

Curriculum Briefing

Primary 3 Science

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P3 SCIENCE TEACHERS:

3A MS TAN LI PENG

3B MS SANTHA SELVA RAJU, ST SCIENCE

3C MS TENG MUI NOI

3D MS TAN LI PENG

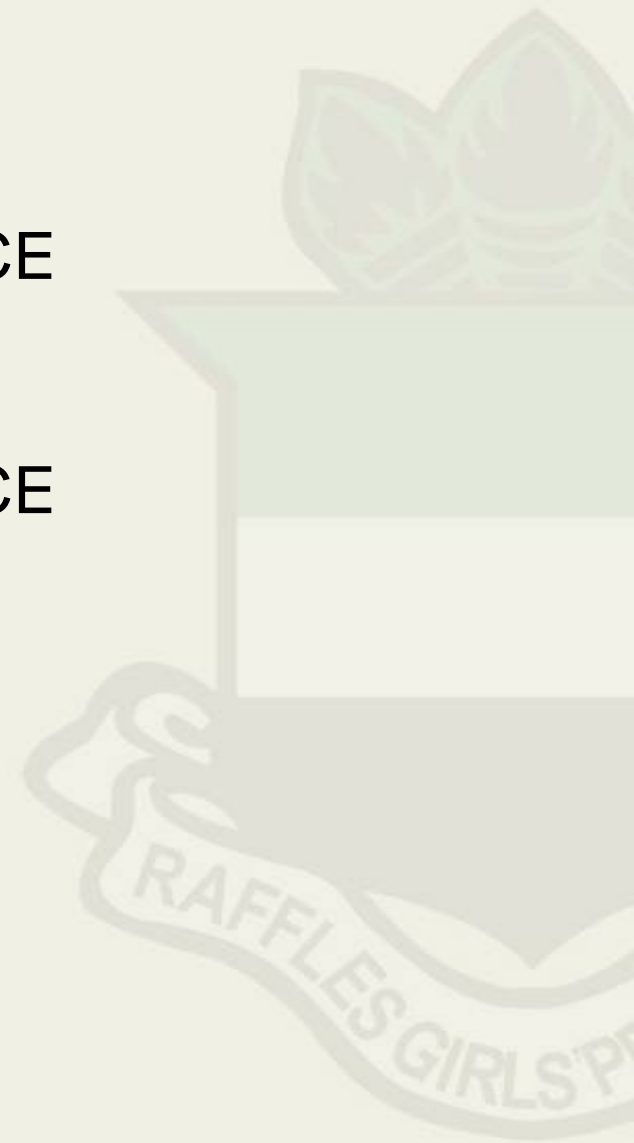
3E MS SANTHA SELVA RAJU, ST SCIENCE

3F MS TENG MUI NOI

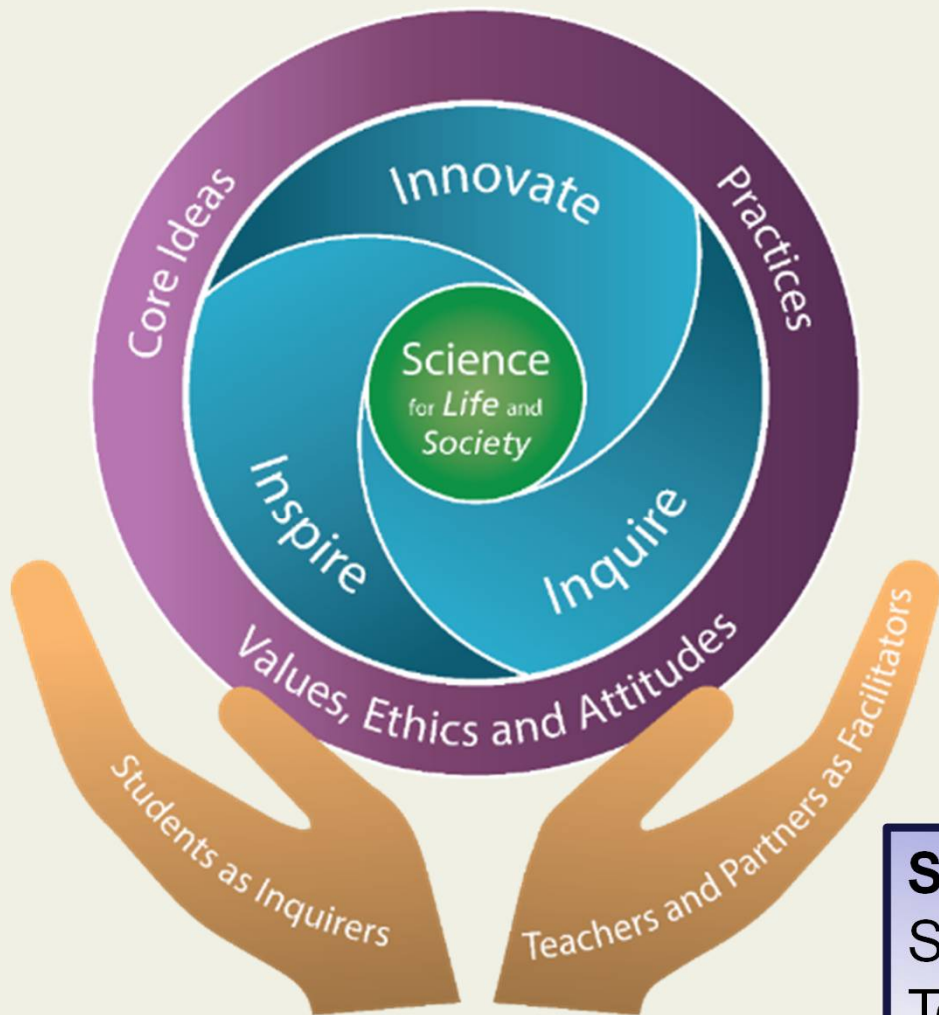
3G MRS TAN MEI FANG

MDM GUO FENGLING, SH SCIENCE

MDM AISHAH ARIS, ST 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

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What is central to science inquiry?

Helping students use evidence to create explanations for natural phenomena.

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SCIENTIFIC ARGUMENTATION

