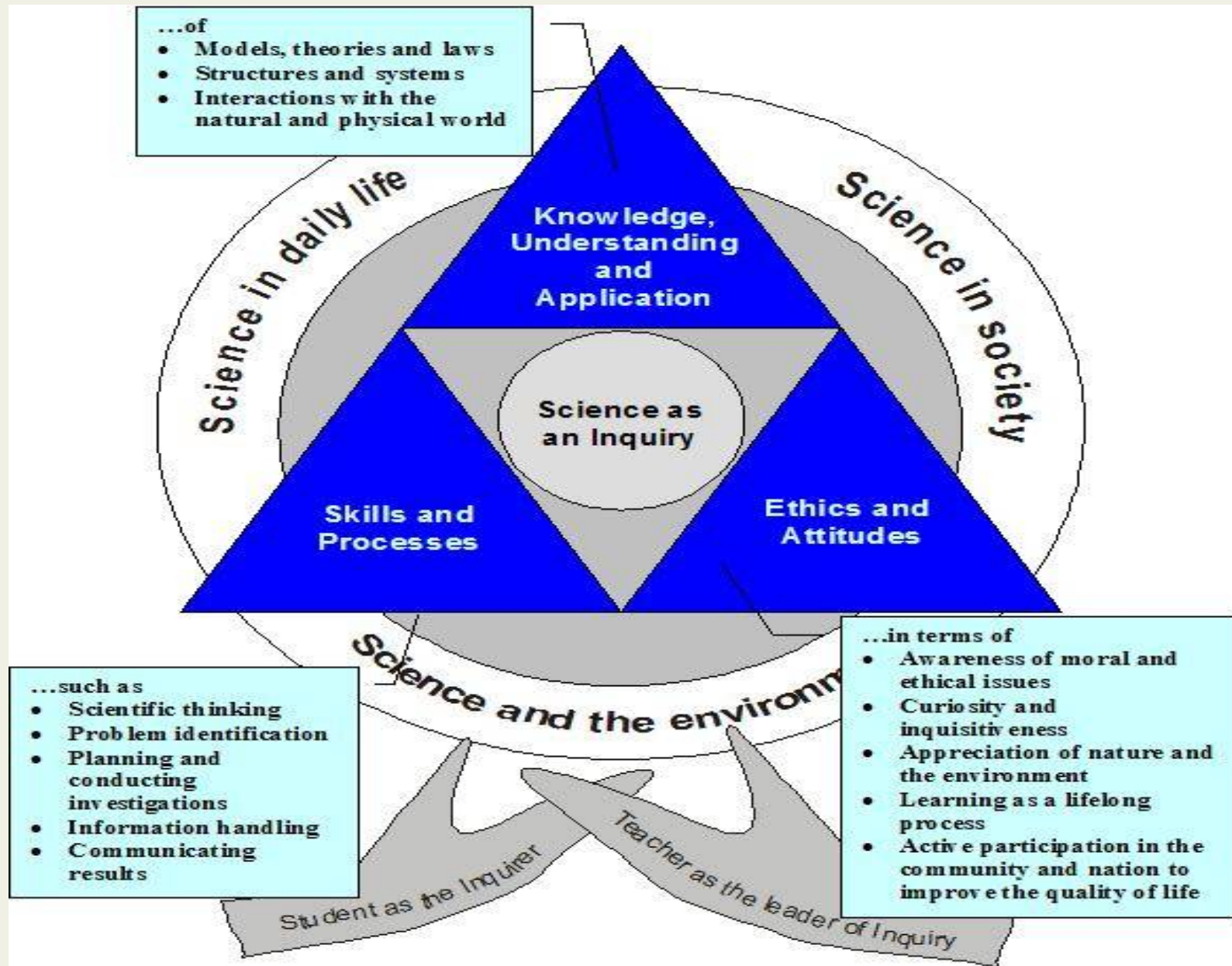


Curriculum Briefing Primary 6 Science 5 Jan 2023

By Ms Loo Ching Yee
HOD, 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

P6 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

P6 Science

What is central to science inquiry?

Helping students use evidence to create explanations for natural phenomena.

P6 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?

