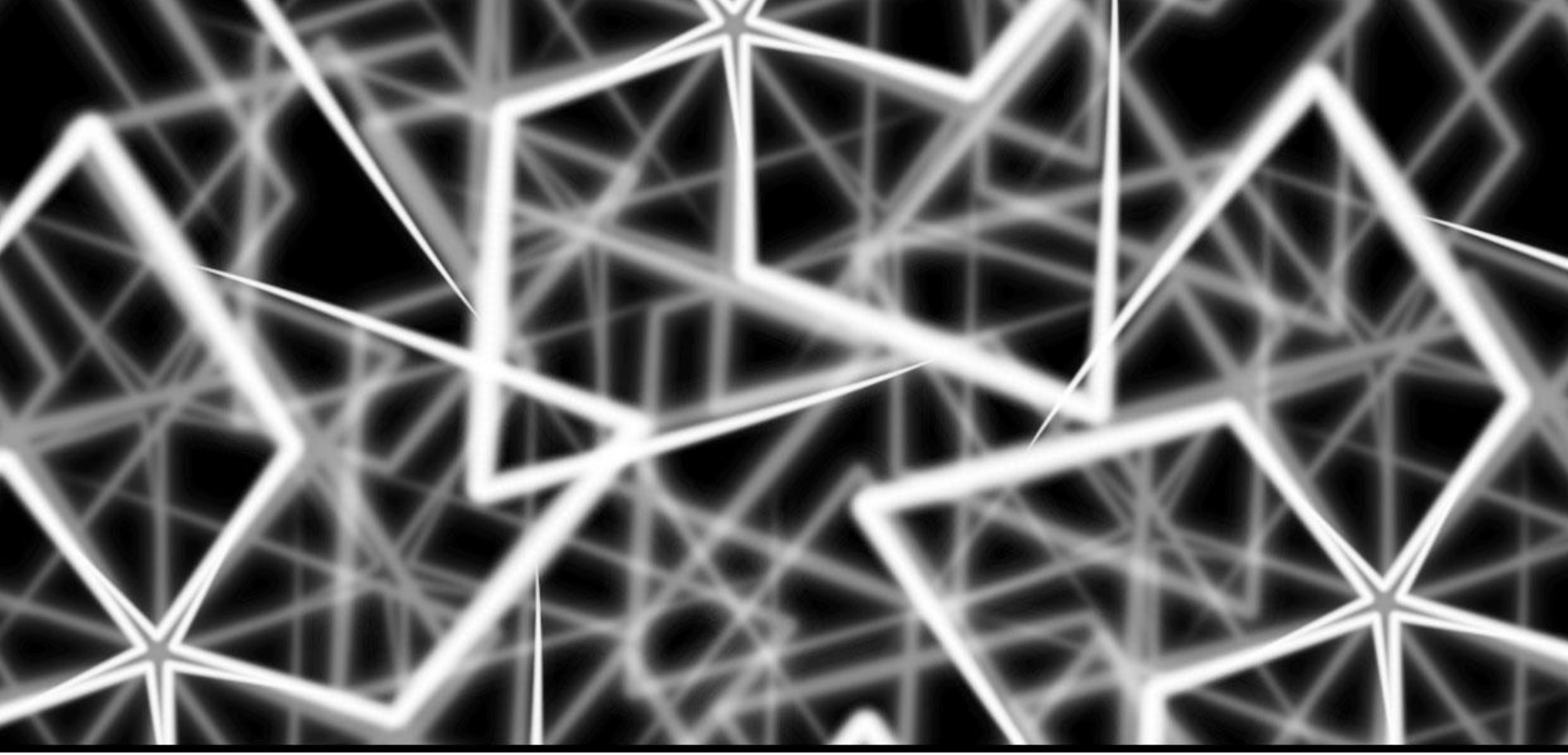


P6 Parents' Sharing

Preparing for PSLE Science

P6 Science Curriculum Updates

P6 Science Topics:

Semester 1:

1. Photosynthesis
2. Energy Conversion
3. Forces
4. Physical Characteristics of the Environment
5. Food Chains and Food Webs
6. Populations and Communities

