Primary 3
Science Curriculum
Sharing

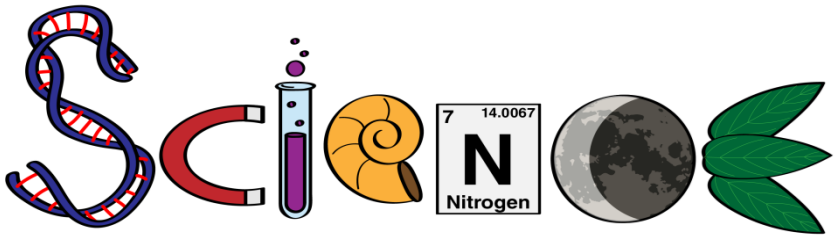
Scope of Sharing

- Science Curriculum
- Infusing Applied Learning
- Components of P3 Science Lessons
- Science Assessment &
- Home Support

SC4LIFE@HPPS

HPPS Science Curriculum

- Provides the **Foundation** for Science beyond Primary Level
- Driven by **Inquiry**-based, **Applied** learning and **STEM**
- Acquisition of Science **knowledge**, **skills** & positive **attitudes** towards **lifelong learning**
- Learning of Science is **useful** and **meaningful**; as it is **relevant** to everyday life
- Nurture the **love** and **care** for the **environment**

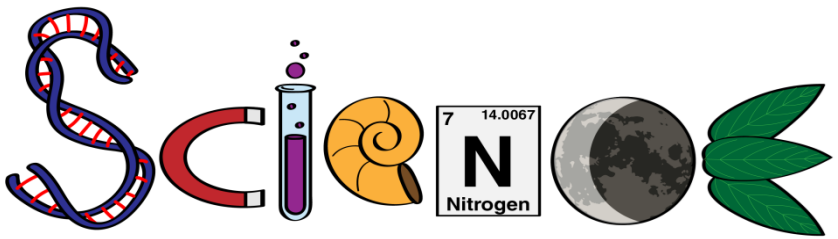


Inquiry-based learning

Takes place by **observing**, asking **questions**, **finding answers** through **investigation** — rather than simply discussing the scientific **content**.

Encourage students to make **observations**, and **inferences**, ask relevant **questions**, find answers through **hands-on** (under supervision)

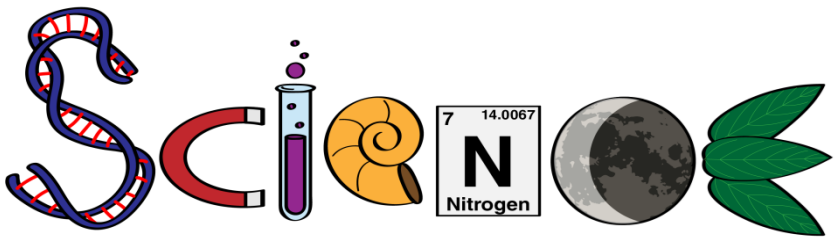
In P3, the inquiry-based learning process is guided by the Science teacher.



Primary Science Syllabus : Divided into 5 Broad Themes

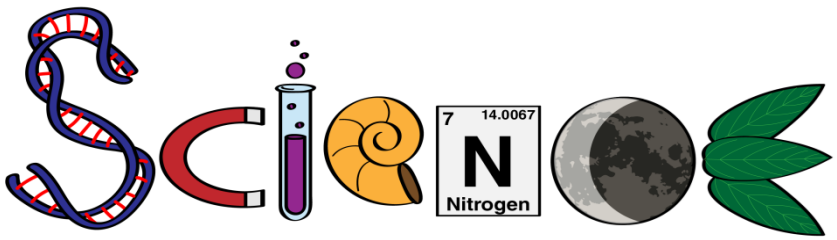
Diversity, Cycles, Interactions, Systems & Energy

Block	Level	Themes
Upper	P6	Energy, Interactions
	P5	Cycles, Systems, Interactions
Lower	P4	Systems, Cycles, Energy
	P3	Diversity, Cycles, Interactions



Themes/Topics in P3

Diversity & Cycles	Living & Non-Living Things, Animals, Plants, Fungi & Bacteria (**Term 1**) Animal & Plant Life Cycle (**Term 2**)
Diversity	Fun with Variables and Materials (**Term 3**)
Interactions	Magnets (**Term 3 & 4**)



