

# **NORTHBROOKS SECONDARY SCHOOL**

**SOARING YET ROOTED**

*Sec 2 Subject  
Information:  
**Science  
(G2)***

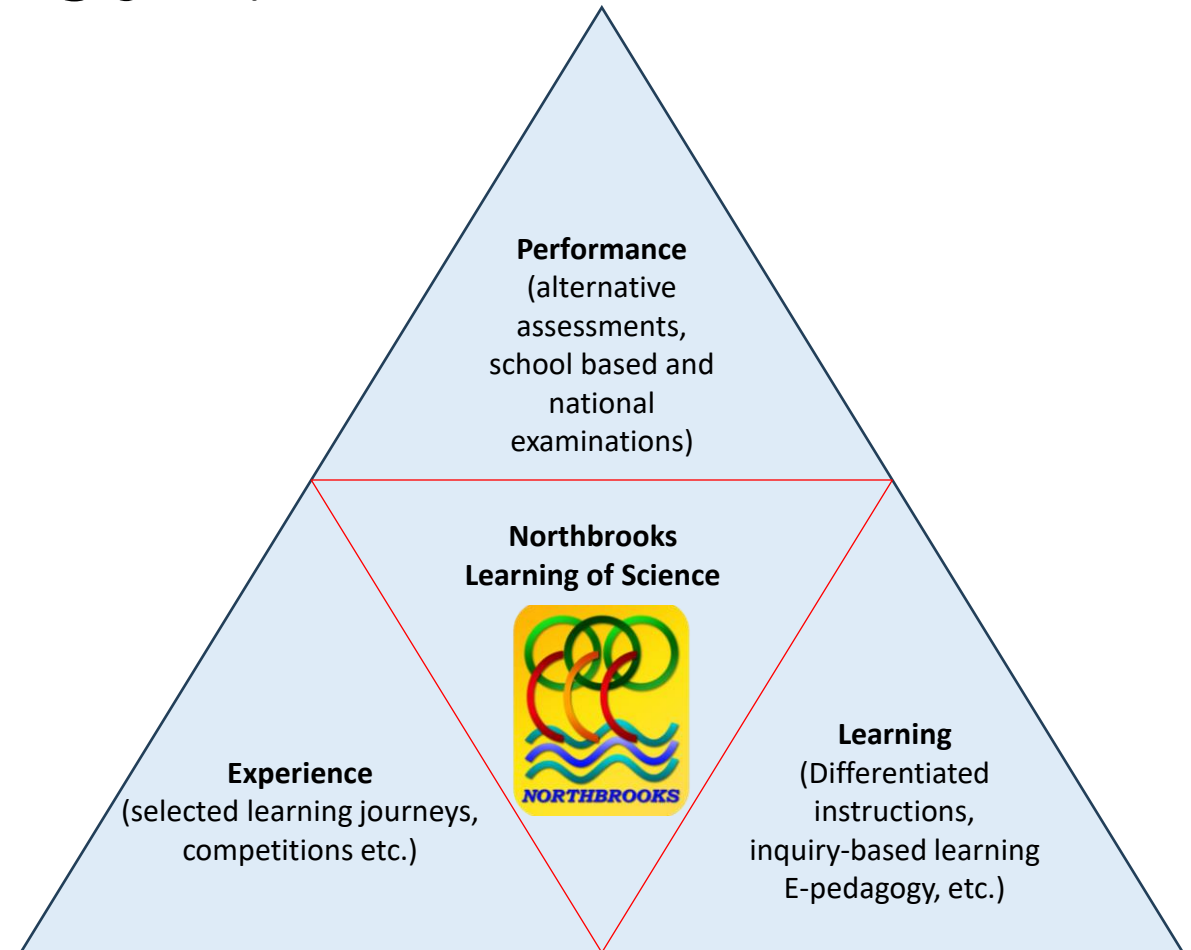




# Science subjects for G2 stream:

- G2 Science (Physics/Chemistry)
- G2 Science (Biology/Chemistry)
- \*G3 (Science) (Physics/Chemistry)
- \*G3 (Science) (Biology/Chemistry)

\*students who are taking science at G2 level at the end of Sec 2 may be eligible to take science at G3 level at Sec 3, pending fulfilling academic requirements.



