PRIMARY 6
SCIENCE CURRICULUM BRIEFING
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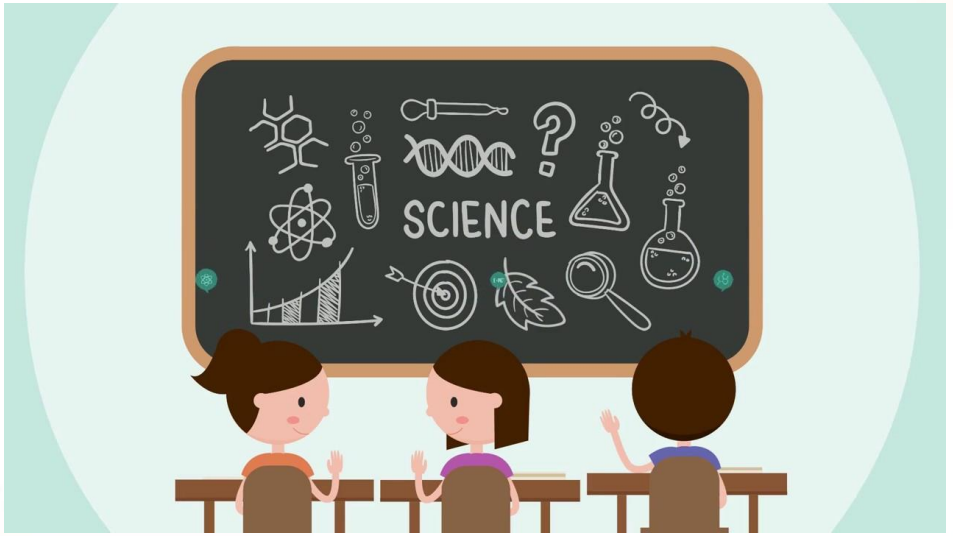
Outline

- What does your child learn in P6 science?
- How does your child learn science?
- How is your child assessed in science?
- How can you support your child in learning science?
- School's support in our pupils' learning



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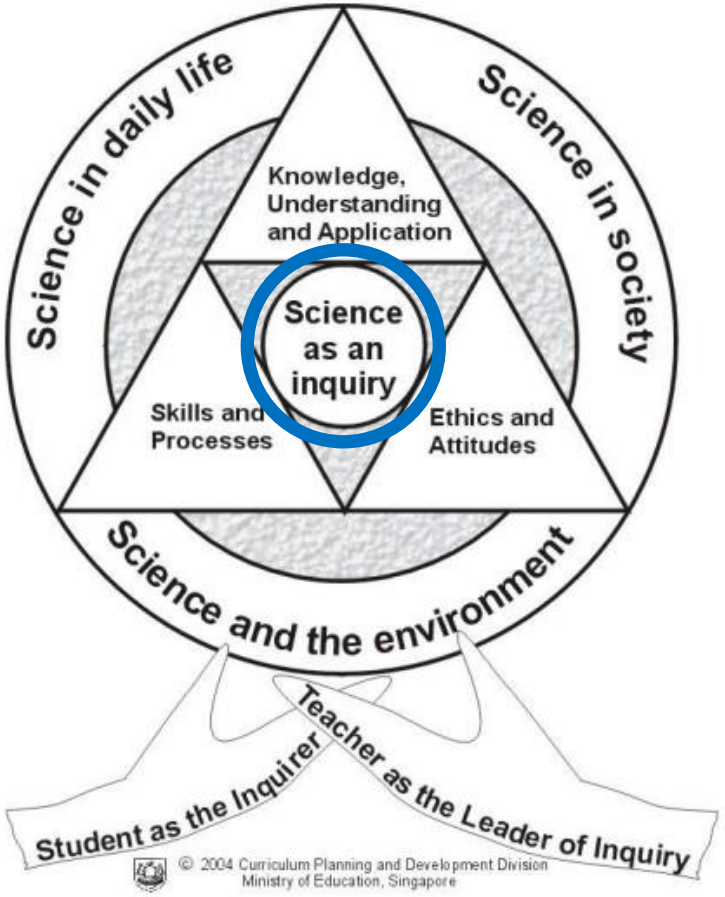
Vision

To **nurture** and **develop** every HGS girl with an **inquiring mind** for Science



MOE Science Curriculum Framework

2014 Science (Primary) Syllabus

For more details, visit the link:
https://go.gov.sg/moeprimarysciencesyllabus2014

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What does your child learn in science?

Syllabus Requirement		
Themes	*** Lower Block (Primary 3 and 4)**	****Upper Block (Primary 5 and 6)**
Diversity	• Diversity of living and non-living things (General characteristics and classification) • Diversity of materials	
Cycles	• Cycles in plants and animals (Life cycles) • Cycles in matter and water (Matter)	• Cycles in plants and animals (Reproduction) • Cycles in matter and water (Water)
Systems	• Plant system (Plant parts and functions) • Human system (Digestive system)	• Plant system (Respiratory and circulatory systems) • Human system (Respiratory and circulatory systems) • Cell system • Electrical system
Interactions	• Interaction of forces (Magnets)	• Interaction of forces (Frictional force, gravitational force, force in springs) • Interaction within the environment
Energy	• Energy forms and uses (Light and heat)	• Energy forms and uses (Photosynthesis) • Energy conversion

*Topics which are underlined are **not** required for **Foundation Science**

What does your child learn in science?

