

Years 0–10

Across Years 0–10, science learning builds progressively from concrete observation to abstract reasoning, supporting students to explore, investigate, and explain the physical and biological world. The teaching sequence is best understood as a developmental arc, with knowledge, scientific practices, and conceptual understandings deepening over time.

This supports schema-building around the systems, patterns, and processes that shape life and the universe. Knowledge has been selected to reflect everyday phenomena and systems students can directly experience, ensuring relevance and accessibility within the context of New Zealand.

Years 0–3

In Years 0–3, teachers support students to begin observing and describing their surroundings, fostering foundational scientific knowledge and curiosity through direct, hands-on experiences.

Students identify and describe observable features, compare behaviours, and use simple models to explain phenomena.

Teaching supports the development of science-specific observational skills, sensory exploration, concrete thinking, and communication grounded in facts and evidence.

Years 4–6

In Years 4–6, teachers help students to ask testable questions, explore cause and effect, and use simple models to explain what they see.

Students test properties (e.g. density, buoyancy), investigate forces and energy transfer, and apply cause-and-effect reasoning to explain physical and biological processes.

Teaching supports students to begin using standard measurement, identify variables, and interpret data.

Across these years, the knowledge and practices lay the foundation for working scientifically through integrated observation, reasoning, and early data handling.

Years 7–8

In Years 7–8, teachers support students to apply scientific practices with greater structure and precision, carrying out investigations, analysing and interpreting data, and constructing evidence-based explanations of more complex systems.

Students design and conduct fair tests, use particle models to explain changes, and interpret electrical circuits.

Through structured investigations, they observe cells using microscopes or digital images, model inheritance and adaptation, and explain ecological relationships using data and diagrams.

Teaching supports evidence-based explanation and reasoning, systems thinking, and interdisciplinary connections.

Years 9–10

In Years 9–10, teachers guide students to apply scientific knowledge and practices to increasingly abstract and interdisciplinary contexts.

Students engage in independent scientific inquiry and apply model-based thinking to explain relationships.

Students use evidence to critique claims, model systems, explain interactions across strands, apply algebraic reasoning, evaluate data quality, and construct scientific arguments.

Teachers provide opportunities for students to represent chemical reactions using equations, calculate energy efficiency, and analyse motion using Newton's laws and graphical data.

Teachers support students to interpret genetic and environmental influences on traits, model immune responses, and evaluate human impacts on ecosystems using scientific and environmental data.

The Science learning area prepares students with the knowledge, practices, and capabilities to access related curriculum subjects for Years 11–13, including Biology, Chemistry, Earth and Space Science, Physics, Agricultural and Horticultural Science, and Primary Industries.