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

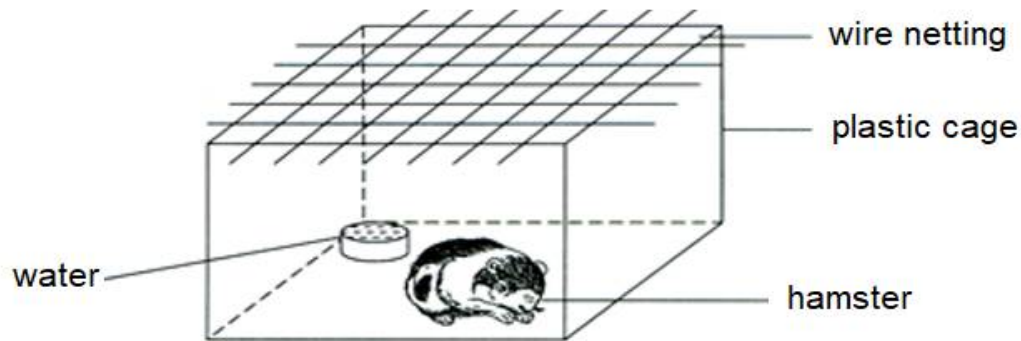
CLAIM + EVIDENCE + REASONING = EXPLANATION

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 	<ul style="list-style-type: none"> • Cycles in matter and water (Matter) • Human system (Digestive system) • Plant system (Plant parts and functions) 	<ul style="list-style-type: none"> • Cycles in matter and water (Water) • Cycles in plants and animals (Reproduction) • Plant system (Respiratory and circulatory) 	<ul style="list-style-type: none"> • Photosynthesis • Interaction of forces (Frictional force, gravitational force, elastic spring force) • Interactions within the environment