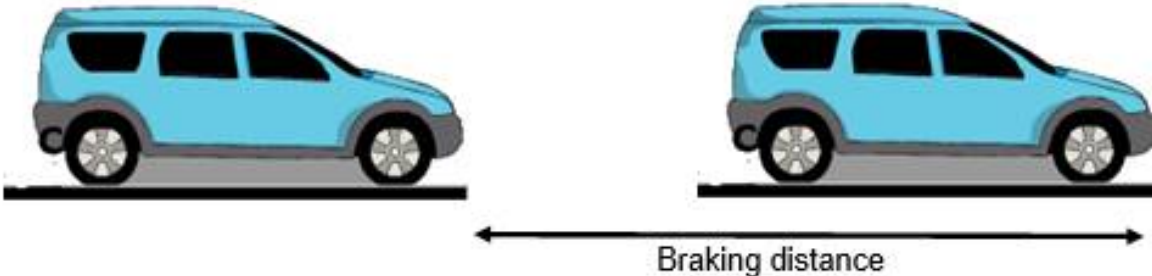
(Connects evidence to claim
which involves the **use of a
scientific concept** to describe
why the evidence support the claim)

P6 Science (feature in topical worksheet)

6. The diagram and the table below show the braking distance of a car.

position of car when
brakes are applied

position of car when it stops



Type of road surface	Braking distance (m)	
	Car A (with new tyres)	Car B (with old and worn out tyres)
concrete	14	18

- (a) Explain why there is a great difference between the braking distance of the 2 cars. [1]

Please check (✓) in the box to make sure that your answer contains a claim, evidence and reasoning.

- ☐ CLAIM
- ☐ EVIDENCE
- ☐ REASONING

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 P6

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 (food chain /web, Adaptation, Man's impact & 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

P6 Science

Attitude Coverage

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

P6 Science

Skills and Processes at P6 level	
Skills	<ul style="list-style-type: none">• Observing• Comparing• Classifying• Using apparatus and equipment• Communicating• Inferring• Predicting• Analysing• Generating possibilities• Formulating hypothesis
Skills and Processes	
Processes	<ul style="list-style-type: none">• Creative Problem Solving• Decision Making• Investigation

P6 Science

Components of Lessons

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

P6 Science

Written Assignments

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

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

**To be filed
in the
Science File**

P6 Science

Enrichment

- Learning Journey @ Science Centre Singapore (Term 3)

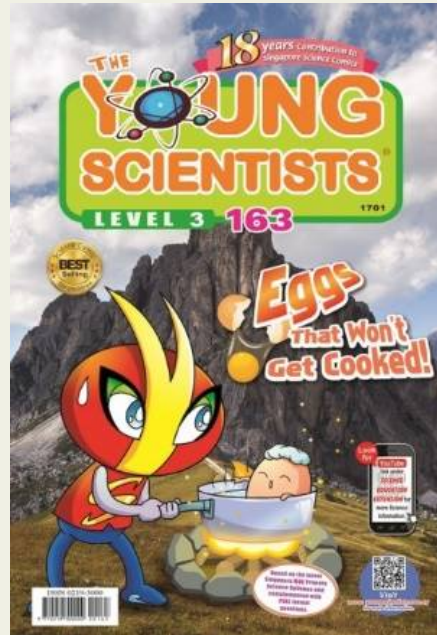


P6 Science

Enrichment

Science Supplementary Reading Material (Optional):
The Young Scientists (Level 3/4)

Online Subscription:



Recommended for P6



Recommended for P6 & Sec 1

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

P6 Science

RGPS Family Science Programme

- RGPS Family Science Club

<https://www.facebook.com/rgpsfamilyscienceclub/>



MICROBES GASTRONOMIC

affair



26TH SEPTEMBER 2015 | 1000 - 1230

KITCHEN LAB @ SCIENCE CENTRE SINGAPORE

[S\$40 PER FAMILY PAIR]

Do you know not all bacteria and fungi are disease-causing microbes that make us sick? Do you know some of them are important in helping us make many different kinds of delicious and nutritious food that we love? Discover the secrets of the more than a thousand-year-old food production method, fermentation and learn how bacteria and fungi convert sugars into other amazing products through fun experiments and bread baking! So join us for a unique family bonding workshop created specially for you, by you!