Semester 2:

1. Adaptations
2. PSLE Revision Package

P6 Science Lessons

- Hands-on Activities
- Learning Journey
- Outdoor Learning
- Written work
- SLS Lessons
- PSLE Revision Package

Hands On Lessons

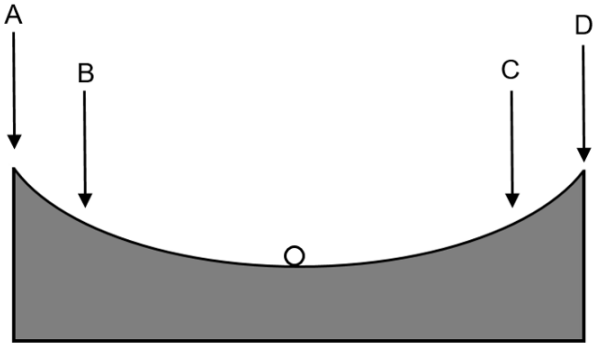
Rationale

- Learning by doing
- Practising process skills
- Improve critical and creative thinking skills using the 5 senses
- Promotes
  - Inquiry
  - Questioning
  - Applied Learning
  - Self-directed and Collaborative Learning

Hands On Lessons

Sample Experiment and Discussion

You have been given a stringless pendulum and a ball bearing as shown below.



