



To Serve with Quality

FOUNDATION SCIENCE PRIMARY SIX

SCIENCE DEPARTMENT VISION AND MISSION

Vision: Every Shuqunite a creative and effective thinker

Mission: To nurture effective and creative thinkers with a sense of inquiry and passion for the learning of science

OVERVIEW OF THE SCIENCE CURRICULUM

The Primary Science Syllabus is based on the revised Science Curriculum Framework.



The Science Curriculum Framework (CPDD 2023)

Science for Life and Society in the centre circle captures the twin goals of Science education which are to:

1. Enthuse and nurture all students to be scientifically literate.
2. Provide strong Science fundamentals for students to innovate and pursue STEM for future learning and work.

The three main domains that make up the fundamentals of Science are:

1. Core Ideas of Science – The distilled core ideas are organised in five themes: **Diversity, Cycles, Systems, Energy** and **Interactions**. Fundamental concepts in life and physical sciences are broadly covered to provide a broad-based understanding of the environment, and it will help build a foundation upon which students can rely for further study.
2. Practices of Science -There are three components which are Demonstrating Ways of Thinking and Doing, Understanding the nature of Science and Relating Science, Technology, Society and Environment.
3. Values, Ethics & Attitudes in Science

SYLLABUS FRAMEWORK

The Core Ideas in this syllabus are organised as themes, which students can relate to in their everyday experiences, and to the commonly observed phenomena in nature. The aim is to enable students to appreciate the links between different themes/topics and thus allow the integration of scientific ideas. A key feature of the syllabus is the spiral approach. Scientific concepts and process skills are revisited at different levels and with increasing depth to allow students to integrate newly acquired knowledge and skills with their existing schemas.

PRACTICES

In Shuqun Primary, teachers engage students in Practices of Science through inquiry. One of the practices, Ways of Thinking and Doing supports development of various skills and processes. The development of skills and processes is progressive as students learn Science from Primary 3 to Primary 6.

The table below shows each Way of Thinking and Doing and what we hope students can achieve at the end of Primary 6.

By the end of P6, students should be able to:	
Posing questions and defining problems	<ul style="list-style-type: none">Ask questions out of curiosity or to deepen understanding.Ask questions which can be investigated.
Designing investigations	Recognise a fair test (changed/ unchanged variables).
Conducting investigations and testing solutions	<ul style="list-style-type: none">Use senses, apparatus, and equipment to gather data.Investigate to find out answers to questions (guided and open investigations).Record and/or compare observations/ data using notes, drawings and charts.
Analysing and interpreting data	<ul style="list-style-type: none">Analysis of data and information in representations (e.g., tables, bar and line graphs, charts, and diagrams) to infer patterns and relationships or explain findings.
Communicating, evaluating and defending ideas with evidence	Communicate (e.g., written, verbal, pictorial, tabular or graphical) clear explanation and reasoning.
Making informed decisions and taking responsible actions	State or select options based on appropriate criteria with reasons.
Using and developing models	Use multiple representations (e.g., pictures, charts, diagrams, tables, graphs) to explain concepts.
Constructing explanations and designing solutions	Construct possible explanations and generate ideas.

Table 2 shows an overview of the topics found in the Primary Science Syllabus. The topics are organised in levels to ensure a coherent and meaningful development of concepts as students progress from Primary 3 to Primary 6.

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 and animals (Life cycles) Interaction of forces (Magnets) <ul style="list-style-type: none"> Plant system (Plant parts and functions) Human system (Digestive system) Cycles in matter and water (Matter) Energy forms and uses (Light) Energy forms and uses (Heat) <ul style="list-style-type: none"> Cycles in plants and animals (Reproduction) Cycles in matter and water (Water) Plant system (Respiratory and circulatory systems) Human system (Respiratory and circulatory systems) Electrical system <ul style="list-style-type: none"> Energy forms and uses (Photosynthesis) <u>Energy Conversion</u> Interaction of forces (Frictional force, gravitational force, <u>elastic spring force</u>) Interactions within the environment 			

SYLLABUS LEARNING OUTCOMES FOR PRIMARY 6 FOUNDATION SCIENCE

The Primary Science Syllabus (2023) is available online at

<https://www.moe.gov.sg/-/media/files/primary/syllabus/2023-primary-science.ashx?la=en&hash=ACABF4256B5F341428F59A346834E73CCD27CC39>



Energy Forms and Uses (Photosynthesis) (P6 Foundation)		
Learning Outcomes		
Core Ideas	Practices	Values, Ethics and Attitudes
<ul style="list-style-type: none">• Recognise that the Sun is our primary source of energy (light and heat).	<ul style="list-style-type: none">• Investigate the requirements (water, light energy and carbon dioxide) for photosynthesis (production of sugar and oxygen).	<ul style="list-style-type: none">• Show objectivity by using data and information to validate observations and explanations about photosynthesis .

