To Serve with Quality

SCIENCE
PRIMARY THREE

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 3.

SYLLABUS LEARNING OUTCOMES FOR PRIMARY 3

	By the end of P3, students should be able to:
Designing investigations	Recognise a fair test (changed/ unchanged variables).
Conducting investigations and testing solutions	• Use senses, apparatus, and equipment to gather data. • Investigate to find out answers to questions (guided investigations). • Record and/or compare observations/ data with suggested scaffolding.
Analysing and interpreting data	• Simple analysis of data and information in representations (e.g., graphs, charts, and diagrams) to infer patterns and relationships or explain findings.
Using and developing models	Use multiple representations (e.g., pictures, charts, diagrams, tables, graphs) to explain concepts.

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

Diversity of Living and Non-Living Things		
Learning Outcomes		
Core Ideas	**Practices**	**Values, Ethics and Attitudes**
Describe the characteristics of living things. - need water, food and air to survive - grow, respond and reproduce Recognise some broad groups of living things. - plants (flowering, non-flowering) - animals (amphibians, birds, fish, insects, mammals, reptiles) - fungi (mould, mushroom, yeast) - bacteria	Observe a variety of living and non-living things and infer differences between them. Classify living things into broad groups (in plants and animals) based on similarities and differences of common observable characteristics.	Show curiosity in exploring the surrounding living and non-living things by asking questions. Show care and concern by being responsible towards living things.

Diversity of Materials		
Learning Outcomes		
Core Ideas	**Practices**	**Values, Ethics and Attitudes**
Relate the use of various types of materials (ceramic, fabric, glass, metal, plastics, rubber, wood) to their physical properties.	Compare physical properties of materials based on: - strength - flexibility - waterproof - transparency - ability to float/sink in water	Show objectivity by using data and information to validate observations and explanations about the properties and uses of materials.

Cycles in Plants and Animals		
Learning Outcomes		
Core Ideas	**Practices**	**Values, Ethics and Attitudes**
Show an understanding that different living things have different life cycles. - Plants - Animals	Observe and compare the life cycles of plants grown from seeds over a period of time. Observe and compare the life cycles of animals over a period of time (butterfly, beetle, mosquito, grasshopper, cockroach, chicken, frog).	Show curiosity by questioning and exploring the surrounding plants and animals. • Show care and concern by being responsible towards plants and animals.

Interactions of Forces (Magnets)		
Learning Outcomes		
Core Ideas	**Practices**	**Values, Ethics and Attitudes**
Recognise that a magnet can exert a push or a pull. Identify the characteristics of magnets. - magnets can be made of iron or steel - magnets have two poles. A freely suspended bar magnet comes to rest pointing in a North-South direction. - unlike poles attract and like poles repel - magnets attract magnetic materials - Recognise uses of magnets in everyday objects.	Compare magnets, non-magnets and magnetic materials. Make a magnet by the Stroke method and the electrical method.	Show curiosity in exploring the uses of magnets in everyday life.

ASSESSMENT

The school-based formal assessment serves to assess students' attainment in Science with respect to the aims as stated in the primary syllabus. Each formal assessment is weighted and reflected in the students' result slips at the end of each semester.

The table below shows the formal assessment across Term 2 to Term 4.

Term 2 15%	**Term 3 15%**	**Term 4 70%**
Weighted Assessment 1	Weighted Assessment 2	End-of-Year Examination
30 marks	30 marks	70 marks

END-OF-YEAR EXAMINATION

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

Booklet	**Item Type**	**Number of Questions**	**Number of marks per questions**	**Marks**
A	**Multiple-Choice**	**23**	**2**	**46**
B	**Structured**	**9 – 10**	**2 - 4**	**24**
Total: 70 marks				

The duration of the paper is 1 hour 15 minutes.

QUESTION TYPES

1. Knowledge with Understanding (AOI) - 50%

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

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

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

Glossary of Science Terms

Below is the list of common scientific terms used in questions.

No.	Term	Description of meaning
1	analyse	to identify the parts of objects, information or processes, and the patterns and relationships between these parts
2	classify	to group objects or events based on common characteristics
3	communicate	to transmit and receive information which is presented in various forms – written, verbal, pictorial, tabular or graphical
4	compare	to identify similarities and differences between objects, concepts or processes
5	construct	to put a set of components together, based on a given plan
6	describe	to write (using diagrams where appropriate) the main points of a topic
7	differentiate	to identify the differences between objects, concepts or processes
8	evaluate	to assess the reasonableness, accuracy and quality of information, processes or ideas
9	formulate hypothesis	to make a general explanation for a related set of observations or events. It is an extension of inferring
10	generate possibilities	to explore all the alternatives, possibilities and choices beyond the obvious or preferred one
11	identify	to select and/or name the object, event, concept or process
12	infer	to explain or draw a conclusion based on observations, data or information
13	investigate	to find out answers to the questions or to verify the hypotheses
14	list	to give a number of points or items without elaboration
15	make decisions	to establish and apply criteria to select from among seemingly equal alternatives. The process of establishing criteria involves consideration of the consequences and values
16	measure	to obtain a reading from a suitable measuring instrument
17	observe	to obtain information through the use of the senses
18	predict	to assess the likelihood of an outcome based on prior knowledge of how things usually turn out
19	recognise	to identify facts, characteristics or concepts that are critical to the understanding of a situation, event, process or phenomenon
20	relate	to identify and explain the relationships between objects, concepts or processes
21	show an understanding	to recall information (facts, concepts, models, data), translate information from one form to another, explain information and apply information
22	state	to give a concise answer with little or no supporting argument

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.

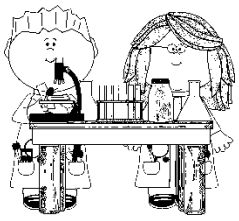
- Learn spelling of key words.

- 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. Avoid adding 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/