Sequence of P6 Topics taught in HGS		
Theme	**Topic (Standard Science)**	**Topic (Foundation Science)**
Energy	Energy in food	Energy from the Sun
Energy	Forms & Uses of Energy	
Energy	Sources of Energy	
Interactions	Forces	Forces
Interactions	Living together	Living together
Interactions	Food chains and food webs	Food chains
Interactions	Adaptations	Adaptations
Interactions	Man's Impact on his Environment	Man's Impact on his Environment

Inquiry-Based Learning Approach

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How does your child learn science?

Introduction to concepts

Unlike poles attract and like poles repel

Two magnets can attract or repel each other. It depends on which of their poles are facing each other.

▲ How can we make two magnets attract or repel each other?

Unlike poles of magnets attract. The North pole of a magnet will attract the South pole of another magnet.

Like poles of magnets repel. The North pole of a magnet will repel the North pole of another magnet. Similarly, the South pole of a magnet will repel the South pole of another magnet.

Exploring through hands-on experiences

Activity 1.3 Slide along

Skills: Using apparatus and equipment, observing, analysing

Aim: To find out how the type of surface affects the amount of force needed to overcome the frictional force acting on a moving wooden block

What I have learnt:

Frictional force is the force that opposes _____ when two surfaces are in contact. Frictional force can cause a moving object to _____ down or _____.

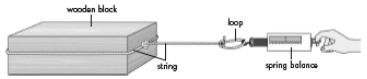
Materials: Wooden block, thick string, spring balance, sticky tape, four different types of surfaces (paper, sandpaper, carpet, plastic)

Study the four types of surfaces — paper, sandpaper, carpet and plastic. Predict the type of surface where the frictional force between the wooden block and surface is the greatest, when the wooden block is moved.

_____

Procedure

1. Tie a string securely around a wooden block as shown in the diagram below.
2. Make a small loop at the other end of the string and hook a spring balance to the loop.



3. Tape the paper to the tabletop and place the wooden block on it.
4. Pull the spring balance slowly until the wooden block moves with a constant speed.
5. Record the reading on the spring balance (reading 1) in the table provided on the next page.

Note The spring balance is used to measure the amount of force needed to move the wooden block along the surface.

6. Repeat step 4 two times and record the readings on the spring balance (readings 2 and 3) in the table.
7. Calculate the average amount of force and write it down in the table.

Forces 3

8. Repeat steps 3 to 7 with the other three types of surfaces.

Type of surface	Amount of force (units)			Average amount of force (units)
	Reading 1	Reading 2	Reading 3	
Paper				
Sandpaper				
Carpet				
Plastic				

Conclusion

The amount of force needed to overcome frictional force was the greatest when the wooden block was moving along the _____. The _____ has the roughest surface.

The amount of force needed to overcome frictional force was the least when the wooden block was moving along the _____. The _____ has the smoothest surface.

Reflection

1. State the variable that was changed.

_____

2. State three variables that were kept the same.

_____

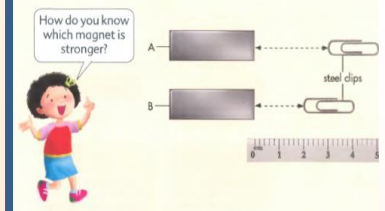
_____

4 Interactions

Linking concepts to real-life

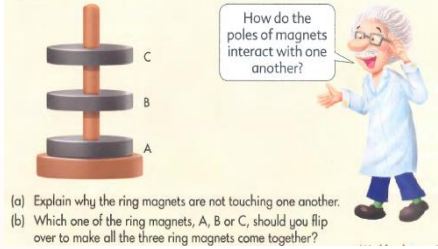
Applying concepts in various contexts

2. Sue magnetised two identical steel bars, A and B, using the stroke method. She observed that bar A attracted a steel clip from a distance of 3 cm, while bar B attracted a steel clip from a distance of 2 cm.



Which bar was stroked more times? Explain why.

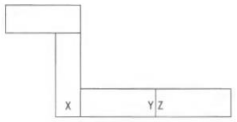
Three ring magnets stayed apart when they were placed on top of one another.



(a) Explain why the ring magnets are not touching one another.

(b) Which one of the ring magnets, A, B or C, should you flip over to make all the three ring magnets come together?

1. The diagram below shows four bar magnets that are attracted to one another.



Which of the following represents the poles at X, Y and Z correctly?

	X	Y	Z
(1)	North	North	North
(2)	North	South	South
(3)	South	South	North
(4)	South	South	South

(3)

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How does your child learn science?