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Attitude Coverage

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

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

P3 Science

Written Assignments

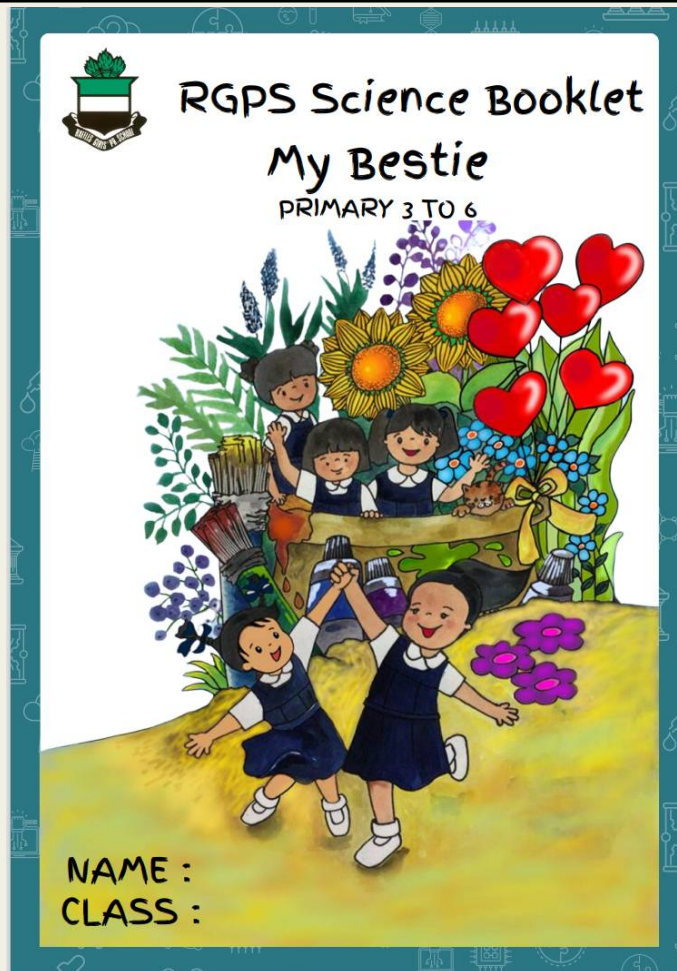
- 1) Inspiring Science Activity Worksheets
- 2) Topical unit Supplementary Worksheets
- 3) Topical Reflections (on Learning Log)

