

Years 9-10

Science

Program

Home Schooling

2026-2027

Rationale

The study of science in Years 7–10 is a dynamic, collaborative and creative human endeavour. It encourages, inspires and enables students to develop knowledge and understanding of the world through observation, questioning, experimentation, discussion, critical analysis and creative thinking.

The Science 7–10 Syllabus supports the development of scientific literacy through the Working scientifically processes, and provides students with the scientific knowledge required to investigate phenomena, make predictions and solve problems.

As the oldest living continuous Cultures in the world, Aboriginal and Torres Strait Islander Peoples have developed their Cultural Knowledges over millennia. These Knowledges are not static and continue to develop. Through the study of science, students have the opportunity to develop their knowledge and understanding of Aboriginal and Torres Strait Islander Peoples' Cultural and Scientific Ways of Knowing, Being and Doing.

Making connections across scientific disciplines and other subject areas develops students' conceptual understanding of science and its relationship with the world. This enables students to recognise the role of science in solving existing and emerging real-world problems. Students learn to apply their knowledge and understanding to solve familiar and unfamiliar problems.

The Science 7–10 Syllabus provides opportunities for students to participate in experiences that develop their scientific knowledge and capabilities, and that engage them as scientifically literate citizens.

By studying science, students develop an understanding of the social and cultural contexts of science. This provides a basis for students to make reasoned, evidence-based and ethical decisions. The Science 7–10 Syllabus encourages students to find innovative solutions to science-related, social and global issues, including sustainable futures.

Aim

The aim of the Science 7–10 Syllabus is to:

- develop students' curiosity about, and interest in, science and the natural world
- increase students' knowledge and understanding of the nature and practice of science, and the Working scientifically processes
- encourage students to generate and analyse data, evaluate results, and make ethical, evidence-based decisions, as informed, reflective and scientifically literate citizens.

Focus Area	Outcome	Registration
Energy	SC5-EGY-01 evaluates current and alternative energy use based on ethical and sustainability considerations	
	SC5-WS-01 Working scientifically Observing selects and uses scientific tools and instruments for accurate observations	
	SC5-WS-04 Working scientifically Conducting investigations follows a planned procedure to undertake safe, ethical, valid and reliable investigations	
	SC5-WS-07 Working scientifically Problem-solving selects suitable problem-solving strategies and evaluates proposed solutions to identified problems	
Disease	SC5-DIS-01 explains how an understanding of the causes of disease can be used to prevent and manage the spread of disease	

	SC5-WS-06 Working scientifically Analysing data and information analyses data from investigations to identify trends, patterns and relationships, and draws conclusions	
	SC5-WS-08 Working scientifically Communicating communicates scientific arguments with evidence, using scientific language and terminology in a range of communication forms	
Materials	SC5-MAT-01 assesses the uses of materials based on their physical and chemical properties	
	SC5-WS-03 Working scientifically Planning investigations designs safe, ethical, valid and reliable investigations	
	SC5-WS-07 Working scientifically Problem-solving selects suitable problem-solving strategies and evaluates proposed solutions to identified problems	

	SC5-WS-08 Working scientifically Communicating communicates scientific arguments with evidence, using scientific language and terminology in a range of communication forms	
Environmental sustainability	SC5-ENV-01 analyses the impact of human activity on the natural world	
	SC5-WS-06 Working scientifically Analysing data and information analyses data from investigations to identify trends, patterns and relationships, and draws conclusions	
	SC5-WS-07 Working scientifically Problem-solving selects suitable problem-solving strategies and evaluates proposed solutions to identified problems	
Genetics and evolutionary change	SC5-GEV-01 describes the relationship between the diversity of living things and the theory of evolution	

	SC5-GEV-02 explains how DNA is responsible for the transmission of heritable characteristics and can be manipulated through genetic technologies	
	SC5-WS-05 Working scientifically Processing data and information selects and uses a range of tools to process and represent data	
	SC5-WS-08 Working scientifically Communicating communicates scientific arguments with evidence, using scientific language and terminology in a range of communication forms	
Reactions	SC5-RXN-01 describes a range of reaction types	
	SC5-RXN-02 explains the factors that affect the rate of chemical reactions	
	SC5-WS-01 Working scientifically Observing selects and uses scientific tools and instruments for accurate observations	