Use of innovative pedagogies & strategies

- **Collaborative Learning: Working together on investigation activities**

Skills and Processes	Engaging with an event, phenomenon or problem through:	Collecting and presenting evidence through:	Reasoning; making meaning of information and evidence through:
Skills	• Formulating hypothesis • Generating possibilities • Predicting	• Observing • Using apparatus and equipment	• Comparing • Classifying • Inferring • Analysing • Evaluating
	Communicating		
Processes	Creative problem-solving, investigation and Decision-making		
Essential Features of Inquiry	Question	Evidence	Explain Connect
	Communication		

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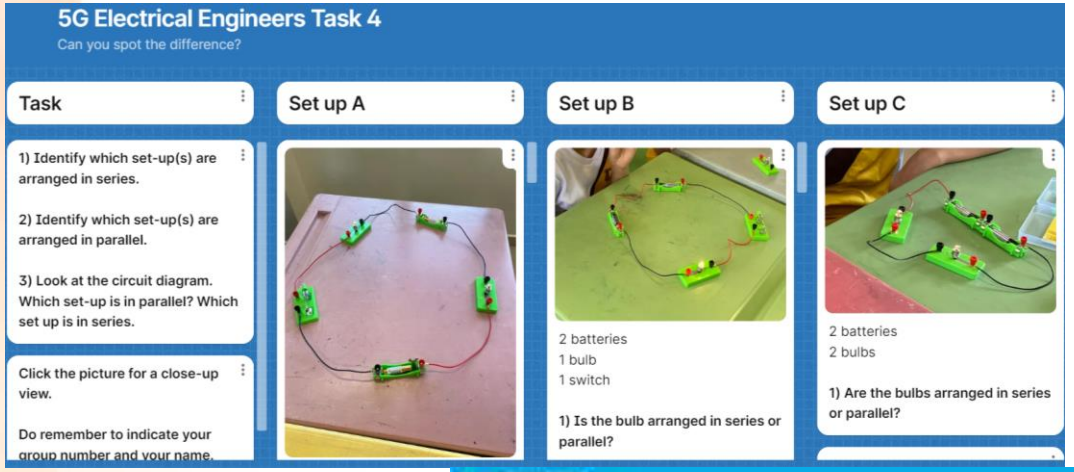
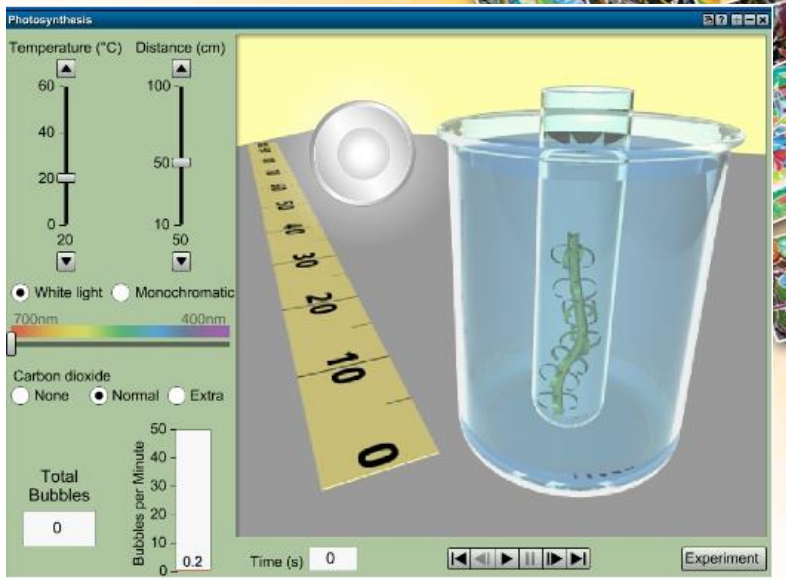
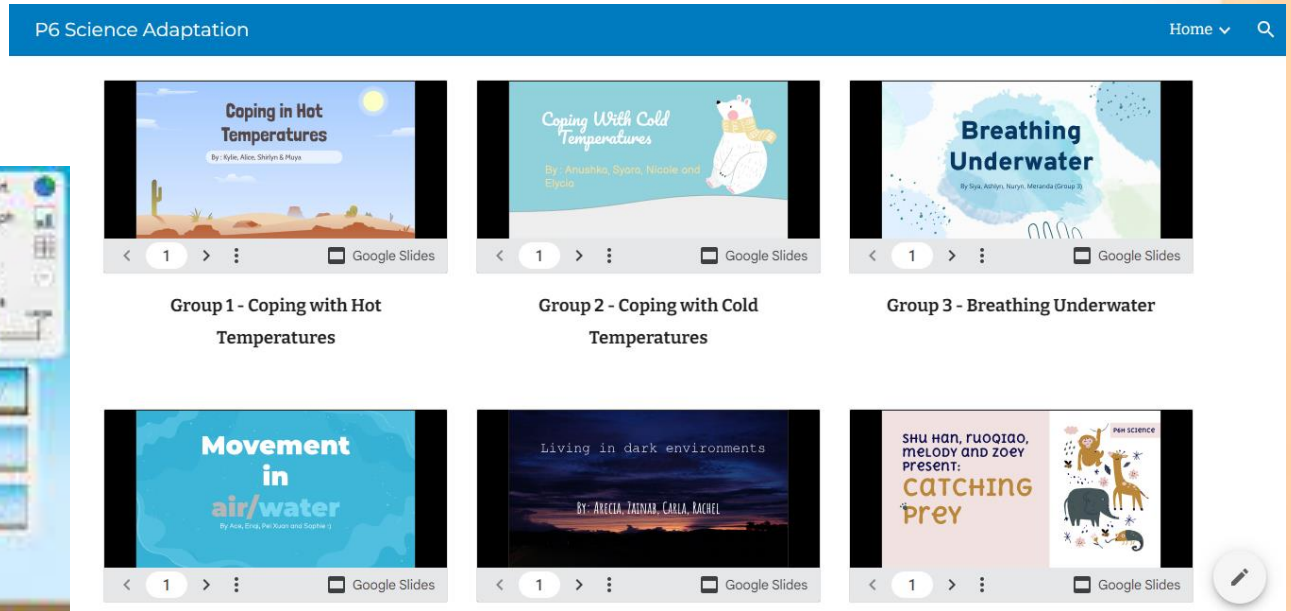
How does your child learn science?