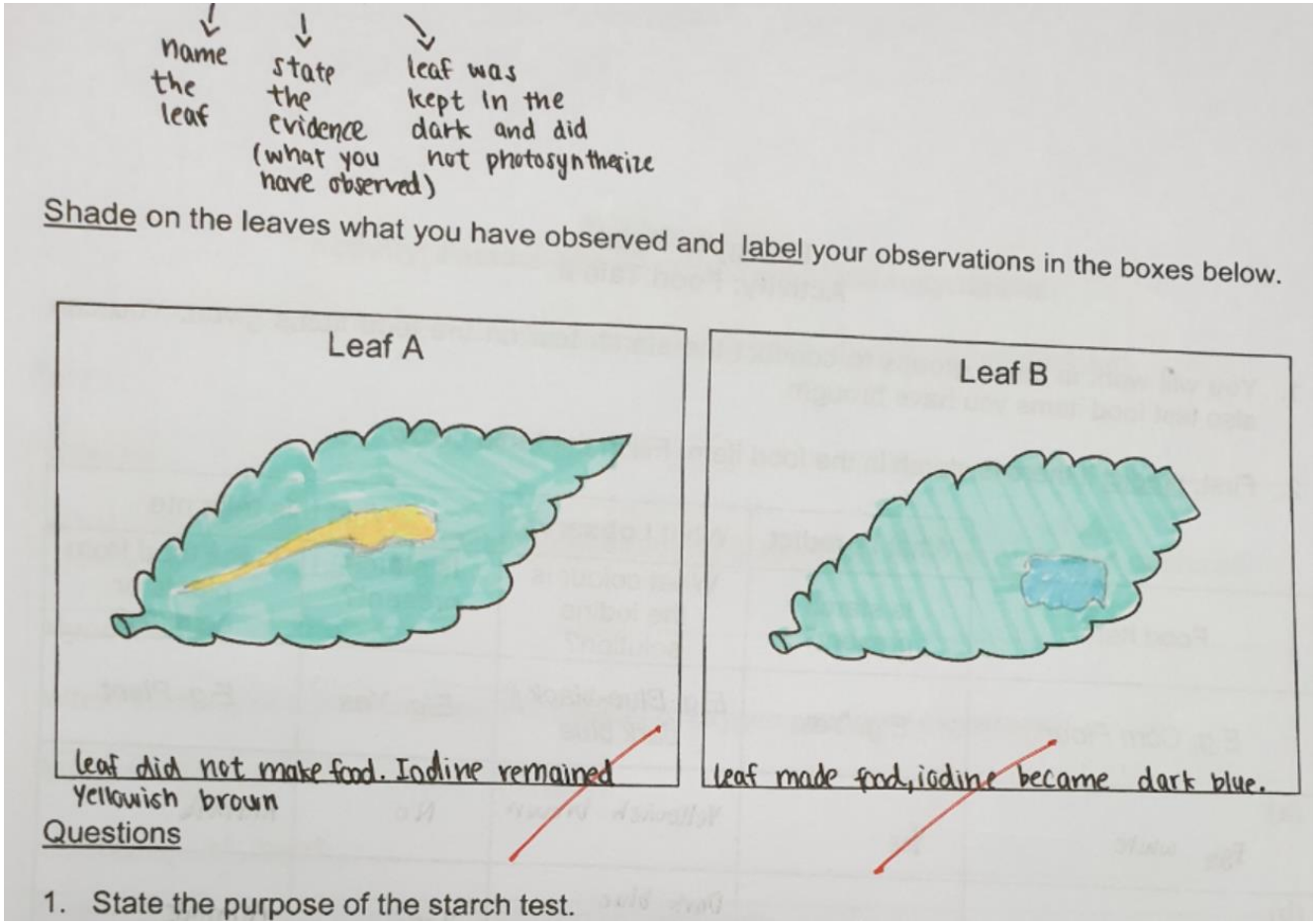
Stringless pendulum and ball bearing

Questions

- What do you do to show the ball bearing has potential energy?
- Where do you think this energy is stored? Explain.
- What can you do to increase the potential energy the ball bearing has?
- How would you prove the potential energy of the ball bearing has increased?
- Suggest another way the potential energy of the ball bearing can be increased. Explain.

Expectations: Quality of Work

- Neat and complete



name the leaf

state the evidence (what you have observed)

leaf was kept in the dark and did not photosynthesize

Shade on the leaves what you have observed and label your observations in the boxes below.

Leaf A

Leaf B

leaf did not make food. Iodine remained yellowish brown

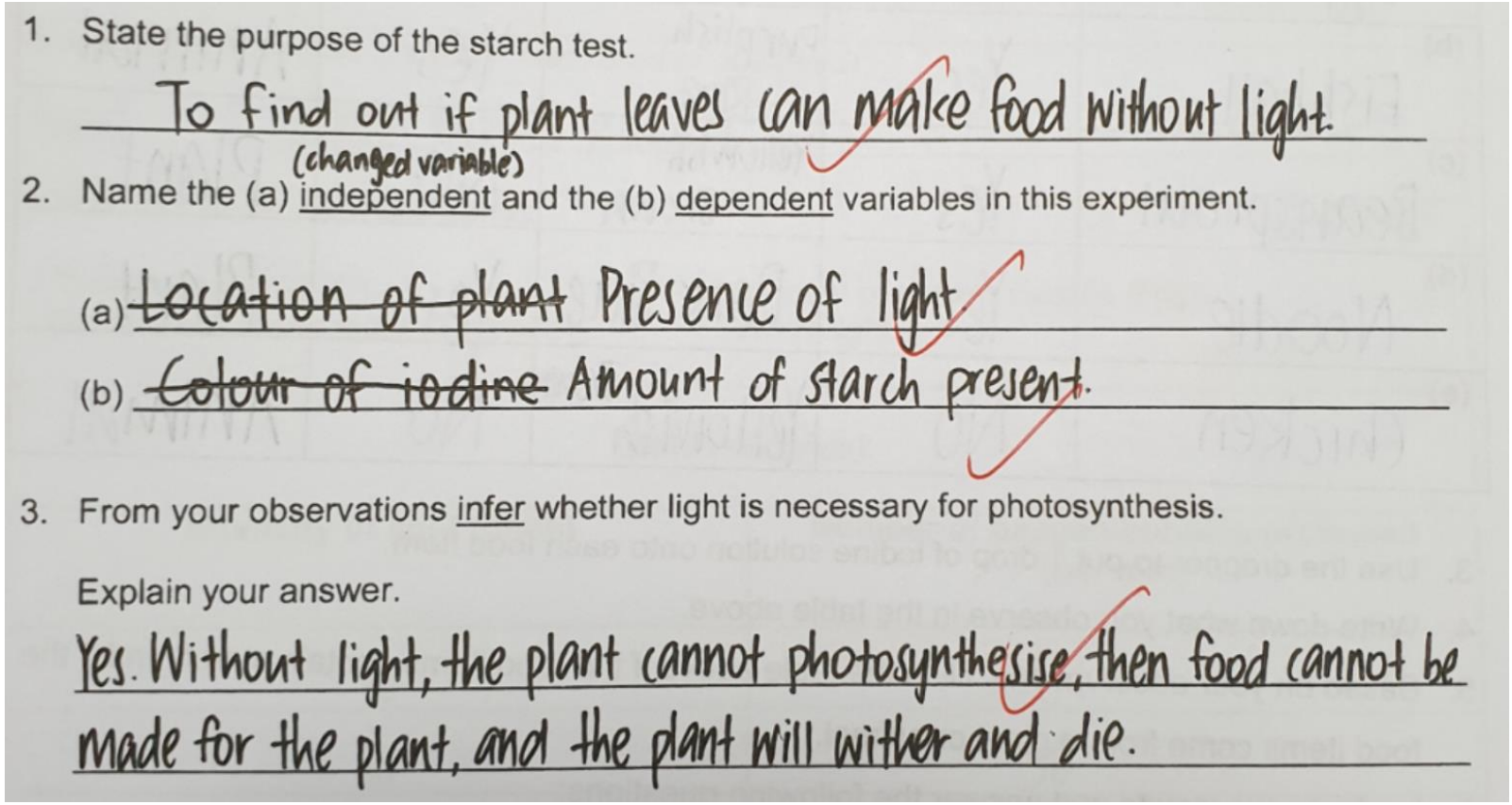
leaf made food, iodine became dark blue.