	SC5-WS-02 Working scientifically Questioning and predicting develops questions and hypotheses for scientific investigation	
	SC5-WS-03 Working scientifically Planning investigations designs safe, ethical, valid and reliable investigations	
	SC5-WS-04 Working scientifically Conducting investigations follows a planned procedure to undertake safe, ethical, valid and reliable investigations	
Waves and motion	SC5-WAM-01 describes the features and applications of different forms of waves	
	SC5-WAM-02 explains the motion of objects using Newton's laws of motion	
	SC5-WS-04 Working scientifically Conducting investigations follows a planned procedure to undertake safe, ethical, valid and reliable investigations	

	SC5-WS-05 Working scientifically Processing data and information selects and uses a range of tools to process and represent data	
Data science 2	SC5-DA2-01 assesses the use of scientific knowledge and data in evidence-based decisions and when verifying the legitimacy of claims	
	SC5-WS-06 Working scientifically Analysing data and information analyses data from investigations to identify trends, patterns and relationships, and draws conclusions	
	SC5-WS-07 Working scientifically Problem-solving selects suitable problem-solving strategies and evaluates proposed solutions to identified problems	
	SC5-WS-08 Working scientifically Communicating communicates scientific arguments with evidence, using scientific language and terminology in a range of communication forms	

Learning Program

■ Focus Area 1: Energy

Content	Registration
Law of Conservation of Energy	
1.1 The law of conservation of energy	
1.2 Energy efficiency	
Sources of Energy	
1.3 Sources of energy	
1.4 Electrical energy generation	
Electrical Energy	
1.5 Electric circuits	
1.6 Energy in electric circuits	
1.7 Ohm's law	
1.8 Series and parallel circuits	
1.9 Electrical appliance efficiency	
Global Future Energy Needs	
1.10 Optimising energy use	
1.11 Global future energy needs	
Energy in Context	
1.12 Energy in context	
Energy summary	
Energy masterclass	

Focus Area 2: Disease

Content	Registration
Homeostasis	
2.1 Homeostasis	
2.2 Feedback loops	
2.3 The nervous and endocrine systems	
Infectious and Non-Infectious Diseases	
2.4 Infectious diseases	
2.5 Non-infectious diseases	
2.6 Infectious disease transmission	
2.7 Epidemics, endemics and pandemics	
2.8 The immune system	
2.9 How vaccination works	
Disease Control and Prevention	
2.10 Controlling non-infectious diseases	
2.11 Controlling infectious diseases	
2.12 The use of bush medicine in controlling diseases	
2.13 Immunisation programs	
Disease in Context	
2.14 Disease in context	
Disease summary	
Disease masterclass	

Focus Area 3: Materials

Content	Registration
Resources	
3.1 What is a resource?	
3.2 How have First Nations Peoples used minerals?	
3.3 Mining Australian resources	
3.4 The impacts of extracting resources	
Bonding	
3.5 Chemical bonding	
3.6 Electron configuration	
3.7 Ionic bonding	
3.8 Metallic bonding	
3.9 Covalent bonding	
3.10 Common materials	
Chemistry of Organic Compounds	
3.11 Organic chemistry	
3.12 Classifying organic compounds	
3.13 Naming and representing organic compounds	
3.14 Obtaining and using hydrocarbons	
3.15 Combustion of organic fuels	
Polymers	
3.16 Making polymers	
3.17 The properties of polymers	
3.18 Bioaccumulation of microplastics	

Content	Registration
Materials in Context	
3.19 Materials in context	
Materials summary	
Materials masterclass	

