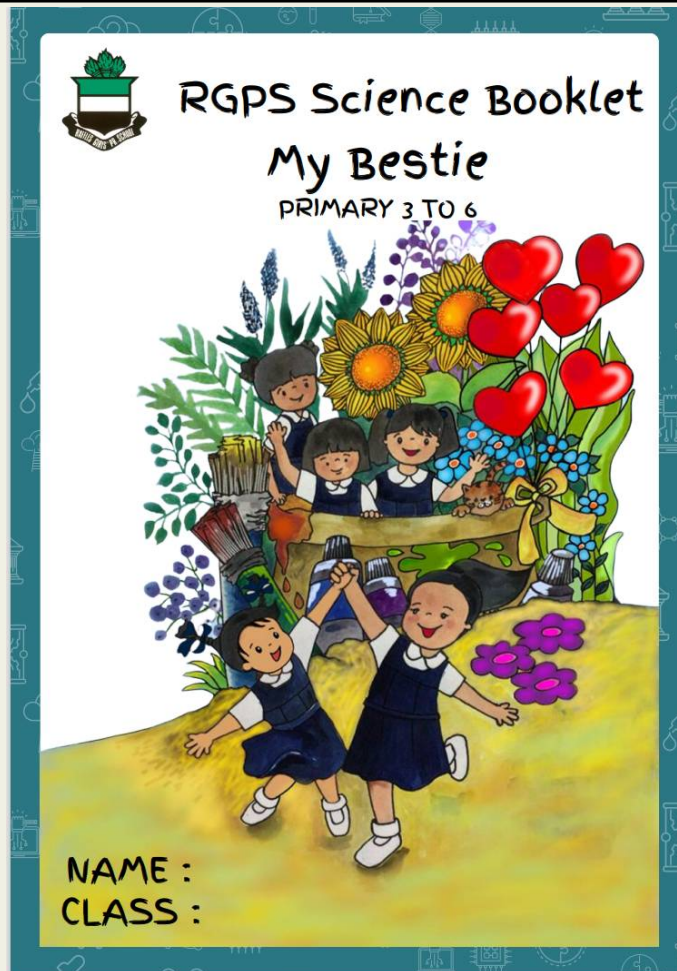
- 1) Science Activity book (Cycle & System)
- 2) Topical unit Supplementary Worksheets
- 3) Topical Reflection (on Learning Log)

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

**To be filed
in the
Science File**

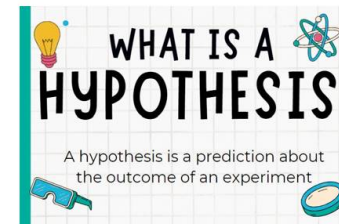
P6 Science

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

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P5 Science

Enrichment

- Learning Journey @ Science Centre Singapore, DNA Lab (Term 1): Diversity of Cells

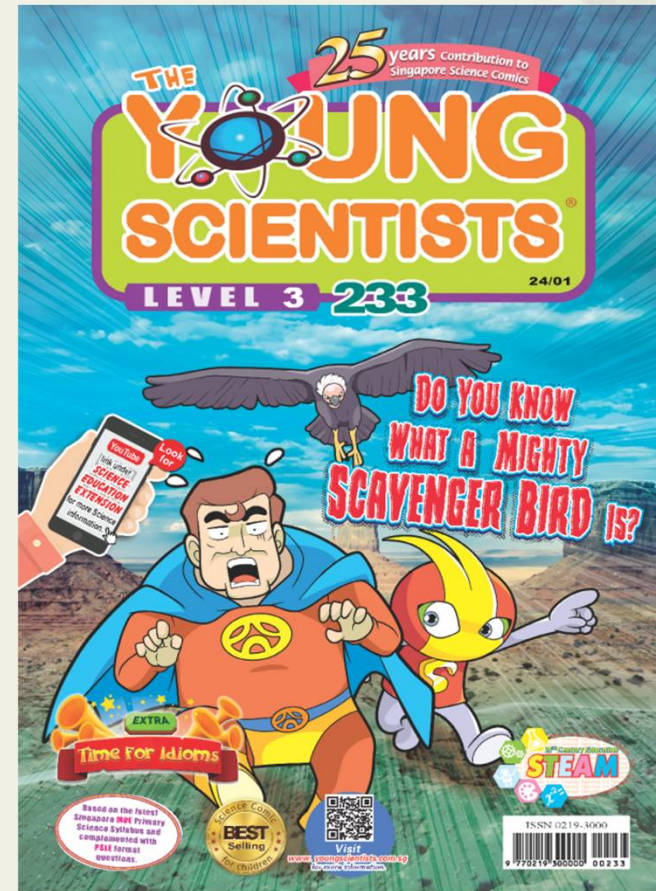


P5 Science

Enrichment

Science Supplementary Reading
Material (Optional):
The Young Scientists (Level 3)

Online subscription:



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

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

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.

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.

	Science Ideas/ concepts	1	2	3	4
1	I can identify and name the different parts of a flower and state their functions.				
2	I know how flowering plants reproduce.				
3	I know how to describe the process of pollination.				
4	I know how to describe the process of fertilization.				
5	I know the reasons why flowering plant need to disperse their seeds.				
6	I know how the flowering plants disperse their seeds.				
7	I know the characteristics of fruits/seeds dispersed by the different methods.				
4	I know how the non-flowering plants reproduce.				
5	I am able to apply 'CER' technique to <u>craft</u> my scientific explanation.				
6	I am able to determine the aim, hypothesis, IV, DV and CVs of an investigative protocol				

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



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

Rubric: 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 WA 1 Term 2 WK 8	Weighted Assessment 2 WA 2 Term 3 WK 4	End of Year Exam EYE Term 4
Format	OE Questions	Science Practical Test 3 Questions on <ul style="list-style-type: none"> • Life Science • Physical Science 	Section A (MCQ): 28 Questions Section B (OE): 13 Questions
Duration	40 min	30 min	1 h 45 min
Overall Weightage	15%	15%	70%

P5 Science Teachers:

5AB - Ms Shaheena Kandoth

5C - Ms Tan Li Peng

5D - Ms Santha Selva Raju (Mrs Tan Chwee Piow-Term 1)

5E - Ms Shaheena Kandoth

5F - Ms Lee Suan Khim

5G - Ms Tan Li Peng

5HI - Ms Santha Selva Raju (Mrs Tan Chwee Piow-Term 1)

5EI - Ms Ho Shwu Huey

Thank You