Use of innovative pedagogies & strategies

- **Use of ICT (Flipped Learning and Collaborative Learning)**
  Padlet, Google sites, virtual experiments, phet simulations







Group 1 - Coping with Hot Temperatures

Group 2 - Coping with Cold Temperatures

Group 3 - Breathing Underwater

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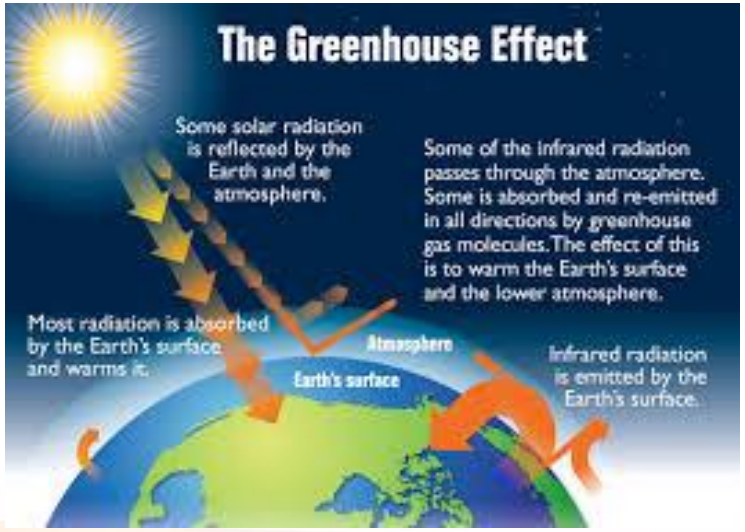
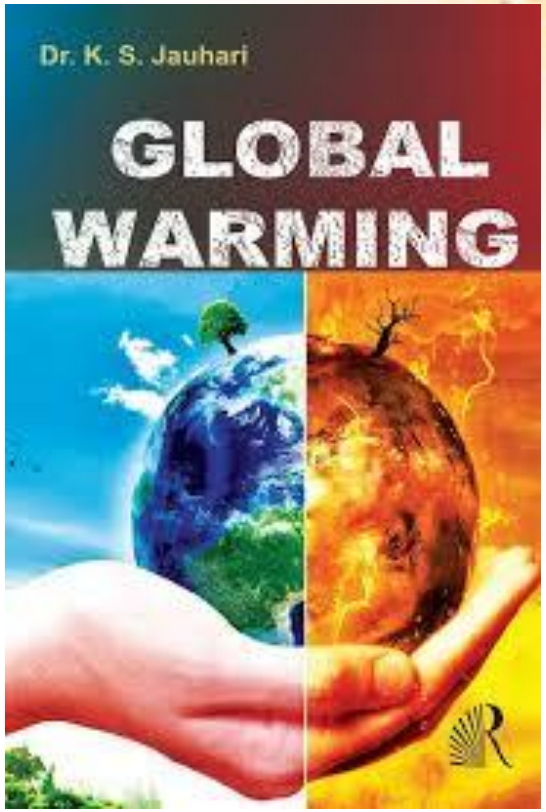
Applications in daily life

- **Environmental Issues –their causes and effects, Sustainability, Conservation of Energy and Green Buildings in Singapore**