Diversity: Living & Non-Living: How ideas are connected

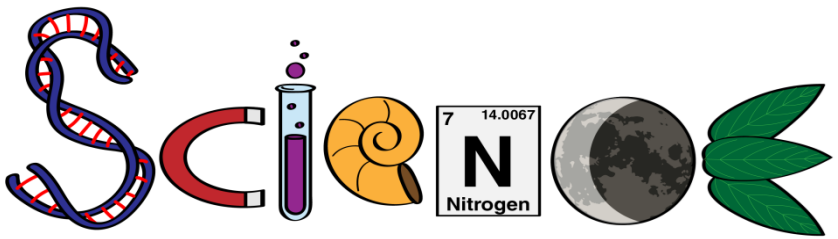
Key Idea 1: There are living and non-living things.

Key Idea 2: Living things need water, food and air.

Key Idea 3: Living-things grow, respond to changes and reproduce.

Linking question: How are living things different from non-living things?

Linking questions help teachers to facilitate discussion and students to see connections between concepts / ask further questions



Key Process Skills

Observing (and inferring)

- Using our 5 senses to gather information from our surrounding

Comparing

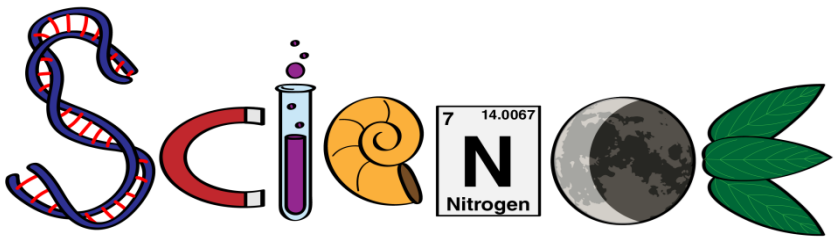
- Recognise what is similar/different between 2 things

Classifying

- Putting things into groups based on common characteristics

Communicating

- Reading Writing Speaking & Listening in order to collect/share information



Scientific Processes

- Creative Problem Solving
- Decision Making
- Investigation

Process : Creative Problem Solving

- This is a process of **analyzing a problem** or **choosing a relevant solution** in order to remedy or alter a problem situation
- Often through discussion of **real-life problems**
- **Example:**

Topic: Fungi and Bacteria

Thinking of ways to slow down bread from turning moldy quickly

Process : Decision Making

- This is the process of **establishing** and **applying** criteria to select from among seemingly **equal alternatives**.
- **Example:**

  Topic: Magnets

  Giving students a number of objects and ask them to prove which object is a magnet

Process: Investigation

- This involves formulating hypothesis, planning and carrying out fair experiments to test the hypothesis.
- Carried out in all topics
- Process skills will be taught
- **Example:**

  Topic: Materials

  To find out which material, A or B, is the most / least flexible

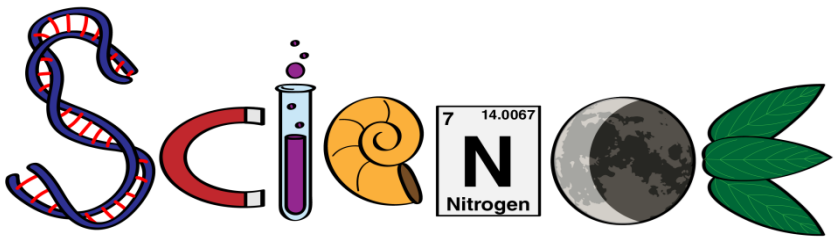
Positive Attitudes

Curiosity - Desire to explore the surrounding and question what they find

Creativity - Suggest innovative and relevant ways to solve problems

Integrity - Handle and communicate data and information with integrity

Objectivity - Seek data and information to validate observations and explanations objectively