Interaction of Forces (Frictional force, gravitational force) (P6 Foundation)		
Learning Outcomes		
Core Ideas	Practices	Values, Ethics and Attitudes
<ul style="list-style-type: none"> Identify a force as a push or a pull. State the effects of a force. <ul style="list-style-type: none"> A force can move a stationary object. A force can speed up, slow down or change the direction of motion. A force can stop a moving object. <p>A force may change the shape of an object.</p> Recognise and give examples of the different types of forces. <ul style="list-style-type: none"> Magnetic force Gravitational force Frictional force. 	<ul style="list-style-type: none"> Investigate the effect of frictional force on the motion of objects. 	<ul style="list-style-type: none"> Show objectivity by using data and information to validate observations and explanations about forces.

Interactions within the Environment (P6 Foundation)		
Learning Outcomes		
Core Ideas	Practices	Values, Ethics and Attitudes
<ul style="list-style-type: none"> Identify the factors that affect the survival of an organism. <ul style="list-style-type: none"> Physical characteristics of the environment (temperature, light, water) Availability of food Types of other organisms present (producers, consumers, decomposers) Recognise the energy pathway from the Sun through living things and identify the roles of various organisms (producers, consumers, predators, prey) in a food chain. Recognise that different habitats support different organisms (garden, field, pond, seashore, tree, mangrove swamp). 	<ul style="list-style-type: none"> Observe, collect, and record information regarding the interacting factors within an environment. 	<ul style="list-style-type: none"> Show care and concern for Man's impact on the environment by being respectful and responsible towards the environment.

Interactions within the Environment (P6 Foundation)		
Learning Outcomes		
Core Ideas	Practices	Values, Ethics and Attitudes
<ul style="list-style-type: none"> • Recognise that adaptations serve to enhance survival and can be structural or behavioural. <ul style="list-style-type: none"> - Cope with physical factors - Obtain food - Escape predators - Reproduce by finding and attracting mates or dispersing seeds/fruits • Give examples of man's impact (both positive and negative) on the environment. 		

PSLE PAPER FORMAT (FOUNDATION SCIENCE)

The examination consists of one written paper comprising two booklets, Booklet A and Booklet B.

The duration of the paper is 1 hour 15 minutes.

Booklet	Item Type	Number of Questions	Number of marks per questions	Marks
A	Multiple- Choice	20	2	40
B	Structured	9 – 11	2, 3, or 4	30
Total: 70 marks				

Provision of Word List

A word list is provided for students taking PSLE Foundation Science Paper to allow them to display their knowledge and understanding without being unduly disadvantaged by their weakness in the English language. Do take note that the word list is not exhaustive.

QUESTION TYPES

1. Knowledge with Understanding (50%)

- Demonstrate knowledge and understanding of scientific facts, concepts and principles

2. Application of Knowledge and Process Skills (50%)

- Apply scientific facts, concepts and principles to new situations
- Use one or a combination of basic process skills

Below is the list of common scientific terms used in questions

Key words in Questions	What you should do
Classify	To group things based on common characteristics
Compare	To identify similarities or differences between objects, concepts or processes
Describe	To write a detailed description of the key points of a concept or observation
Explain/Why	To write a detailed answer, stating the cause and effect
Identify	To select or name the object, concept or process briefly
Infer	To draw a conclusion based on observations or data
Investigate	To find out by carrying out experiments
List	To state a number of points without any elaboration or explanation
Measure	To obtain a reading from an instrument
State/Give	To give a concise answer with little or no supporting reasons/justification
Trace	To follow a path

EXAMINATION PREPARATION AND STRATEGIES

- Develop a daily routine for revision and homework.
- Organise and link scientific concepts.
 - Make and organise notes by using any form of graphic organisers such as concept maps and mind maps.
- Use acrostics or mnemonics to remember science facts and concepts.
 - Acrostics involve the formation of a sentence or a story using the first letters of key words.

Example: Factors required for seed germination

Water

Oxygen

Warmth

- Encourage your child to ask questions and observe things, phenomena or changes around us. Observation is an important step leading to scientific explanations.
- Learn spelling of key words.
- Practise by attempting questions in topical worksheets and practice papers. Correct mistakes and re-learn the erroneous concepts.

R.I.S.E Strategy to Answering Science Questions

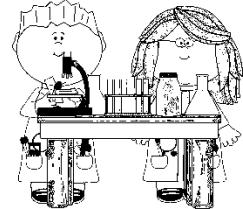
Multiple-Choice Questions:

R – Read the question carefully. Study given diagrams, tables or graphs. Make comparisons if there is more than one diagram, tables of graphs.

I – Identify key words and topic(s)/concept(s) tested.

S – Study all options carefully.

E - Eliminate distractors to arrive at the best possible answer.



Open-ended Questions:

R – Read the question carefully. Study given diagrams, tables or graphs. Make comparisons if there is more than one diagram, tables of graphs.

I – Identify key words and topic(s)/concept(s) tested.

S – Select relevant concepts to answer the question. Check the mark allocation and answer to the point.

E – Express and explain answers clearly. Support your answer with scientific reasoning. Do not unnecessary and unrelated information in your answer.

SUGGESTED SCIENCE WEBSITES

Student Learning Space: <https://vle.learning.moe.edu.sg/home>

Young Scientist Badges Portal: <https://youngscientist.sscglobal.com.sg/>

National Geographic Kids: <https://kids.nationalgeographic.com/>