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

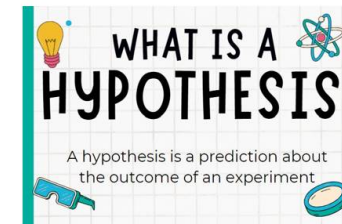
P3 Science

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

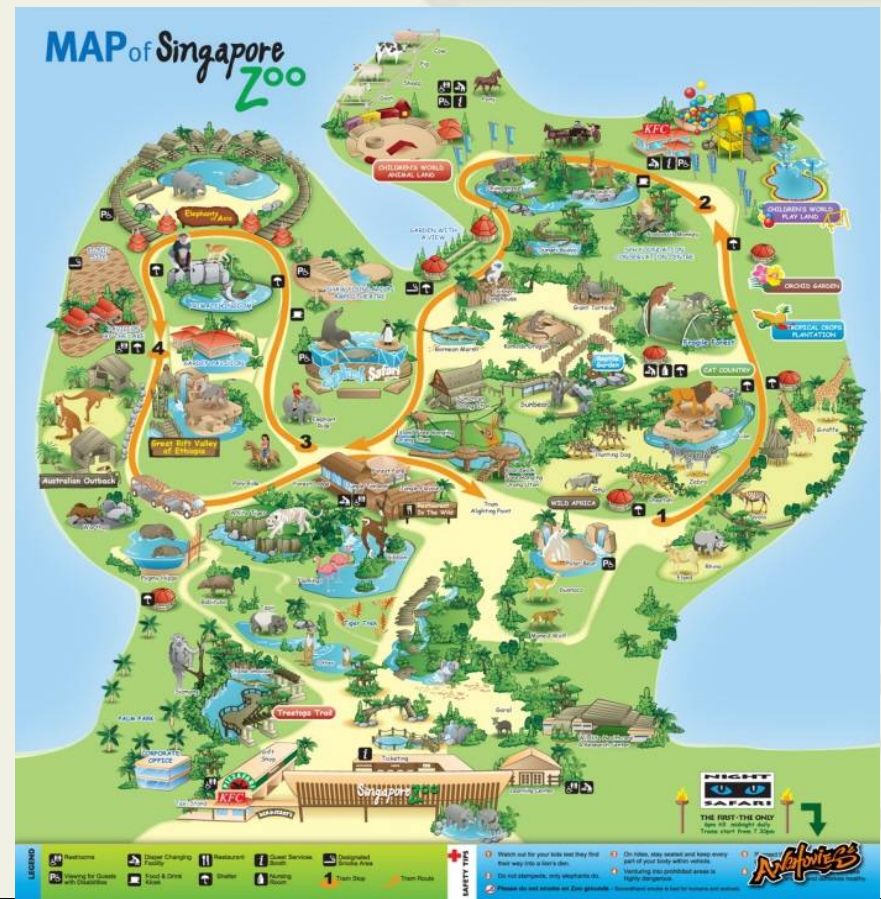
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P3 Science

Programme

Zoo-Mazing (Term 2)

[Science, Maths & Social Studies
interdisciplinary learning journey
to the Zoo]



P3 Science

Programme

Viridis Programme

- Develop a deep, actionable understanding of sustainability.
- Equip pupils with skills to assess, advocate for, and improve local environments.
- Cultivate a lifelong ethos of responsible stewardship.

STEM

- Fostering curiosity, building foundational science skills, and connecting learning to the real world through hands-on discovery.

Magnetic Kit

- To provide hands-on exploration of magnetic forces, allowing students to discover, test, and apply key properties through inquiry and play.

P3 Science

Enrichment

Science Supplementary Reading
Material (Optional):

The Young Scientists (Level 2)

Online Subscription via:



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

P3 Science

Enrichment

Online Young Scientist Badge

- Pupils can complete self-directed activities, conduct hands-on experiments, research STEM topics, and collaborate with peers or family to earn online badges through the Young Scientist Badge Scheme

<https://youngscientist.sscglobal.com.sg/login/index.php>

What do pupils do?

- **Access Portal** – Use the online platform to explore self-directed activities and multimedia content. Sign in using the user-id and password provided by the science teacher.
- **Submit Work** – Upload task responses, experiment findings, and reflections for review.
- **Earn Rewards** – Receive **online badges** for completed tasks, plus optional **physical badges and certificates**



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

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	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.			

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 diversity of living and non-living things?
- What are the questions that I have about the diversity of living and non-living things?

Assigned as homework before the introduction of the unit

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 know the difference between living things and non-living things.				
2	I am able to classify living things into groups.				
3	I am able to classify non-living things into groups.				
4	I am able to list the major groups of living thing.				
5	I am able to apply 'CER' technique to craft my scientific explanation [CER: C – Claim, E – Evidence, R – Reasoning]				

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

Post-lesson REFLECTIONS

- What are the scientific concept(s) I have learnt about the diversity of living and non-living things?
- How can the scientific concept(s) that I have learnt about the diversity of living and non-living things that can 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 upon the completion of the unit : concept mapping