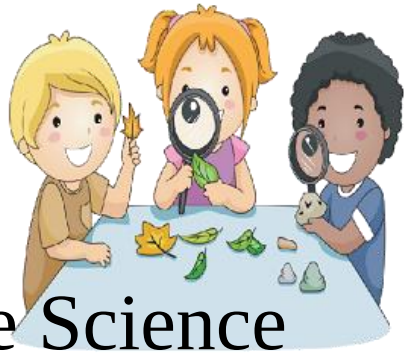
Applied Learning

Connecting scientific knowledge and process skills to the real world

Makes learning purposeful and relevant

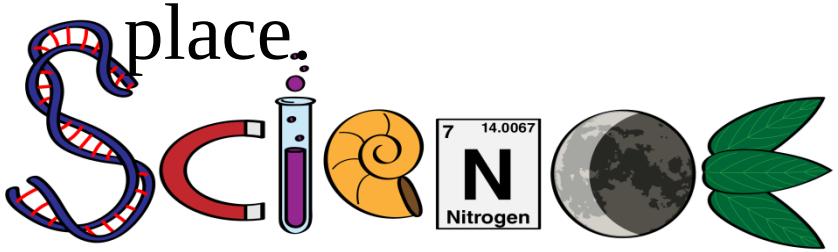
Students are happy and motivated

Building A Culture of Sustainability in HPPS



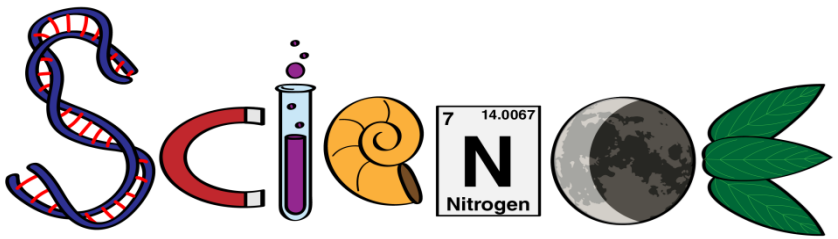
- Having infused **applied learning** in the Science Curriculum we have moved towards our vision for HPPS as a Green School

- **Green Initiatives** such as infusing **environmental education** into the curriculum, enriched outdoor learning by **creating more green spaces** around the school, commemorating **Earth Day**, **reducing food wastage**, driving **plastic recycling** are some activities the school has put in place.

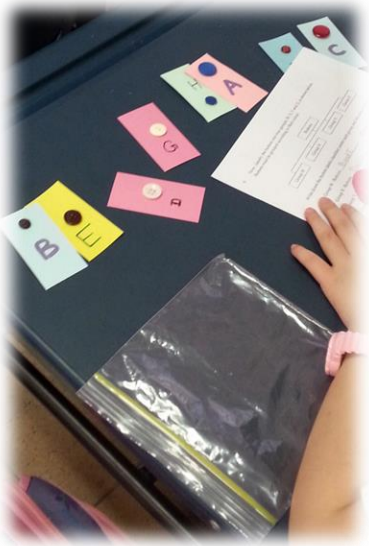


P3 Science Curriculum

- Zoo LJ – authentic learning experience
- Fun with Variables and Materials – Inquiry and Scientific Method
- Every Child A Seed Programme - Planting
- Outdoor Learning – Fern Garden / Terrarium
- Hands-on activities for all topics



Key Components of Science Lessons



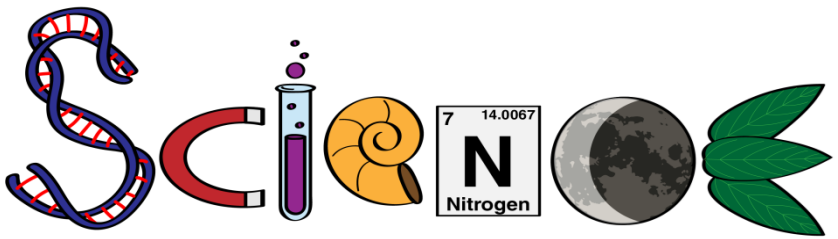
Components of Science Lessons

Theory : Teaching of Concepts (*Textbooks*)

Hands-on Sessions in the Science / computer Lab / Outdoors (2 periods) / Classroom (2 periods)

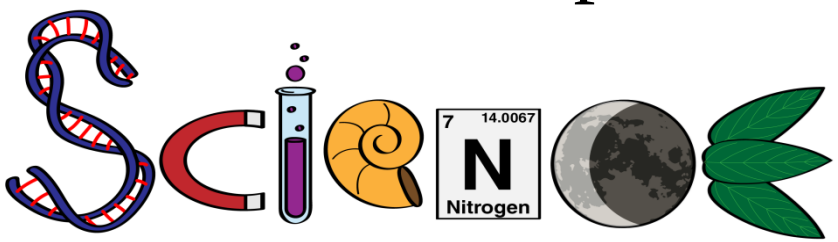
Student **Handouts** - Topical Notes on Key ideas