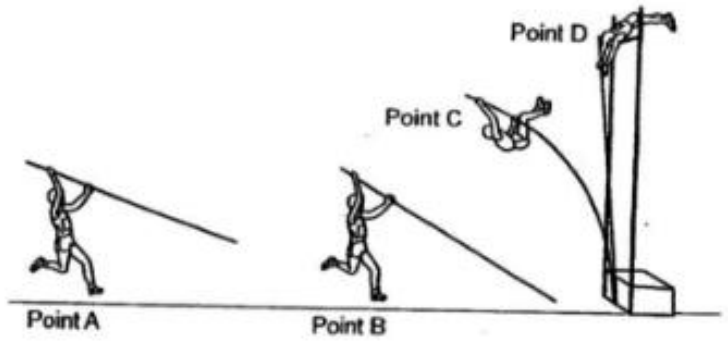


How your child is assessed in science

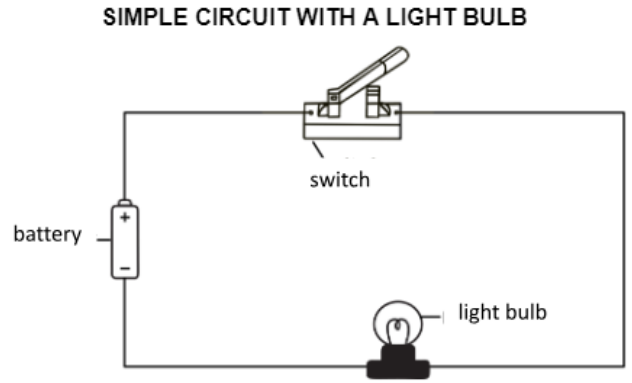
Formative Assessment (Ongoing monitoring)

- Science Journal (note-taking, concept maps)
- Science Activity Book - Hands-on activities with use of scientific skills / process skills
- Topical Mastery worksheets and Exit Cards
- Student Learning Space (SLS), Padlet

The diagram shows a man participating in a sport called pole vaulting. From point A, he will run towards point B and lunge up in the air with the help of a pole until he crosses a bar at point D, the highest point.



State the energy changes:



Describe the energy conversions that take place in this electric circuit.

	→		→		+	
energy (battery)		**energy** (electric circuit)		**energy** (light bulb)		**energy** (light bulb)

What can you do to increase the brightness of the bulb? Why?

_____

_____

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How your child is assessed in science

2025 Holistic Assessment Overview (Standard)

Assessment of Learning				
	Term 1	Term 2	Term 3	Term 4
	Weighted Assessment 1	**Weighted Assessment 2**	**Preliminary Assessment**	**PSLE**
Total marks	45 marks (12 MCQ, 5-6 OEQ)	45 marks (12 MCQ, 5-6 OEQ)	100 marks (28 MCQ, 10-13 OEQ)	100 marks (28 MCQ, 10-13 OEQ)
Duration	50 min	50 min	1 h 45 min	1 h 45 min
Weighting	15%	15%	70%	-

How your child is assessed in science

2025 Holistic Assessment Overview (Foundation)

Assessment of Learning				
	Term 1	Term 2	Term 3	Term 4
	Weighted Assessment 1	**Weighted Assessment 2**	**Preliminary Assessment**	**PSLE**
Total marks	35 marks 10 MCQ 2 Structured 4 OE	35 marks 10 MCQ 2 Structured 4 OE	70 marks 18 MCQ 6-7 Structured 5-6 OE	70 marks 18 MCQ 6-7 Structured 5-6 OE
Duration	40 min	40 min	1 h 15 min	1 h 15 min
Weighting	15%	15%	70%	-

School's Support in our Pupils' Learning

Suggested time spent (Standard)		
Booklet	**Item Type**	**Prelim/PSLE**
A	28 **MCQ**	45 – 50 min
B	13 **OEQ**	55 – 60 min
	Total duration	1 hour 45 min

Suggested time spent (Foundation)		
Booklet	**Item Type**	**Prelim/PSLE**
A	18 **MCQ**	30 – 35 min
B	6 **Structured** 6 **OEQ**	40 – 45 min
	Total duration	1 hour 15 min

Tips for good time management:

- Allocate more time for booklet B to analyze and structure their answers. Re-read and check OEQ answers after each question.
- Check accuracy in shading OAS.
- Extra time for revisiting difficult question(s) that were skipped earlier.
- Do timed practice at home without distractions