Focus Area 4: Environmental Sustainability

Content	Registration
Sustainability	
4.1 Principles and goals of sustainability: Western perspectives	
4.2 Sustainability and caring for Country: Aboriginal and Torres Strait Islander perspectives	
Climate Science	
4.3 Climate and weather	
4.4 The atmosphere and the greenhouse effect	
4.5 The enhanced greenhouse effect	
4.6 Reducing greenhouse gas emissions	
Impacts of Present-Day Climate Change	
4.7 Climate change	
4.8 Effects of climate change	
4.9 Using data to evaluate the impact of climate change	
Alternative Resource Use and Recycling	
4.10 Environmental pollution	
4.11 First Nations Peoples' sustainable harvesting practices	
4.12 Improving resource use	
4.13 How materials are recycled	
Environmental Sustainability in Context	
4.14 Environmental sustainability in context	
Environmental sustainability summary	
Environmental sustainability masterclass	

Focus Area 5: Genetics and Evolutionary Change

Content	Registration
DNA Structure and Function	
5.1 Arrangement of genetic information	
5.2 The structure and function of DNA	
5.3 Discovering the structure of DNA	
Variation and Inheritance	
5.4 Cell division and reproduction	
5.5 Human reproduction	
5.6 Genes and the environment	
5.7 Mutation and genetic variation	
5.8 Genotypes and phenotypes	
5.9 Punnett squares and pedigrees	
Genetic Technologies	
5.10 Genetic technologies	
5.11 Genetic testing	
The Theory of Evolution and Evidence of Natural Selection	
5.12 Natural selection	
5.13 Diversification of life	
5.14 Aboriginal and Torres Strait Islander Peoples' artwork indicates changes in plants and animals, including megafauna	
5.15 The theory of evolution by natural selection	
Genetics and Evolutionary Change in Context	
5.16 Genetics and evolutionary change in context	

Content	Registration
Genetics and evolutionary change summary	
Genetics and evolutionary change masterclass	

■ Focus Area 6: Reactions

Content	Registration
Law of Conservation of Mass	
6.1 The law of conservation of mass and chemical reactions	
Chemical Reactions	
6.2 Naming chemical compounds	
6.3 Constructing chemical equations	
6.4 Synthesis and decomposition reactions	
6.5 Displacement reactions	
6.6 Acids, bases and pH	
6.7 Neutralisation and other reactions of acids	
Rate of Chemical Reactions	
6.8 Rate of reaction: collision theory	
6.9 Factors that affect rate of reactions	
Nuclear Reactions	
6.10 Nuclear reactions and the big bang	
6.11 Radioactive isotopes	
6.12 Half-life of radioactive isotopes	
6.13 Uses of radioisotopes	
6.14 Nuclear fission and nuclear fusion	
6.15 Environmental impacts of nuclear reactions	
Reactions in Context	
6.16 Reactions in context	
Reactions summary	

Content	Registration
Reactions masterclass	

 Focus Area 7: Waves and Motion

Content	Registration
Common Properties of Waves	
7.1 Wave types	
7.2 Features of waves	
7.3 The electromagnetic spectrum	
Sound Waves	
7.4 Sound energy	
7.5 The Doppler effect	
7.6 How we hear	
7.7 First Nations Peoples' use of sound energy	
7.8 Medical uses of sound	
Light Waves	
7.9 Light waves	
7.10 How we see	
7.11 Stars and the electromagnetic spectrum	
Motion	
7.12 Motion of objects	
7.13 Speed and acceleration	
7.14 Newton's laws of motion	
7.15 Force, mass and acceleration	
7.16 Net force	
Waves and Motion in Context	
7.17 Waves and motion in context	

Content	Registration
Waves and motion summary	
Waves and motion masterclass	

 Focus Area 8: Data Science 2

Content	Registration
Data Recap	
8.1 Data recap	
Investigating Questions and Claims	
8.2 Investigable and non-investigable questions	
8.3 Validity and reliability of online content	
8.4 Developing and investigating claims	
8.5 Constructing scientific arguments to support claims	
Pseudoscience	
8.6 Science versus pseudoscience	
8.7 Pseudoscience in the media	
Large Datasets and Scientific Argumentation	
8.8 Features and uses of large datasets	
8.9 Analysing large datasets	
8.10 Univariate and bivariate analysis	
8.11 Causal and correlational relationships	
8.12 Using statistical analysis to validate findings	
Data Science 2 in Context	
8.13 Data science 2 in context	
Data science 2 summary	
Data science 2 masterclass	