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	Weighted Assessment 2 (WA2) *(Science Practical Test) Term 3	End of Year Exam (EYE) Term 4
Format	Structured Questions 3 Questions on <ul style="list-style-type: none"> • Living & Non-Living Thing • Diversity of Plants • Diversity of Animals 	Science Practical Test 3 Questions on <ul style="list-style-type: none"> • Life Science • Physical Science 	Section A (MCQ): 25 Questions Section B (OE) 11 Questions
Duration	30 mins	30 mins	1h 30 mins
Overall Weightage	15 %	15 %	70 %

**Note : Practical test papers will not be issued for take-home. This is because a significant component of the assessment resides in the hands-on experiment, which is not captured on the paper. To support learning, teachers will review all papers in class, providing detailed feedback on Areas for Improvement (AFI) to guide pupil development.*

P3 Science

Help Your Child to Develop Skills of An Independent Learner

(A) Self-Management Skills:

*-to help them to gain skill to **self-regulate** where they monitor, control and direct aspects of their learning for themselves; to overcome the lure of procrastination and reduce stress.*

1) Goal setting

- ability to set realistic, relevant, challenging and manageable goals

2) Time and Resource-management

- ability to manage their own time and resources
- ability to prioritise activities and tasks
- ability to break things into small, manageable pieces

3) Focus & Discipline

- ability to focus on the task in hand and work through distractions and exercise self-discipline to complete task
- ability to distribute study instead of cramming

4) Mind and Body

- ability to take care of oneself – eat, sleep, rest and exercise properly
- ability to recognise cause(s) of stress and manage it.

P3 Science

Help Your Child to Develop Skills of An Independent Learner

(B) Thinking Skills:

-To help them create meaning, gain understanding, make judgements, make good decision, self- analyse and reflect

1) Identify purpose

- ability to identify purpose for reasoning

2) Make decision

- ability to make decisions considering relevant implications and consequences.

3) Ask relevant questions

- ability to ask a range of relevant questions

4) Evaluate Evidences

- ability to recognise and evaluate evidence offered to support claims.

P3 Science

Help Your Child To Develop Skills Of An Independent Learner

(C) Information Skills:

-Empower them as learners and enable them to :

1) recognise information needed

- ability to recognise their own lack of knowledge and skills and need to obtain further information or deepen their understanding

2) locate relevant information

- ability to locate relevant information from a range of resources

3) recognise and select appropriate sources

- ability to choose appropriate information sources

4) identify prior knowledge

- ability to reflect on the existence of prior knowledge and experiences, showing awareness of one's tendency to count assumptions as prior knowledge

5) reflect and evaluation

- ability to reflect on their own learning skills, evaluate progress and set further goals

6) apply Information

- ability to apply information to meet the original intent, construct understanding or solve problem

P3 Science

THE ROLE OF PARENTS

- Be a **role model** for learning
- Practise what your child learns at school
- Tune into how your child learns
- Set aside time to monitor their work and get them to review their daily work. **DO NOT TAKE OVER THE HOMEWORK/PROJECT**
- Connect what your child learns to everyday life and to the world
- Help your child to take charge of his learning.
- Refrain from over-scheduling your child.
- Limit media exposure.
- Provide emotional and moral support and encouragement

P3 Science

Useful Websites

[*https://www.brainpop.com/*](https://www.brainpop.com/)

[*http://www.bbc.co.uk/bitesize/ks2/science/*](http://www.bbc.co.uk/bitesize/ks2/science/)

Science Video- Eureka!

[*https://www.youtube.com/playlist?list=PL07249EFA9038FDC1*](https://www.youtube.com/playlist?list=PL07249EFA9038FDC1)

- ***These short video programmes use comic animation to illustrate and present physical Science concepts***

Bill Nye The Science Guy

[*https://www.youtube.com/user/TheRealBillNye/videos*](https://www.youtube.com/user/TheRealBillNye/videos)

- ***These are live action Science educational videos.***

Thank You