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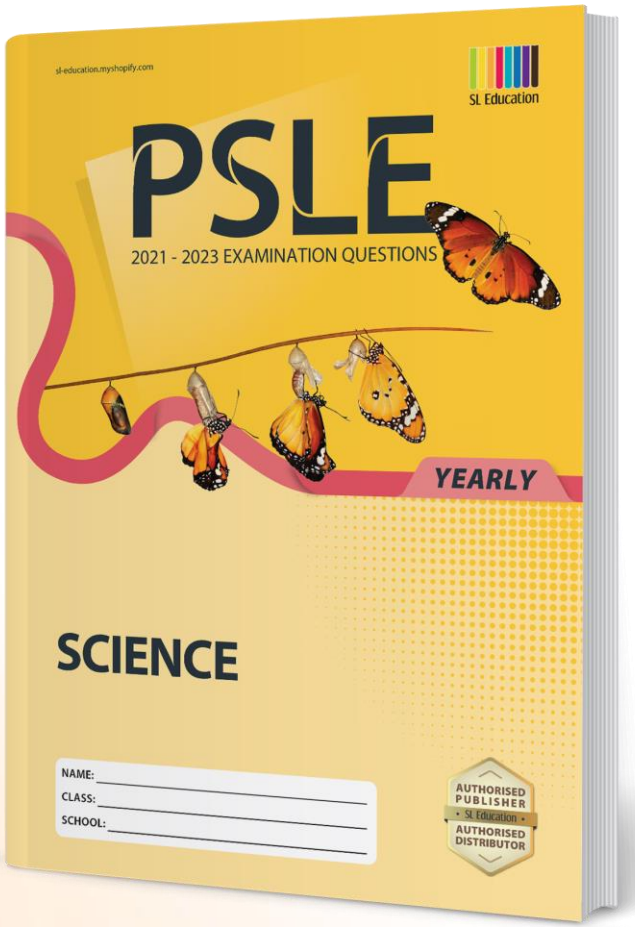
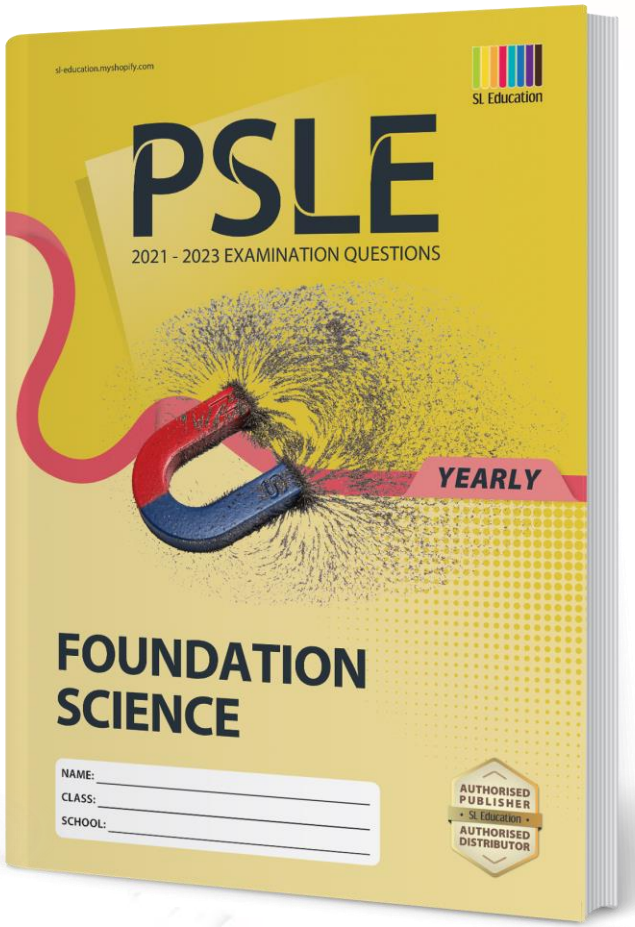
School's Support in our Pupils' Learning

Use of **PSLE Book** (2022, 2023, 2024)

Exposure to practice using authentic PSLE past year papers and revision





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School's Support in our Pupils' Learning

Use of **answering strategies in MCQ**

(by elimination. Encourage pupils to make simple notes / working to organize their thoughts)

Concept: Conditions for photosynthesis

For plants to make food, there must be _____

A carbon dioxide ✓
B nitrogen ✗
C sunlight ✓
D water ✓

Without... plant cannot make food

(1) A and C only ✗
(2) B and D only ✗
(3) A, C and D only ✓
(4) B, C and D only ✗

(3✓)

Process skill: Analyze data

Gary gave 10g of leaves, 10g of fruits and 10g of meat to four different Organisms A, B, C and D. After an hour, he weighed the amount of food uneaten. The table below shows the results of Gary's investigation.

Organism	Mass of food uneaten (in g)	
	Meat	Fruits and leaves
A	10 → Same	6 → Decrease
B	10 → Same	5 → Decrease
C	5 → Decrease	2 → Decrease
D	5 → Decrease	4 → Decrease

Which of the organisms in Gary's investigation obtained energy from both sources of food?

(1) B only ✗
(2) C and D only ✓
(3) A, C and D only ✗
(4) A, B, C and D ✗

(2✓)

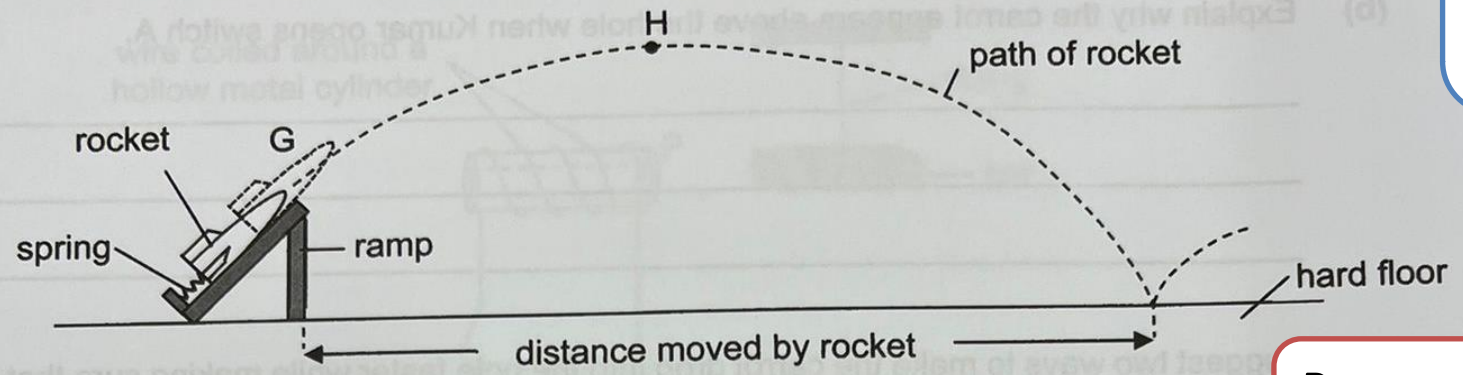
School's Support in our Pupils' Learning

