



Rangi Ruru
Girls' School

**Year 11 BIOLOGICAL AND PHYSICAL SCIENCE
2024**

**Course Information
for Students**

*Ko te pae tawhiti arumia kia tata,
Ko te pae tata whakamaua,
Kia puta i te wheiao ki te ao mārama.*

*Seek to bring the distant horizon nearer,
Grasp it firmly once near,
And so emerge from darkness into enlightenment.*

Welcome to Biological and Physical Science in 2024! We hope that your year will be interesting, valuable, challenging and successful.

Many of the major challenges that confront our world need to be approached from a scientific perspective. By choosing to do this Biological and Physical Science course you will study a broad range of aspects of Chemistry, Physics and Biology.

In your Science classes, your Rangī Ruru values and Rangī Graduate dispositions will be demonstrated through:

Whakaute Respect: Acknowledge and respect different perspectives.

Aroha: Take opportunities to work with others in a supportive way.

Rikarika Endeavour: Take responsibility for your own learning and give things a go.

Ngaana Enthusiasm: Have a positive attitude towards learning.

Manaakitanga - Generosity of Spirit: Listen carefully to other's opinions and be curious.

Tika Integrity · Be honest about your own work and be responsible for your own behaviours.

What will you begin to understand in Biological and Physical Science this year?

Science helps us make sense of the world.	Biology, Chemistry and Physics are all interconnected and help us understand and organise the world and how we operate in it.
Science is elegant, explorative, creative and powerful.	Science uses data, evidence and relationships to find out, explore and explain.
Science helps us in our everyday lives and decisions and is key to many areas of knowledge and practice.	<i>Whiria te kaha tūātinitini, whiria te kaha tūāmanomano.</i> Together we can use our strengths to achieve more. The concepts, skills and processes of Science are used in everyday practices and decisions from putting a seatbelt on, to health.
Chemistry and Biology are dynamic bodies of knowledge that use unique models and language to explain the material and living environment	Experiments performed in class model phenomenon observed in the real world. Science has specific vocabulary and conventions.
Matter and energy are conserved in chemical change and in biological systems	Atoms are not gained or lost during chemical reactions – they are rearranged.
All living things are related and live as part of interconnected systems	Living things are connected via genes and DNA is the universal molecule of inheritance.
Physical phenomena can be explained through physics concepts and communicated using physics conventions	Physics concepts help explain physical phenomena and underpin our understanding of the universe.

What will you know and do in Biological and Physical Science this year?

- Understand that there are different types of chemical reactions and that atoms are re-arranged but matter is conserved.
- Study how micro-organisms can be both helpful and harmful to humans;
- Investigate different real-world examples in Physics and explain these using physics concepts.
- Learn about the importance of predator control to maintain biodiversity of New Zealand's unique plants and animals.
- Study physics concepts and energy transfer.
- Understand that genes can be tracked from generation to generation and the importance of genetic variation in organisms.

What skills will you develop this year?

Using language, symbols and texts appropriately: You will develop knowledge of Science vocabulary, numeric and symbol systems and conventions of Science such as graphs, formulae, units and diagrams.

Critical thinking: Grasp increasingly complex science concepts and apply them to an ever-growing range of contexts.

Gathering evidence: Science investigations will be used to generate and evaluate knowledge to answer questions

Self-management: If you have missed lessons – it is up to you, and not your teacher, to ensure you catch up.

Effective collaboration: You will engage in scientific conversations about your science experiences, the quality of the evidence you have gathered and the evidence of others.

LEVEL ONE ACHIEVEMENT STANDARDS IN BIOLOGICAL SCIENCE

Achievement Standard Number	Subject reference	Version number	Topic/Title	Mode of Assessment	Credits
92020	CB1.1	3	Demonstrate understanding of the relationship between a micro-organism and the environment	Internal	5
91920	Sci1.1	3	Demonstrate understanding of a science-informed response to a local issue	Internal	5
92022	CB1.3	3	Demonstrate understanding of genetic variation in relation to an identified characteristic	External	5

Total 15 credits

LEVEL ONE ACHIEVEMENT STANDARDS IN PHYSICAL SCIENCE

Achievement Standard Number	Subject reference	Version number	Topic/Title	Mode of Assessment	Credits
92021	CB1.2	3	Demonstrate understanding of chemical reactions in context	Internal	6
92045	PESS1.2	3	Demonstrate understanding of a physical phenomenon through investigation	Internal	5
92047	PESS1.4	3	Demonstrate understanding of a physical system using energy concepts	External	5

Total 16 credits

ASSESSMENT

6 Achievement Standards will be offered with a total of 31 credits.

There are 2 external assessments. The Genetics external assessment (92022) is a report (written or oral) which is completed in class but submitted to NZQA for external marking. The Physics external assessment (92047) is examined during NCEA examinations at the end of the year. You will complete an examination at the end of this topic to obtain a derived grade which will be used if you cannot sit the NCEA examination at the end of the year.

Timing of assessments

92021	Chemical reactions		Week 11	Term 1	6 credits
92020	Micro-organisms		Week 10	Term 1	5 credits
92045	Physics investigations		Week 9	Term 2	5 credits
91920	Predator-free NZ		Week 9	Term 2	5 credits
92022	Genetics	TBD (week 9	Term 3 or start	Term 4)	5 credits
92047	Energy		Week 9	Term 3	5 credits

All Achievement Standard tasks will have a checklist of what is required to attain an Achieved, Achieved with Merit or Achieved with Excellence.

Workbooks and On-line learning

Scipads and Education Perfect will be used for all three achievement standards.