Activity sheets for hands-on / Worksheets



Written Assignments

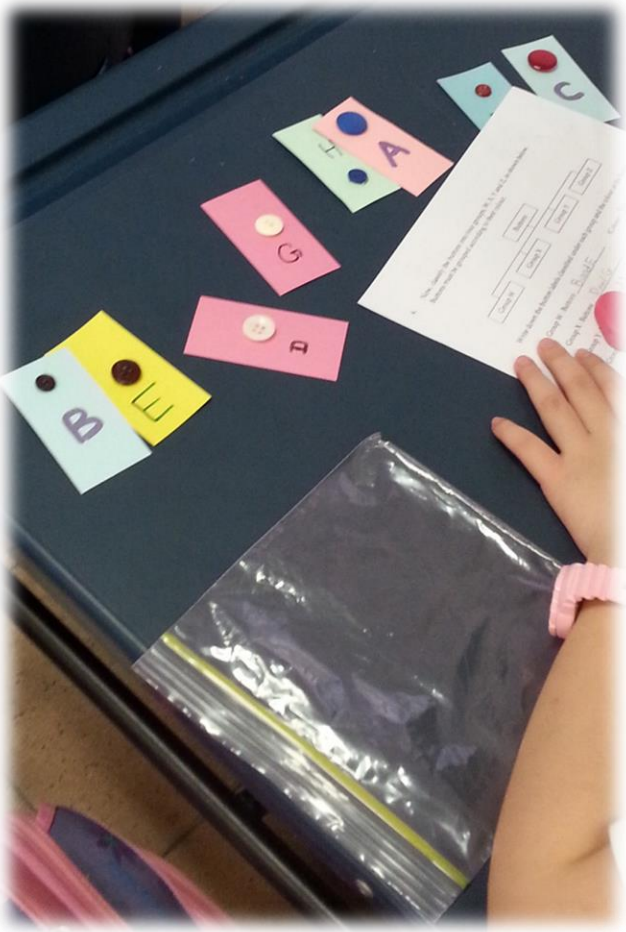
- Activity WS (Booklets) – Hands-on
- School WS – Supplementary Activities & OE WS, Revision WS and Handouts on answering guidelines
- Worksheets will be returned for parents' signature.
- Vitamindz Booklets – Topical / Skills
- Practice Papers – To prepare for exam



Books & Worksheets

- Textbooks cover all the key concepts taught in P3.
- Please DO NOT discard materials at end of P3 as they are needed for P4 to P6 work

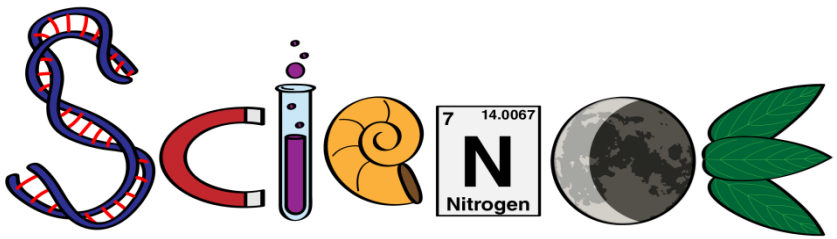
Assessment



Evaluating Learning

Class Work - Activities and written work

Semester 1	Semester 2
Term 2 **Weighted Assessment 1** **Pen and Paper Test** (15%) Includes a performance task on classification	**Weighted Assessment 2:** **Pen and Paper Test only** (15%) **Year End Exams** (70%)



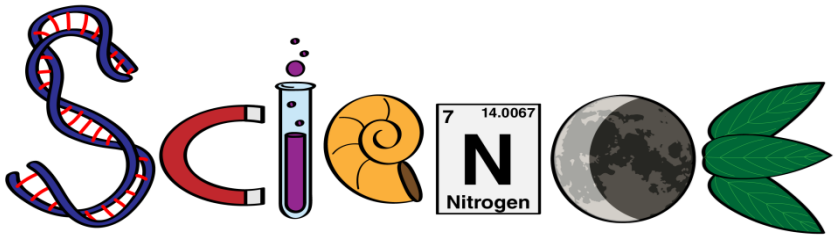
Format of P3 Science Paper (Year End)

Duration of the Exam - 1 hour 30 minutes (80 marks)

Section A : 20 MCQs (40m)

Section B : 8 Structured Questions (16m)

Section C : 6-8 Open-ended Questions (24m)
Each question carries 2m - 4m



Section A

The diagram shows Animal Y feeding on plants.

