# NCEA Level 1 Science, Chemistry & Biology, and Physics and Earth & Space Science Achievement Standards *Compiled from information available as at 4 Feb 2025*

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| **Science** | **Science 1.1** AS 91920 Internal 5 credits  Demonstrate understanding of a science-informed response to a local issue.  **Notes**  The local issue can be in community, or a global issue with local implications. Local indicates direct relevance to the student, not geographic proximity. An Issue affects the lives of students & is something about which people hold varying opinions & perspectives. A science-informed perspective must be explained. Includes an understanding of tiakitanga.  <https://ncea.education.govt.nz/science/science/1/1?view=standard> | **Science 1.2** AS 91921Internal 5 credits  Demonstrate understanding of the use of a range of scientific investigative approaches in a context.  **Notes**  Three different approaches from:pattern seeking; exploring and observing; modelling; classifying and identifying; fair testing.  <https://ncea.education.govt.nz/science/science/1/2?view=standard> | **Science 1.3** AS 91922 External 5 credits  Describe features of science that have contributed to the development of a science idea in a local context.  **Notes**  List of 11 features of science. Local refers to NZ or the Pacific.  In 2025, 91922 will be assessed as a term 4 digital exam.  https://ncea.education.govt.nz/science/science/1/3?view=standard | **Science 1.4** AS 91923 External 5 credits  Demonstrate understanding of science-related claims in communicated information.  **Notes**  Involves analysing scientific claims, including their source and purpose, critiquing the use of science language and conventions and using scientific evidence to justify a conclusion..  In 2025, 91923 will be assessed as a term 4 digital exam.  <https://ncea.education.govt.nz/science/science/1/4?view=standard> |
| **Chemistry and Biology** | **Chemistry and Biology 1.1** AS 90920Internal 5 credits  Demonstrate understanding of the relationship between a microorganism and the environment.  **Notes**  Involves exploring a life process and the biotic/abiotic factors that affect it and are affected by it within a system.  <https://ncea.education.govt.nz/science/chemistry-and-biology/1/1?view=standard> | **Chemistry and Biology 1.2** AS 90921 Internal 6 credits  Demonstrate understanding of chemical reactions in contexts beyond the laboratory  **Notes**  Types of chemical reactions will be limited to neutralisation,  combustion, precipitation, combination and decomposition.  Describe reactants & products with observations and equations. Discuss the implications of conservation of mass.  <https://ncea.education.govt.nz/science/chemistry-and-biology/1/2?view=standard> | **Chemistry and Biology 1.3** AS 90922 External 5 credits  Demonstrate understanding of genetic variation in relation to an identified characteristic.  **Notes**  Includes source & nature of genetic variation, use of gene tracking (to identify the presence of genes, genetic markers, DNA sequences) for an identified characteristic. Phylogenetic trees & Punnett squares have been removed.    In 2025, 90922 will be assessed as a term 4 digital exam.  <https://ncea.education.govt.nz/science/chemistry-and-biology/1/3?view=standard> | **Chemistry and Biology 1.4** AS 90923 External 4 credits  Demonstrate understanding of how the physical properties of materials inform their use.  **Notes**  Types of materials include metallic, ionic, polymers, molecular and covalent networks. Discussion includes particle arrangement and attractive forces  In 2025, 90923 will be assessed as a term 4 digital exam.  <https://ncea.education.govt.nz/science/chemistry-and-biology/1/4?view=standard> |
| **Physics and**  **Earth & Space Science** | **Physics ESS 1.1** AS 92044 Internal 5 credits  Demonstrate understanding of human-induced change within the Earth system.  **Notes**  Human induced change could include increased C in the atmosphere, deforestation, urbanisation. Human activities resulting in changes to the Earth system include burning fossil fuels, mining, agriculture, horticulture, making plastics. The Earth system consists of the interconnected spheres of the atmosphere, biosphere, geosphere, and hydrosphere  <https://ncea.education.govt.nz/science/physics-earth-and-space-science/1/1?view=standard> | **Physics ESS 1.2** AS 92045 Internal 5 credits  Demonstrate understanding of a physical phenomenon through investigation.  **Notes**  Discuss processed evidence, relevant physics concepts and relationships involved. Evidence must include data +/or observations.  <https://ncea.education.govt.nz/science/physics-earth-and-space-science/1/2?view=standard> | **Physics ESS 1.3** AS 92046 External 5 credits  Demonstrate understanding of the effect on the Earth of interactions between the Sun & the Earth-Moon system.  **Notes**  Describing observations, science ideas & the effect of varied interactions. Interactions include the relative positions of Sun, Moon & Earth; Earth’s tilt; orbits of the Earth & the Moon; Earth’s spin. Observable patterns include tides, day/night, seasons, phases, eclipses, & variations by latitude or over time.  In 2025, 92046 will be assessed as a term 4 paper exam.  <https://ncea.education.govt.nz/science/physics-earth-and-space-science/1/3?view=standard> | **Physics ESS 1.4** AS 92047 External 5 credits  Demonstrate understanding of a physical system using energy concepts.  **Notes**  Discuss change to the physical system, using relevant energy concepts and evidence**.** A physical system refers to a defined space with either an object or interacting objects.Change to a physical system is any change to its physical properties or behaviour. Formulae for ΔE, Ek, Ep, W, E (thermal) x2, P & V.  In 2025, 92047 will be assessed as a term 4 paper exam.  <https://ncea.education.govt.nz/science/physics-earth-and-space-science/1/4?view=standard> |
| **Agricultural and Horticultural Science** | **Ag-Hort 1.1** AS 91928 Internal 6 credits  Demonstrate understanding of how a life process is managed in a primary production system.  **Notes**  Students must show understanding of a Māori concept in this context, e.g. tūhononga, manaakitanga, tiakitanga. Primary production systems may include an orchard, an aquaculture or dairy farm or a family or community garden.  <https://ncea.education.govt.nz/science/agricultural-and-horticultural-science/1/1?view=standard> | **Ag-Hort 1.2** AS 91929 Internal 5 credits  Demonstrate understanding of factors that influence the purpose and location of primary production.  **Notes**  Discuss the purpose and location of primary production and factors that influence these (eg physical, climatic or market). Primary production is the production of an animal or plant product without further processing.  <https://ncea.education.govt.nz/science/agricultural-and-horticultural-science/1/2?view=standard> | **Ag-Hort 1.3** AS 91930 External 5 credits  Demonstrate understanding of how soil properties are managed in a primary production system.  **Notes**  Discuss primary production system, soil properties & a management practice. Include a Māori concept e.g. tūhononga, manaakitanga, tiakitanga. Soil properties may be physical, chemical, or biological. Discuss an action carried out to modify plant growing conditions.  In 2025, 91930 will be assessed as a term 4 digital exam.  <https://ncea.education.govt.nz/science/agricultural-and-horticultural-science/1/3?view=standard> | **Ag-Hort 1.3**  AS 91931 External 4 credits  Demonstrate understanding of environmental sustainability in primary production management practices.  **Notes**  Include a Māori concept e.g. tūhononga, manaakitanga, tiakitanga. Environmental sustainability is maintaining an ecological balance & conserving natural resources. Discuss positive or negative impacts eg on water, soil, climate change or biodiversity.  In 2025, 91931 will be assessed as a term 4 digital exam.  <https://ncea.education.govt.nz/science/agricultural-and-horticultural-science/1/4?view=standard> |