Kindly register at:
www.regonline.sg/rgpsMGA

A new family bonding programme co-organised by



Super Bubble Recipe

Bubble Science

Bubbly Bubbles Party!

Bubbles fascinate both children and adults with their beautiful shapes and rainbow colours. Such simple ingredients – soap and water – create mesmerizing examples of both geometry and chemistry. Do you know the 'secret' ingredient to strong and buoyant super bubbles? Come and join us in the Bubbly Bubbles Party where the 'secret' ingredient and the science behind these captivating bubbles shall be unveiled! Team up, brainstorm and create your team's very own bubble magic and put it to test in the Longest-lasting Bubble Challenge!

Come and experience the bubbly fun for both the young and the young at heart!

Date : 27 Aug 2016 (Saturday)
Time : 10am – 12.30pm
Venue: EcoLab, Science Centre Singapore
Cost : \$11.65 per family pair

Register now at
www.regonline.sg/RGPSBubbles2016

sciencecentresg
www.science.sg.sg
15 Science Centre Road, Singapore 609067 (near 4pm Daily)

ADVENTURE IN SOIL-TITUDE

26 AUG 2017, SAT
09.30AM TO 11.30AM
Eco Lab, Science Centre Singapore
\$11.77 per parent & child pair

Tried growing plants only to be greeted with one that starts to wilt? We know that plants require water, essential exchange of gases and sunlight to flourish. However, are these all that they require? Fret not! Join us in exploring the finest details of improving the growth conditions of your favourite plants! What are you waiting for? Sign up!

Registration starts on 17th August 2017
Kindly register at www.regonline.sg/rgpssoil2017

sciencecentresg
www.science.sg.sg
15 Science Centre Road, Singapore 609067 (near 4pm Daily)

WOBBLY JELLY FUN

Join us for an adventure into the world of Wobbly Jelly!

Discover the science behind how different states of matter could be combined to create something new through easy and fun hands-on activities such as jelly and jam-making.

The sweet and colourful jelly is not just a fun party food! Did you know that it is also used as an important tool for scientific research and Forensic Science that helps to solve crimes?

Come and experience the unique family bonding workshop, Wobbly Jelly Fun, by registering online for one of the following sessions!

Date: 25 March 2017 (Saturday)
Time: Session 1 : 0930 - 1130
Session 2 : 1330 - 1530
Venue: Kitchen Lab (KidsSTORY)
Cost: S\$11.77 per parent & child pair per session

Registration opens on 24 Feb 2017 from 7.30 a.m. onwards
Kindly register at:
www.regonline.sg/rgpswobblyjelly

sciencecentresg
www.science.sg.sg
15 Science Centre Road, Singapore 609067 (near 4pm Daily)

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

	Science Ideas/ concepts	1	2	3	4
1	I know what energy is.				
2	I know what the different sources of energy.				
3	I know examples of renewable and non-renewable energy				
4	I know the different forms of energy around us.				
5	I know how energy convert from one form to another.				
6	I know some examples of energy conversion from one form to another.				
7	I am able to apply 'CER' technique to <u>craft</u> my scientific explanation.				
8	I am able to determine the aim, hypothesis, IV,DV and CVs in 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

Raffles Girls' Primary School

Science

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 (WA1)	Weighted Assessment 2 (WA2)	Preliminary Exam (Prelim Exam)
Format	Open-ended: 8 questions	MCQ: 20 questions	Section A (MCQ): 28 questions Section B (OE): 13 questions
Duration	50 min	30 min	1 h 45 min
Marks	30	40	100 (100% of Prelim Exam)
Overall Weightage	0%	0%	100%

P6 Science Teachers:

- 6AB - Ms Shaheena Kandoth
- 6C - Mdm Roziyan Rahmat
- 6D - Ms Santha Selva Raju
- 6E - Mdm Roziyan Rahmat
- 6F - Mdm Aishah Aris
- 6G - Ms Loo Ching Yee
- 6H - Ms Lee Suan Khim
- 6AD - Mdm Aishah Aris
- 6EI - Ms Santha Selva Raju



Thank You

