Primary 4
Science

An Overview : Big Ideas in the Primary Science Syllabus

Big Ideas (Themes)	Key Inquiry Questions
Diversity	• What is the environment made up of? • Why is it important to maintain diversity? • How do we go about understanding the diverse range of living and non-living things?
Systems	• What are different parts of a system? • How do parts of a system or different systems interact together to perform a function?
Interactions	• How does Man interact with the surroundings? • What are the consequences of Man's interactions with his surroundings?
Cycles	• What are the cycles in our everyday life? • How are cycles important to life?
Energy	• How does energy affect Man and his surroundings? • Why is it important to conserve energy?

Primary 4 Science Syllabus

Themes	Lower Block (P3 & P4)	Upper Block (P5 & P6)
Diversity	• Diversity of living and non-living things • Diversity of materials	
Cycles	• Cycles of Plants and Animals (Life Cycles) • **Cycles in matter and water (Matter) (P4)**	• Cycles in plants and animals (Reproduction) • Cycles in matter and water (Water)
Systems	• **Plant system (Plant parts and functions) (P4)** • **Human system (Digestive system) (P4)**	• Plant /Human system (Respiratory and circulatory systems) • Cell system • Electrical system
Interactions	• Interaction of forces (magnets)	• Interaction of forces (Frictional, gravitational forces, force in springs) • Interaction within the environment
Energy	• **Energy forms and uses (light and heat) (P4)**	• Energy forms and uses (photosynthesis) • Energy conversion

Components of lessons

- Theory : Acquisition of basic scientific terms and concepts
- Practical : Carry out experiments in the science laboratory
- Science Workbooks required at P4 (Cycles/Systems/Energy)
- Supplementary / Process Skills Worksheets
- Practice Papers
- Experiential Learning @OLN (e.g. Ecogarden/Outdoor Learning Space)
- E-learning : SLS lesson packages

NOTE : Files will be returned for parents' checking and signature upon completion.

Outdoor Experiential Learning @ OLN

- Lessons are designed by teachers
  - to stimulate students' curiosity about their environment
  - connect Scientific facts with the real world

E.g.

- Observe a plant and identify the different plant parts.
- Observe different types of stems/flowers/leaves.

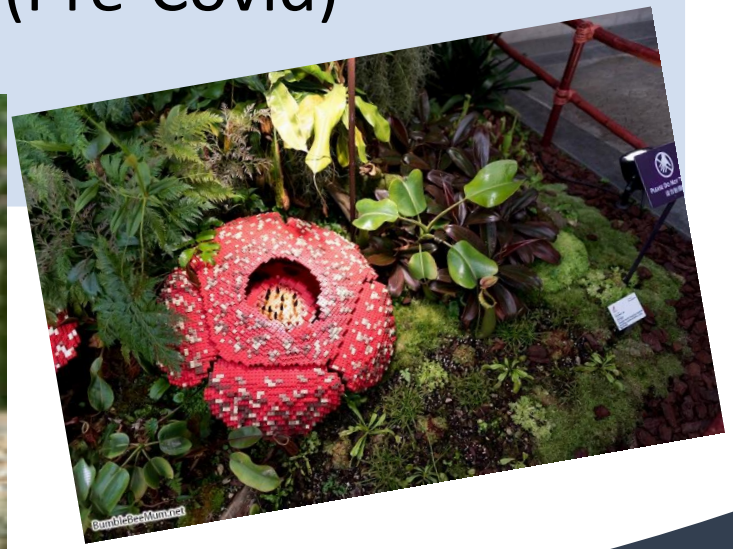
Science Programme

Roles play by Science	Programme
Science in Daily Life Using scientific skills in everyday life	• Science Fair/ Week (Term 3)

*fun and interesting activities to stimulate interest in science

Science Programme

Roles play by Science	Programme
Science and the environment Learning Science through exploring the natural world	• Outdoor Experiential Learning 1 : Science Trail outside school (Pre-Covid)



Science Programme

Roles play by Science	Programme
Science and the environment Learning Science through exploring the natural world	• Outdoor Experiential Learning 2 : Ecogarden and Outdoor Learning Space

Support Lesson

- Commence in Week 3 Term 1
- Identification of pupils for support lesson is based on P3 overall results (Science)

Focus:

- Reteach concepts taught in class.
- Use diagnostic approach to identify learning gaps.
- Practice papers focused on areas that pupils are weak at.

Support Lesson Structure

RETEACH topic(s)

→

ASSESS Understanding (use diagnostic tests)

→

IDENTIFY learning gaps

↓

ADDRESS learning gaps through feedback

←

Set similar tasks to **TRANSFER** learning

↑

Assessment

Term	Type of Assessment
1	Process Skills Review 1
2	Process Skills Review 2
3	Performance Task
4	End-of-Year Exam

Term 3 – Performance Task

Format:

- 2 questions
- 5 marks each

How does it work?

- Pupils carry out 2 experiments.
- Step by step instructions to guide pupils.
- Answer questions based on observations.
- Provide reason(s) for their observation.
- To be carried out during lab lessons.

How do we prepare the pupils?

- One practice given to all classes before the performance task.

Process Skills required:

- **Observation** - *use senses to gather information about objects / events*
- **Inferring** - *interpret or explain observations / data / information*
- **Comparing** - *identify similarities and differences between objects/events*
- **Classifying** - *group objects / events*
- **Analysing** – *identify parts of objects/information/ patterns, and relationship between them*
- **Using apparatus and equipment**

How do we guide your child in constructing scientific explanations?

The Science department adopted the Claim-Evidence-Reasoning (CER) Framework (developed by McNeill and Krajick) to guide pupils when constructing science explanations.

C.E.R stands for:

Claim **Evidence** **Reasoning**

Why use CER answering technique?

Three key areas during constructing science explanations:

- Identify and use **E**vidence.

- Providing **R**easoning for why their evidence supports their **C**laim.

Components

- Make a ***Claim*** about the problem.
- Provide ***Evidence*** for the claim.
- Provide scientific ***Reasoning*** that links the evidence to the claim.

What is **C**laims, **E**vidence and **R**easoning?

Claim :	A *conclusion* that *answers* the original *question*. [Usually one sentence]
Evidence ***How do you know that?*** :	Scientific *data* that supports the claim that must be appropriate and sufficient. - Can come from something you observe from the question e.g. data in the form of graphs, tables, observations from diagrams etc.
Reasoning **What's the link?** :	Scientific concept that links the claim and evidence. [Usually many sentences in length] - Shows why the data count as evidence to support the claim, using appropriate scientific principles and terms.

C r Lady
Si ol n Virtue

Q & A Session