Questions

1. State the purpose of the starch test.

Expectations: Quality of Work

- Use of concepts / evidence is clear



1. State the purpose of the starch test.

To find out if plant leaves can make food without light.

(changed variable)

2. Name the (a) independent and the (b) dependent variables in this experiment.

(a) ~~Location of plant~~ Presence of light

(b) ~~Colour of iodine~~ Amount of starch present.

3. From your observations infer whether light is necessary for photosynthesis.

Explain your answer.

Yes. Without light, the plant cannot photosynthesise, then food cannot be made for the plant, and the plant will wither and die.

P6 Science Resources

- Activity Booklets (for hands-on)
- Review Practice (School WS)
- Vitamindz Booklets
- Student Handouts
- Prelim Practice Papers
- SLS Lessons & Assignments

Textbooks are important resources for revising key concepts.

All the materials from P3 onward are needed for PSLE Revision

Assessment Matters

Evaluating Learning

Class Work: Activities, Written Work & SLS Assignments

Semester 1	Semester 2
Term Review 1 (NW) (100m) **Term Review 2 (NW)** (100m)	**Prelim** (100m) **PSLE**

Format of Paper (Standard Course)

Section	Item Type	No. of Qns	Marks per Qn	Weighting
A	MCQ	28	2	56%
B	OE	12 or 13	2, 3, 4 or 5	44%

Duration of Paper : 1h 45 min

Format of Paper (Foundation Science)

Section	Item Type	No. of Qns	Marks per Qn	Weighting
A	MCQ	18	2	36%
B	Structured OE	6 to 7 5 to 6	2 or 3 2 or 4	14% 20%