Use of **answering strategies in OEQ**

(Provide reason with evidence based on given data)

Critique sessions in class to improve OE answers using pupils' authentic responses (address misconceptions, exemplary responses)

40 Samy compressed a spring to launch a toy rocket in a room as shown. There was no wind.



He measured the distance moved by the rocket for each try. His results are as

Compression of spring (cm)	Distance moved (cm)	
	1st try	2nd try
2.0	4.2	5.1
4.0	20.5	18.6
6.0	46.0	49.4
8.0	81.5	86.2

Recognise the data trend

As compression of spring increases…

…distance moved by rocket increases

Cause

Effect

(a) State the relationship between the compression of spring and the distance moved by the rocket. [1]

Relationship question

- Identify and highlight the **2 variables**
- Identify the **cause** and **effect**

Use of **answering strategies in OEQ**

To break up your answer into explicit parts

John repeated the experiment using fresh sets of liquid Y and leaf discs. He placed the containers at different distances from the lamp and his results are as shown.

Distance of container from lamp (cm)	Time taken for leaf disc to float to surface (s)
10	8
20	17
30	28

(1) Name the process

(2) State how…
(explanation required)

(a) Name the process that occurred in the leaf disc. State how this process caused the leaf disc to rise to the surface of liquid Y. [1]

School's Support in our Pupils' Learning

- ✓ Science laboratories with rich resources and science kits, eco-pond, science garden, *new* Experiential Learning Garden - *Support Science learning experiences*
- ✓ World of Wonders (W.O.W.) @ Recess - *Promote joy of learning*
- ✓ D3T2 Science (P6 - Semester 1) - *Talent Development Programme*
- ✓ Booster class / 1-to-1 consultation - *Help bridge learning gaps*

How you can support your child in learning science

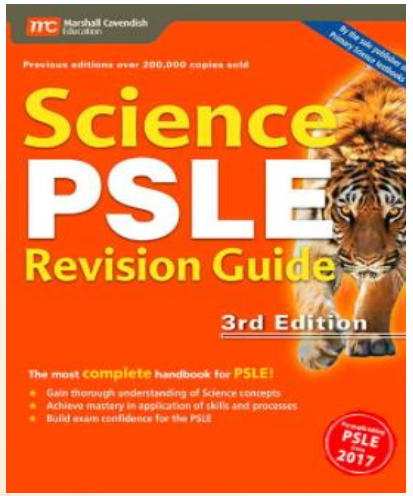
1. Reinforce strategies used in school

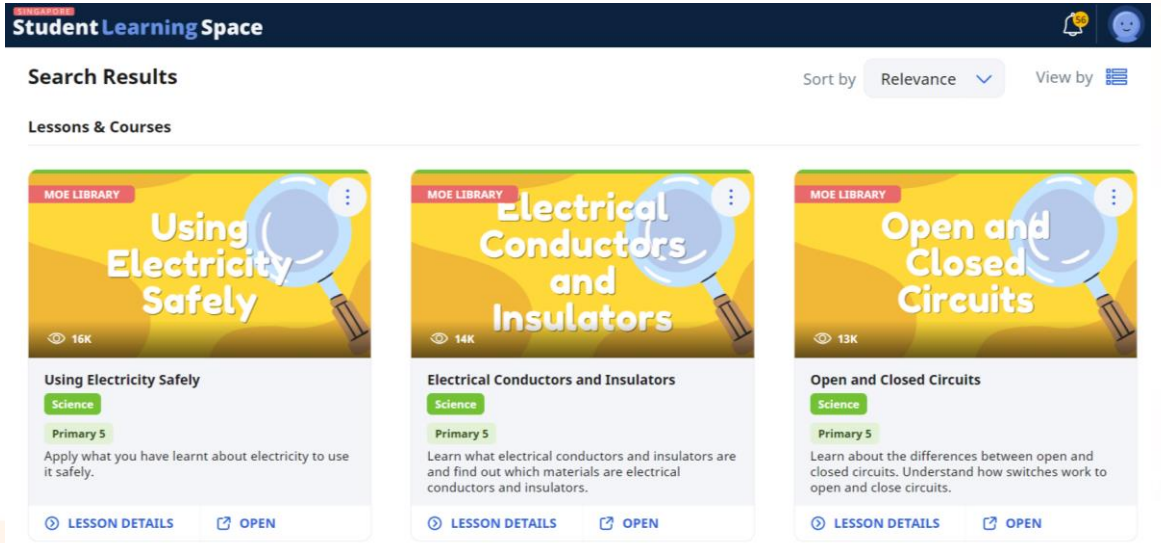
Encourage your child to try her best and attempt all questions.