Animal Y

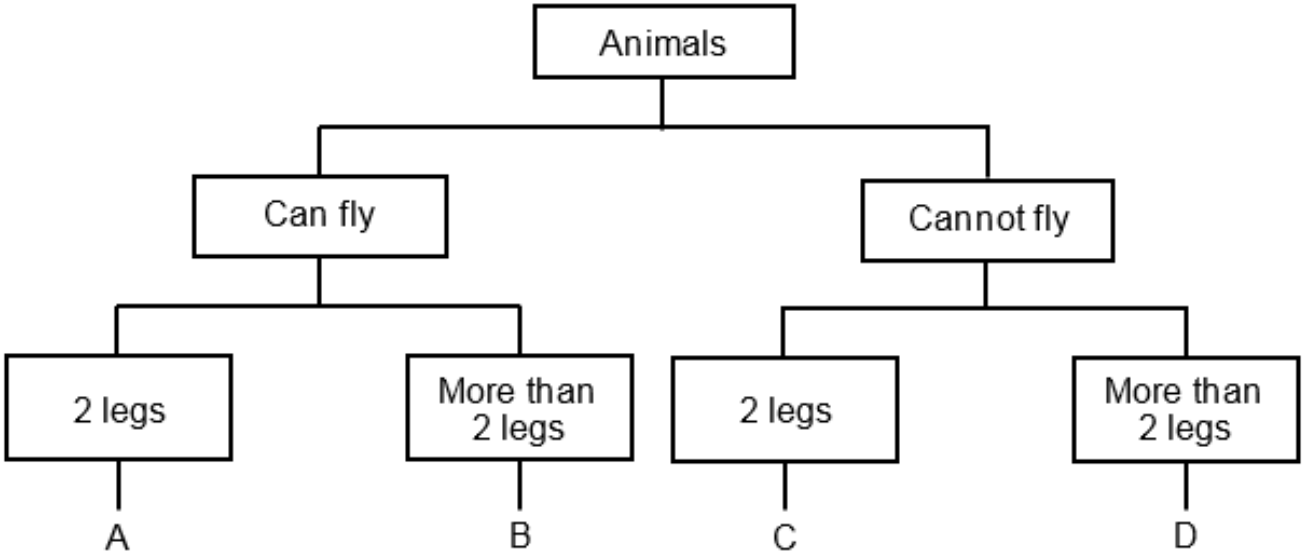
Which characteristic of living things can be observed from the diagram above?

(1) Living things grow.
(2) Living things need food.
(3) Living things reproduce.
(4) Living things move from place to place.

( )

Section A

The classification table below shows how some animals are classified.



Hani saw **Animal M** in her garden and recorded her observations in her Science Journal.

- ★ Animal M cannot fly.
- ★ Animal M has four legs.

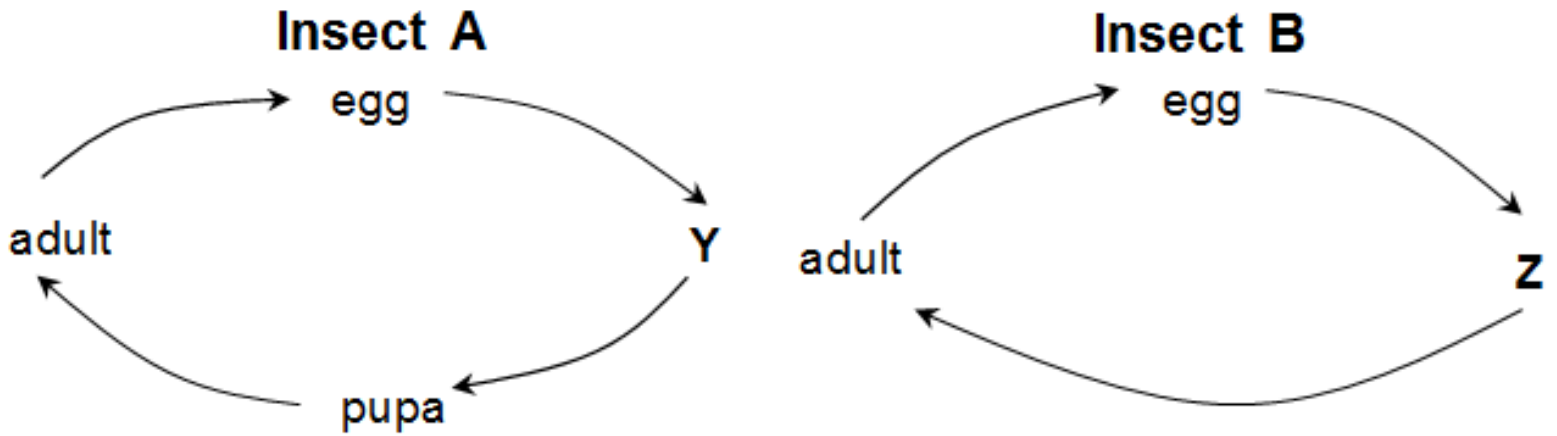
Which group, A, B, C or D, does Animal M belong to?