# Science (Physics)

## Overview

- Provides students with a coherent understanding and appreciating practical applications of physics in the real world
- Develops students' investigative and problem-solving skills, effective communication of theoretical concepts and appreciation of the contribution physics makes to our understanding of the physical world

Section
Measurement
Newtonian Mechanics
Thermal Physics
Waves
Electricity & Magnetism
Radioactivity

# G3 & G2 Science (Physics)

## Syllabuses and Topics

Sections	Topics	G3 Science (Physics)	G2 Science (Physics)
Measurement	Physical Quantities, Units and Measurements	✓	✓
Newtonian Mechanics	Kinematics	✓	✓
	Force and Pressure	✓	✓
	Dynamics	✓	✓
	Turning Effects of Forces	✓	
	Energy	✓	✓
Thermal Physics	Kinetic Particle Model of Matter	✓	✓
	Thermal Processes	✓	✓
Waves	General Wave Properties	✓	✓
	Electromagnetic Spectrum	✓	✓
	Light	✓	
Electricity and Magnetism	Electric Charge and Current of Electricity	✓	✓
	D.C. Circuits	✓	✓
	Practical Electricity	✓	✓
	Magnetism and Electromagnetism	✓	
Radioactivity	Radioactivity	✓	✓

# Science (Biology)

## Overview

- Enables students to deepen their interest in biology for future learning and work
- Develops a way of thinking to understand how living organisms work to sustain life and use the disciplinary ideas in biology to approach, analyse and solve problems in biological systems

Section
<b>Cells and Chemistry of Life</b>
<b>The Human Body – Maintaining Life</b>
<b>Living Together – Plants, Animals and Ecosystems</b>

# G3 & G2 Science (Biology)

## Syllabuses and Topics

Sections	Topics	G3 Science (Biology)	G2 Science (Biology)
Cells and Chemistry of Life	Cell Structure and Organisation	✓	✓
	Movement of Substances	✓	✓
	Biological Molecules	✓	✓
The Human Body – Maintaining Life	Nutrition in Humans	✓	✓
	Transport in Humans	✓	✓
	Respiration in Humans	✓	✓
	Infectious Diseases in Humans	✓	✓
Living Together – Plants, Animals and Ecosystems	Nutrition and Transport in Flowering Plants	✓	✓
	Organisms and Their Environment	✓	
Continuity of Life	Molecular Genetics	✓	
	Reproduction (in Humans*) <i>*Topic name of Express Science (Biology)</i>	✓	
	Inheritance	✓	

# Science (Chemistry)

## Overview

- Enables students to appreciate practical applications of chemistry in the real world,
- Develops in students a way of thinking to approach, analyse and solve problems by explaining macroscopic characteristics and changes in chemical systems

Section
<b>Matter – Structures and Properties</b>
<b>Chemical Reactions</b>
<b>Chemistry in a Sustainable World</b>



# G3 & G2 Science (Chemistry)

## Syllabuses and Topics

Sections	Topics	G3 Science (Chemistry)	G2 Science (Chemistry)
<b>Matter – Structures and Properties</b>	Experimental Chemistry	✓	✓
	The Particulate Nature of Matter	✓	✓
	Chemical Bonding and Structure	✓	✓
<b>Chemical Reactions</b>	Chemical Calculations	✓	✓
	Acid-Base Chemistry	✓	✓
	Qualitative Analysis	✓	✓
	Redox Chemistry	✓	
	Patterns in the Periodic Table	✓	✓
	Chemical Energetics	✓	
	Rate of Reactions	✓	
<b>Chemistry in a Sustainable World</b>	Organic Chemistry	✓	✓
	Maintaining Air Quality	✓	✓





# **G2 Science(Chem/Bio) or (Phy/Chem)**

## **Assessment Objectives**

**Papers 1, 2, 3, 4, 5 and 6**

- A** Knowledge with Understanding, approximately 45% of the marks with approximately 20% allocated to recall.
- B** Handling Information and Solving Problems, approximately 45% of the marks
- C** Experimental Skills and Investigations, approximately 10% of the marks\*

\*students should be able to select and use techniques, apparatus and materials, take readings and record observations, interpret and evaluate experimental data and observations, and evaluate methods and suggest possible improvements



# G2 Science(Chem/Bio) or (Phy/Chem)

## Scheme of Assessment

Paper	Type of Paper	Duration	Marks	Weighting
1	Multiple Choice (Physics)	1 hour 15 minutes	20	20%
2	Structured (Physics)		30	30%
3	Multiple Choice (Chemistry)	1 hour 15 minutes	20	20%
4	Structured (Chemistry)		30	30%
5	Multiple Choice (Biology)	1 hour 15 minutes	20	20%
6	Structured (Biology)		30	30%

# **G3 Science(Chem/Bio) or (Phy/Chem)**

## **Assessment Objectives**

### **Theory Papers (Papers 1, 2, 3 and 4)**

- A** Knowledge with Understanding, approximately 50% of the marks with approximately 20% allocated to recall.
- B** Handling Information and Solving Problems, approximately 50% of the marks.

### **Practical Assessment (Paper 5)**

Paper 5 is designed to test appropriate skills in **C**, Experimental Skills and Investigations.