2. Help your child revise and retain her science concepts

Document learning through drawing concept maps, taking notes or drawing pictorial representations with labels.

Refer to P3, P4, P5 Science textbooks/materials for P6 revision.





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How you can support your child in learning science

3. Other forms of support you can provide

- Stimulate your child's interest in Science by going Science Centre or outdoors (e.g. Zoo, Gardens by the Bay etc), exploring relevant YouTube videos, reading Science related magazines, Science related programmes/documentaries etc.

NATIONAL GEOGRAPHIC

Discovery

BBC

Bitesize

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How you can support your child in learning science

4. Resource for parents

Useful link for parents https://www.schoolbag.sg

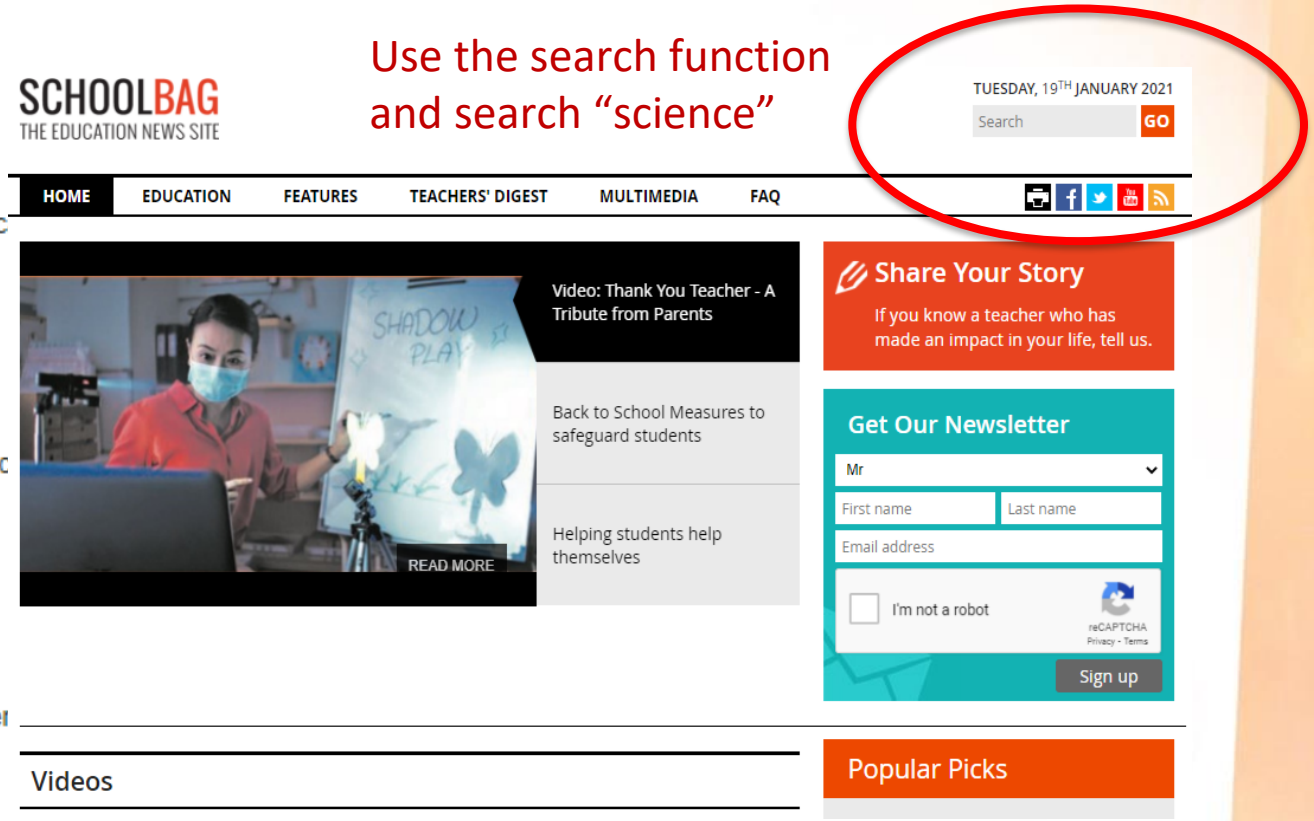
Schoolbag.sg is an online publication by MOE which provides parents, educators and the general public with education news, school features and tips.

Learning **Science**: Not about memorising keywords
www.schoolbag.edu.sg › learning-science-not-about-memorising-keywords
28 Jul 2022 ... Schoolbag sits in with our expert panel of **Science** educ
Science, including ...

'Sparkling' a love of **science** in primary school
www.schoolbag.edu.sg › sparkling-a-love-of-science-in-primary-school
21 Mar 2022 ... The result: A hands-on kit for Primary school students c
out how ...

Helping Your Child to Enjoy **Science**
www.schoolbag.edu.sg › story › helping-your-child-to-enjoy-science
22 Jun 2016 ... Help your children make sense of the world around ther

Use the search function and search "science"



P6 Science Teachers

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