(1) A
(2) B
(3) C
(4) D

( )

Section B

The diagrams below show the life cycles of two insects, **A** and **B**.

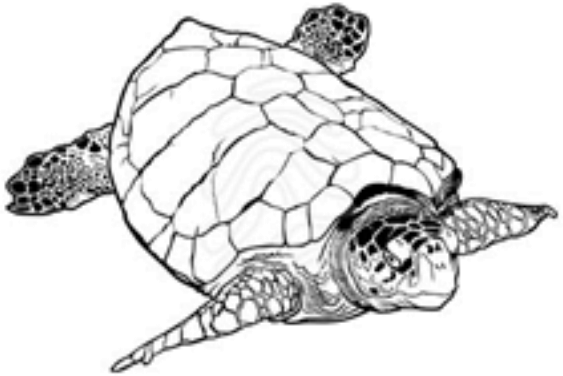


Name stages **Y** and **Z** in the life cycles above. [2m]

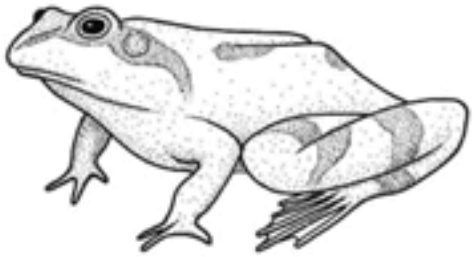
Y: _____ **Z**: _____

Section C

The pictures below show organisms A and B.



Organism A



Organism B

These two organisms **reproduce** in a **similar** way.

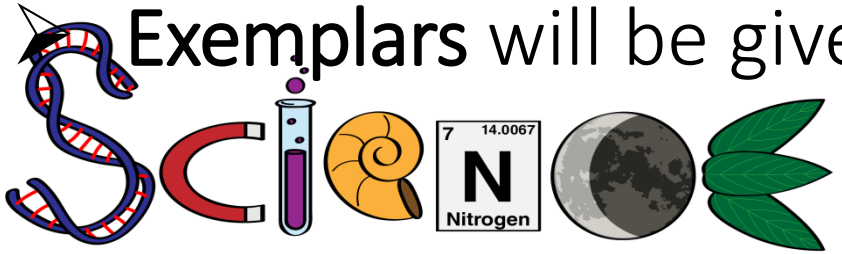
State this **similarity**. [1m]

_____

_____

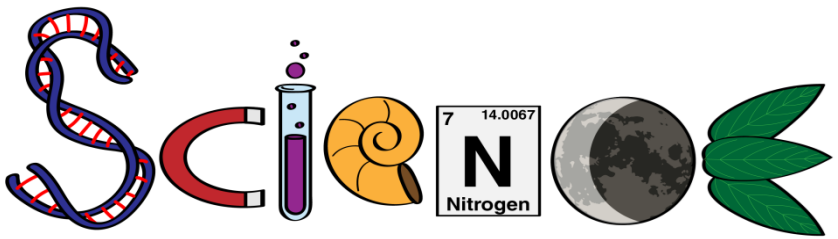
Mark Scheme

- Broad and Flexible
- Includes expected correct answers
- Student's responses that are different from the mark scheme are carefully evaluated and included as acceptable answers if they are **conceptually correct**.
- Responses that show evidence of <u>understanding</u> of relevant concepts and <u>mastery of skills</u> will be awarded **due credit**.
- Marks are **not** awarded for stating 'correct' key words
- **Exemplars** will be given to students.



