



Rangi Ruru
Girls' School

Level 2 Physics - Ahupūngao

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 Physics! We hope that your year will be interesting, valuable, challenging, and successful.

Topics taught includes mechanics, electricity and electromagnetism, atomic and nuclear physics. More importantly you will be developing lifelong skills in problem solving and critical thinking.

A key part of your learning will be practical based, conducting, and critiquing investigations is what a physicist does.

In your Physics class, your Rangi Ruru values and Rangi 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 Physics this year?

Physics helps us make sense of the world.	Physics is the study of the nature and properties of matter, forces, and energy. From the smallest sub-atomic particle to the infinite universe. You will learn aspects of it all.
Physics has a continuous, evolving human history.	<i>Nō ngā tupuna, tuku iho, tuku iho.</i> The human ideas that have been passed down from generation to generation over time can help people today develop their thinking.
Physics is elegant, explorative, creative, and powerful.	Physics uses data, evidence, and relationships to find out, explore and explain.
Physics helps us in our everyday lives and decisions and is key to many areas of knowledge and practice.	<i>Whiria te kaha tūātinini, whiria te kaha tūāmanomano.</i> Together we can use our strengths to achieve more. The concepts, skills and processes of Physics are used in everyday practices and decisions from putting a seatbelt on, to exercise.
Physics rewards persistence and positivity.	Physics is often described as applied mathematics. You will see how the algebra and number skills you learn has a real-world application through formulae and relationships. Experimentation and failures play an important role in understanding.

What will you know and do in Physics this year?

- Learn about the relationship between forces, motion and energy.
- Explain aspects of physics in real-world contexts.
- Explore the history of atomic physics and the discoveries Rutherford made.
- Calculate physical quantities using formula.
- Gather, process, and interpret data in a physics investigation.
- Learn about electricity and electromagnetism.

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: There is a lot of “fake Science” presented in the media and on various social platforms. As global citizens it is important that you can tell the difference between fact and fiction.

Gathering evidence: Science investigations are 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: Collaborative tasks will allow you to focus on good communication, so your group reaches a common goal.

Achievement Standards offered in Level 2 Physics

Achievement Standard Number	Subject reference	Version number	Topic/Title	Mode of Assessment	Credits	Literacy or Numeracy
91168	2.1	2	Practical Investigation	Internal	4	Lit&num
91171	2.4	2	Mechanics	External	6	Lit&num
91172	2.5	2	Atomic and Nuclear	Internal	3	Lit.
91173	2.6	2	Electricity	External	6	Lit&num

Total 19 credits

Literacy and Numeracy

The standards offered may allow you to gain credits in either Literacy or Numeracy as shown in the table above.

ASSESSMENT PROCEDURES

4 Achievement Standards will be offered with a total of 19 credits.

2 Achievement Standards will be assessed by an **external** examination. (12 credits)

2 Achievement Standards will be assessed **internally** during the year. (7 credits)

<i>Physics 2.1</i>	<i>Practical Investigation</i>	<i>Week 6</i>	<i>Term 2</i>	<i>4 credits</i>
<i>Physics 2.5</i>	<i>Atomic and Nuclear Physics</i>	<i>Week 1</i>	<i>Term 3</i>	<i>3 credits</i>

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

Workbooks

There are textbooks in class for student use. You will need to purchase a SciPad bundle to be used in class and for homework.

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 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 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. **You can only resubmit to move from a Not Achieved to an Achieved grade.**

Year 12 Physics Planner

Week		Date From (Monday)		Date To (Sunday)	
1	A	27 January	-	2 February	2.4 Mechanics (E)
2	B	3 February	-	9 February	Waitangi Day: 6 th February
3	A	10 February	-	16 February	
4	B	17 February	-	23 February	
5	A	24 February	-	2 March	
6	B	3 March	-	9 March	
7	A	10 March	-	16 March	
8	B	17 March	-	23 March	
9	A	24 March	-	30 March	
10	B	31 March	-	6 April	
		7 April	-	13 April	
		14 April	-	20 April	Good Friday 18 th April, Easter Monday 21 April
		21 April	-	27 April	ANZAC Day Friday 25 th April
1	A	28 April	-	4 May	2.1 Practical Investigation (I)
2	B	5 May	-	11 May	
3	A	12 May	-	18 May	
4	B	19 May	-	25 May	
5	A	26 May	-	1 June	2.5 Atomic and Nuclear (I)
6	B	2 June	-	8 June	King's Birthday Monday 2 nd June
7	A	9 June	-	15 June	
8	B	16 June	-	22 June	Matariki Friday 20 th June
9	A	23 June	-	29 June	Trip to UC – Radioactive Labs
		30 June	-	6 July	
		7 July	-	13 July	
		14 July	-	20 July	
1	B	21 July	-	27 July	
2	A	28 July	-	3 August	2.6 Electricity and Electromagnetism (E)
3	B	4 August	-	10 August	
4	A	11 August	-	17 August	
5	B	18 August	-	24 August	
6	A	25 August	-	31 August	
7	B	1 September	-	7 September	
8	A	8 September	-	14 September	
9	B	15 September	-	21 September	
		22 September	-	28 September	
		29 September	-	5 October	
1	A	6 October	-	12 October	REVISION for externals
2	B	13 October	-	19 October	
3	A	20 October	-	26 October	
4	B	27 October	-	2 November	Labour Day Monday 27 th October
5	A	3 November	-	9 November	
6	B	10 November	-	16 November	
7	A	17 November	-	23 November	
8	B	24 November	-	30 November	
9	A	1 December	-	7 December	