In one or more of the questions in Paper 5, candidates will be expected to suggest a modification or an extension, which does not need to be executed. Depending on the context in which the modification / extension element is set, the number of marks associated with this element will be in the range of 10% to 20% of the total marks available for the practical test.

# G3 Science(Chem/Bio) or (Phy/Chem)

## Scheme of Assessment

Candidates are required to enter for Paper 1, Paper 5 and two of Papers 2, 3 and 4, depending on the combination of Science offered.

Paper	Type of Paper	Duration	Marks	Weighting
1	Multiple Choice	1 h	40	20.0%
2	Structured and Free Response (Physics)	1 h 15 min	65	32.5%
3	Structured and Free Response (Chemistry)	1 h 15 min	65	32.5%
4	Structured and Free Response (Biology)	1 h 15 min	65	32.5%
5	Practical Test	1 h 30 min	30	15.0%



# Frequently Asked Questions

Q1: Which combination should my child choose?

Q2: Can my child continue to take G3 Science at Upper Secondary?  
[for students who were offered G3 Level Science during Secondary 1/ Secondary 2 intake]

Q3: Can my child convert back to G2 Science if he/she is not able to cope with the demand of G3 Science?  
[for students who were offered G3 Level Science during Secondary 1/ Secondary 2 intake]

# Q<sub>1</sub>: Which combination should my child choose?

A1:

- Your child should choose the combination based on his/her
  - > **interest** towards the Sciences disciplines (Physics / Biology)
  - > **preferences** of post-secondary courses or future pathways

## Notes

- As Chemistry is a subject pre-requisite for most Science courses, the school offers it as a compulsory discipline for Combined Science.
- It is important to see the child's interests and preferences of possible post-secondary course/pathways when deciding the combination.
- Kindly refer to Slide 3, 5 and 7 (overview) for the nature of the Sciences.

## Q2: Can my child continue to take G3 Science at Upper Secondary?

A2:

- Your child will continue to be offered to take Science at a higher level, if he/she meets the eligibility criteria:
  - > **Attained at least 50%** for Science
  - AND**
  - > **Meets the progression criteria**
- Students who are eligible for G3 Science at a higher level should also consider their
  - > **manageability** of Science, as well as other subjects
  - > **interest** towards the Sciences disciplines
  - > **preferences** of post-secondary courses or future pathways

## **Q2: Can my child continue to take G3 Science at Upper Secondary?**

- Your child may choose from G3 Science (Physics/Chemistry) or (Biology/Chemistry) if he/she decides to accept the offer.
- With G3 Science, your child can still choose from a wide range of Polytechnic/ITE courses depending on the number of G3 and G2 subjects as well as meeting the eligibility criteria of the courses.





## Q2: Can my child continue to take Subject-Based Banding (SBB) Science at Upper Secondary?

- Different categories of ITE courses come with **different entry requirements**.
- Students applying for admission to full-time NITEC courses must first **satisfy the entry requirements including passes in the pre-requisite subjects** for the courses applied. Admission is **merit-based**, and posting to a course is based on **aggregate of best 4 relevant examinable subjects**, including pre-requisite subjects and bonus points where applicable and is subjected to availability of vacancies.
- For students who are interested to apply for NITEC Science courses via **Early Admission Exercise (EAE)**, taking G2 Science may help to build their portfolio.



## Q3: Can my child convert back to G2 Science if he/she is not able to cope with the demand of the G3 Science?

A3:

- Your child is **strongly encouraged** to complete the two years curriculum of the more demanding course, if he/she **meets the criteria and chooses** to be offered the subject.
- The syllabuses covered at Secondary 3 may **differ slightly** for G3 Science and G2 Science. Hence, your child is required to make up for the syllabus missed, if he/she converts back to G2 Science.
- Your child may only convert to G2 Science (at the end of Secondary 3) on a **case by case basis**, with special considerations.

# Examination Syllabus of O Level and N(A) Sciences

## G3 Science

Science: Physics, Chemistry  
(Syllabus 5086)

Science: Chemistry, Biology  
(Syllabus 5088)



<https://go.gov.sg/2025syllabus-5086-5088>

## G2 Science

Science: Physics, Chemistry  
(Syllabus 5105)

Science: Chemistry, Biology  
(Syllabus 5107)



<https://go.gov.sg/2025syllabus-5105-5107>

# Thank you.

You may email or contact us at **6752 4311**, if you have other queries.

Mr Jamues Nicholas Ng (HOD/Science): [jamues\\_nicholas\\_ng@moe.edu.sg](mailto:jamues_nicholas_ng@moe.edu.sg)

Ms Madeline Koh (SH/Science, Acting): [koh\\_hui\\_xin\\_madeline@moe.edu.sg](mailto:koh_hui_xin_madeline@moe.edu.sg)