Implications

- **Good Understanding** of key concepts is **important**
  - ✓ **Make Connections** between concepts learnt
  - ✓ **Apply** concepts in new situations
- **Revision** of concepts learnt
  - ✓ Important to **keep** all Science materials for PSLE revision

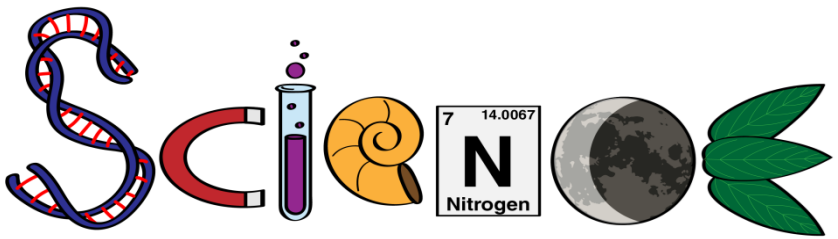


Implications

- **Practice & Application** of Process Skills to authentic tasks
  - ✓active participant in activities
  - ✓e.g. Fun with Variables, YI Project, Outdoor Learning etc.

Guide to Answering Questions

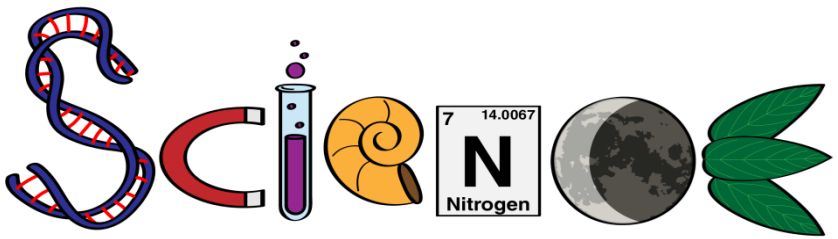
1. **Answer in context to question - Never memorize answers, without understanding**
2. Be specific e.g. “Plants are different in their leaves” without stating specifically how - e.g. shape, colour, or texture



Guide to Answering Questions

3. **Identify objective of question - asking about aim / procedure / pattern**

4. Look for useful information in the question or diagram to identify the topic or key concept that is tested.

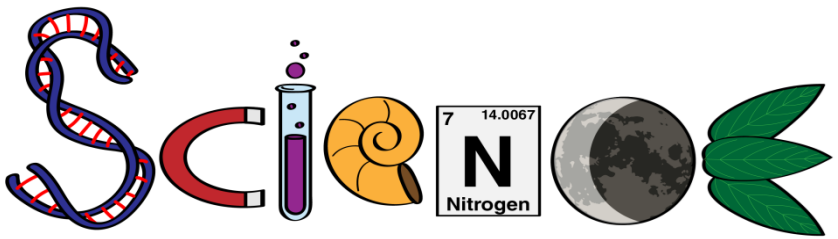


Expectations & Support@Home

1. **Review** & **Think** through **key concepts** learnt

2. **Link** ideas across topics
   (For example Materials & Magnets)

3. Learn **concept words** & **link** them to everyday life experiences

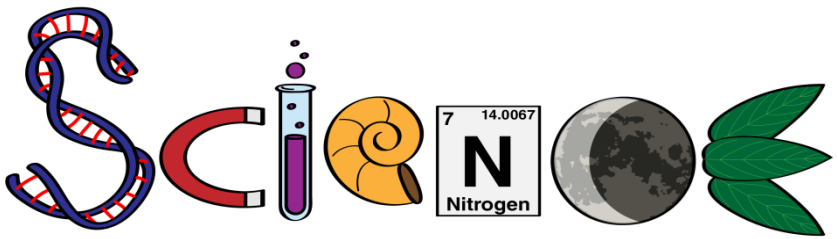


Expectations & Support@Home

4. **Engage** children with **authentic tasks s**uch as simple cooking, household chores, gardening, repairing a bike or other household objects.

Expectations & Support@Home

5. Actively engage your children by talking about books they are reading or **television programs** about Science they have watched.
6. In school, we provide our P3 students ample opportunities for experiential learning in our Science Curriculum.



Thank you