Total Marks : 70

Duration of Paper : 1h 15 min

Distribution of Marks

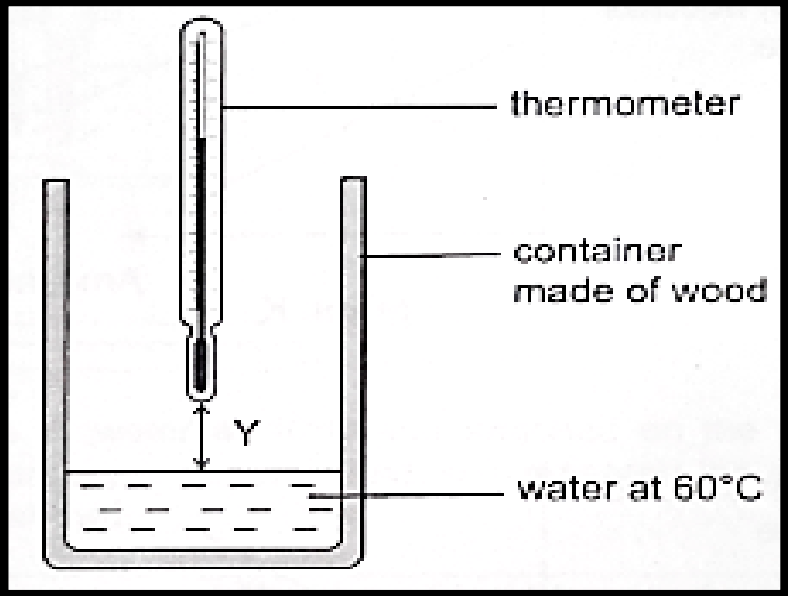
According to Syllabus Content	
Life Science	45% - 55%
Physical Science	45% - 55%

According to Assessment Objectives	
Knowledge with Understanding	~ 40%
Application of Knowledge & Process Skills	~ 60%

Exemplar

Martin filled a container made of wood with water at 60°C. The temperature of water remained at 60°C throughout the experiment.

He measured the temperature of the air at various distance, Y, from the water surface.



His results are shown below.

Distance Y (cm)	2	4	6	8	10	12
Temperature of air (°C)	42	36	32	29	27	27

(a) Explain how using a container made of wood helped to make the experiment more accurate. [1]

(b) Give a reason why the experiment had to be conducted over a short period of time. [1]

(c) Based on the above results, what is the relationship between the temperature of the air and distance Y? [1]

General Points

- An experiment is given as a scenario for the first part of the question. **Students need to recognise the key idea based on the experiment and data given**.
- In the second part of the question a real-world context will be given for students to apply this key idea.
- This type of test item that comes with a parallel example is the current trend observed in Primary Science Assessment.

Analysing part (a) - Key ideas

(a) Explain how using a container made of wood helped to make the experiment more accurate. [1]

- Wood is a poor conductor of heat, it conducts heat away slowly (from the water to the surrounding)
- This ensures that temperature of hot water does not drop quickly. Otherwise, it will affect the temperature of the air that is being measured.

Analysing part (b) - Key ideas

(b) Give a reason why the experiment had to be conducted over a short period of time. [1]

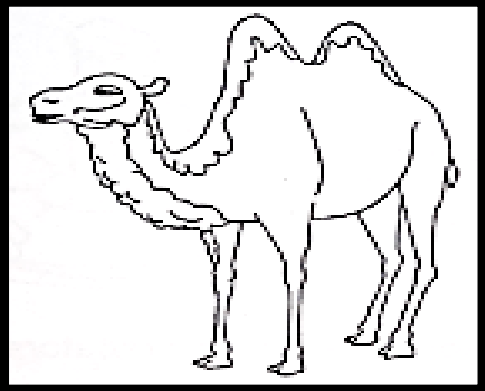
- The temperature of water will not remain constant as water will lose heat to the surrounding.
- It will affect the temperature of the air that is being measured.

Analysing part (c) - Key ideas

(c) Based on the above results, what is the relationship between the temperature of the air and distance Y? [1]

- Key idea → Relationship between distance Y and the temperature of air
- As distance Y increases temperature of air decreases

(d) Animal H lives in the desert.



It stands on the hot sand with its four long legs.