Important Information for Internal Assessments

- **Absences** – It is important that you do not miss any assessments (Internal or External) except for genuine reasons of sickness, accident or other extreme emergency. Providing a Medical Certificate from your Doctor must cover absence during an assessment. On your return to school you will be given the opportunity to do the task for the particular Achievement Standard. This will NOT be possible if you choose to go on a family holiday, or similar non-school related event, at the time of assessment.
- **Assessment Policies** – Information regarding the school policy on assessment, authenticity and appeal procedures is found on <https://hub.rangiruru.school.nz/assessment/>. Ensure you read these thoroughly and follow all guidelines. Know your rights and responsibilities.
- **Filing** – When an Internal assessment task has been marked you will be asked to **verify the sighting and acceptance of the grade awarded by signing the cover sheet**. All assessed work will then be filed at school for security and for moderation by NZQA, if required.
- **Assessment** – If a ‘**Not Achieved**’ grade is awarded for an **internally** assessed Achievement Standard, there will be no further assessment opportunities in that Achievement Standard.
- You **may be** offered the opportunity of a **resubmission** if your work requires a minor corrections or change that you may have overlooked and should be able to identify within a few minutes. Your teacher will approach you prior to the task being handed back to the class as a whole if this is relevant for you. You will be required to identify and make any changes immediately. Your teacher is **not** able to tell you of the specific change required; you must be able to identify the required change yourself.

Year 11 Physical Science Topics 2024

Week		Date			
1	A	29 January	-	2 February	92021 Chemistry – Demonstrate understanding of chemical reactions in a context
2	B	5 February	-	9 February	Waitangi Day: Tues 6 th Feb
3	A	12 February	-	16 February	
4	B	19 February	-	23 February	
5	A	26 February	-	1 March	
6	B	4 March	-	8 March	
7	A	11 March	-	15 March	
8	B	18 March	-	22 March	
9	A	25 March	-	29 March	Easter Fri: 29 th March
10	B	1 April	-	5 April	Easter Mon & Tues: 1 st & 2 nd April
11	A	8 April	-	12 April	Internal Assessment
		15 April	-	19 April	
		22 April	-	26 April	Anzac Day: Thurs 25 th April
		29 April	-	3 May	
1	B	6 May	-	10 May	92045 – Physics – Demonstrate understanding of a physical phenomenon through investigation
2	A	13 May	-	17 May	
3	B	20 May	-	24 May	
4	A	27 May	-	31 May	
5	B	3 June	-	7 June	King's B/D: Mon 3 rd June
6	A	10 June	-	14 June	
7	B	17 June	-	21 June	
8	A	24 June	-	28 June	Matariki: Fri 28 th June
9	B	1 July	-	5 July	Internal Assessment
		8 July	-	12 July	
		15 July	-	19 July	
		22 July	-	26 July	
1	A	29 July	-	2 August	92047 – Physics – Demonstrate understanding of a physical system using energy concepts
2	B	5 August	-	9 August	
3	A	12 August	-	16 August	
4	B	19 August	-	23 August	
5	A	26 August	-	30 August	
6	B	2 September	-	6 September	
7	A	9 September	-	13 September	
8	B	16 September	-	20 September	
9	A	23 September	-	27 September	Derived Grade assessment
		30 September	-	4 October	
		7 October	-	11 October	
1	B	14 October	-	18 October	
2	A	21 October	-	25 October	
3	B	28 October	-	1 November	STUDY LEAVE Labour Day: Mon 28 th Oct
4	A	4 November	-	8 November	
5	B	11 November	-	15 November	Show Day: Fri 15 th Nov
6	A	18 November	-	22 November	

Year 11 Biological Science Topics 2024

Week		Date			
1	A	29 January	-	2 February	92020 – Demonstrate understanding of the relationship between a micro-organism and the environment
2	B	5 February	-	9 February	Waitangi Day: Tues 6 th Feb
3	A	12 February	-	16 February	
4	B	19 February	-	23 February	
5	A	26 February	-	1 March	
6	B	4 March	-	8 March	
7	A	11 March	-	15 March	
8	B	18 March	-	22 March	
9	A	25 March	-	29 March	Easter Fri: 29 th March
10	B	1 April	-	5 April	Easter Mon & Tues: 1 st & 2 nd April
11	A	8 April	-	12 April	Internal Assessment
		15 April	-	19 April	
		22 April	-	26 April	Anzac Day: Thurs 25 th April
		29 April	-	3 May	
1	B	6 May	-	10 May	91920 – Demonstrate understanding of a science-informed response – Predator free NZ
2	A	13 May	-	17 May	
3	B	20 May	-	24 May	
4	A	27 May	-	31 May	
5	B	3 June	-	7 June	King's B/D: Mon 3 rd June
6	A	10 June	-	14 June	
7	B	17 June	-	21 June	
8	A	24 June	-	28 June	Matariki: Fri 28 th June
9	B	1 July	-	5 July	Internal Assessment
		8 July	-	12 July	
		15 July	-	19 July	
		22 July	-	26 July	
1	A	29 July	-	2 August	92022 – Demonstrate understanding of genetic variation in relation to an identified characteristic
2	B	5 August	-	9 August	
3	A	12 August	-	16 August	
4	B	19 August	-	23 August	
5	A	26 August	-	30 August	
6	B	2 September	-	6 September	
7	A	9 September	-	13 September	
8	B	16 September	-	20 September	
9	A	23 September	-	27 September	External Common assessment task?
		30 September	-	4 October	
		7 October	-	11 October	
1	B	14 October	-	18 October	External Common assessment task?
2	A	21 October	-	25 October	
3	B	28 October	-	1 November	STUDY LEAVE Labour Day: Mon 28th Oct
4	A	4 November	-	8 November	
5	B	11 November	-	15 November	Show Day: Fri 15 th Nov
6	A	18 November	-	22 November	