(i) Based on Martin's findings, explain why having long legs is an advantage for animal H. [1]

(ii) The temperature in the desert gets very low at night. Animal H has thick fur to help it adapt to life in the desert. Explain why having thick fur is an advantage for animal H. [1]

Answering part (di) - Key ideas

(di) Based on Martin's findings, explain why having long legs is an advantage for animal H. [1]

- Long legs help to keep the camel's body away from the hot sand
- Reduces the amount of heat the body gains from the hot sand

Answering part (dii) - Key ideas

(dii) The temperature in the desert gets very low at night. Animal H has thick fur to help it adapt to life in the desert. Explain why having thick fur is an advantage for animal H. [1]

- Heat from the body would not be lost quickly to the cold surroundings

Concepts from different topics are tested here. (Heat and Adaptation)

Mark Scheme I

- Marks awarded for conceptual understanding
- Student's answers that are different from the mark scheme are carefully evaluated if they are conceptually correct
- Marks are not awarded for merely stating 'correct' key words in the answer statement.

Mark Scheme II

- Answer must be specific to the context.
- Answers must show evidence of understanding of relevant concepts and mastery of skills will be given due credit.
- A scientifically correct answer statement **NOT** relevant to the context of the test item will **NOT** be given any marks.

Implications

- Accurate understanding of concepts is extremely important
  - ✓ ***MAKE CONNECTIONS*** between concepts learnt (Magnets / Electricity, Materials / Heat and Energy / Global Warming)
  - ✓ ***APPLY*** concepts in new situations (P6 Toy Making)
  - ✓ ***GIVING REASONS*** for choices made
- Revision of concepts learnt from P3 to P5

Tackling PSLE Science Questions

- Read the question carefully
- Familiar diagram does not mean familiar question – Do not assume
- **HIGHLIGHT** – Examples of what to highlight include
  - ✓ Aim of experiment
  - ✓ Differences between 2 set-ups shown
  - ✓ Variables changed or kept the same in an experiment

Tackling PSLE Science Questions

- Take time to visualize what is happening or draw a diagram of the description of the scenario in the question
- What **topic** is the question based on? (***water***)
- What **concept** is the question based on? (***factors affecting rate of evaporation***)
- Study key information **carefully**
  i.e. diagrams, tables, graphs
- Provide **complete** answers

Tackling PSLE Science Questions

- MCQs make up 56% of the final grade
- For MCQs, find out the answer and write it down (in point form) BEFORE checking against the 4 options.
- For a particular MCQ
  - ✓ Tick and cross options
  - ✓ Writing T or F
  - ✓ Thought processes should be recorded quickly in pencil E.g. key concepts, keywords, equations, diagrams

Tackling PSLE Science Questions

- Open ended answers usually require students to
  - ✓ Describe (based on observation)
  - ✓ Infer / conclude
  - ✓ State choice based on evidence (C)
  - ✓ State evidence from data (E)
  - ✓ Provide reason (R)
- Explanations must be based on Science concepts learnt
- CER Approach

Tackling PSLE Science Questions

- Clarity in language

  Be clear & specific

  "... the location must be the same..."

  (variables can vary despite being in the same location)

  Should be phrased as

  "... Surrounding temperature must be the same..."

Tackling PSLE Science Questions

- Use scientific terms

  E.g. “attracted” instead of “stick” or “attach” magnetic objects to magnets

- Light is “reflected off” instead of “bounced off”

- Answer **in context** to the question by highlighting keywords in the stem of the question.

  Do not make **general** statements.

Tackling PSLE Science Questions

- **Read** widely, beyond the textbook

  E.g. Singapore Scientist
  Helps to understand how concepts can be **applied** in varied contexts

- **Watch** Science Programmes
  - ✓ E.g. Animal Planet and Discovery Channel
  - ✓ Some of the most interesting and challenging PSLE questions are on topics of animal and plant adaptations

- **Do your best for all school WS and assignments, quality of work is important for providing accurate feedback.**

Support from School

In school, we provide our P5/P6 students ample opportunities for experiential learning in our Science Curriculum, in the event they do not have sufficient time at home.

- Outdoor Learning & LJ (P5/6)
- Enrichment at SSC (P5)
- Hands-on Activities (P5/P6)
- YI Project (P5)
- Use of Environment Blog (P5)
- Toy Car Making (P6)
- ICT Infusion (P5/6)
- HPPS Library for reading materials (P5/6)