

# **COLLINSVILLE STATE HIGH SCHOOL**

## **Science Education Plan**

### **2022**



	Term 1	Term 2	Term 3	Term 4
7	<p><b>Unit 1: Water — waste not, want not</b> Students consider the importance of water and the water cycle. They distinguish between mixtures, including solutions, and pure substances. Students compare a range of separation techniques and assess which techniques can be used for specific purposes. They consider everyday applications of the separation techniques including those used by different cultures and relate use of different separation techniques to a variety of occupations. Students plan and conduct investigations into the separation of mixtures then use their data to evaluate the effectiveness of different techniques and draw conclusions. These understanding s will be applied in Unit 2 through other applications to their community. This unit precedes Unit 2: Water – waste not, want not (continued)</p> <p><b>Unit 2: Water — waste not, want not (continued)</b> Students consider the importance of sustainable, clean water in the community. They explore Aboriginal peoples' and Torres Strait Islander peoples' values about water. They investigate the application of separation techniques in water treatment and recycling processes, and compare and contrast artificial treatment processes with the water cycle to understand how humans have impacted on and mimic natural processes. Students consider ways in which science understanding contributes to the development of water management processes to produce sustainable, clean water supplies both locally and in developing countries. They conduct a water audit for the home and school, and suggest ways to manage water use. They also calculate their own water footprint. This unit follows on from Unit 1: Water — Waste not, want not.</p>	<p><b>Unit 3: Moving right along — exploring motion</b> Students build on their knowledge of how forces affect motion, from year 4. They develop understandings of balanced and unbalanced forces and apply these to predict and justify conclusions about changes in motion. Students explore the effects of gravitational force on motion and consider the difference between mass and weight. They analyse forces involved in simple machines to understand mechanical advantage. Students consider how people use understandings of force and motion in their occupations, and how science and technology have contributed to solving problems in the community through the development of simple machines. Students identify questions or problems and plan and conduct investigations, related to forces and motion, selecting appropriate equipment, ensuring fair testing and following safety guidelines. They summarise and use data to identify relationships and draw conclusions. Students evaluate the quality of the data, and reflect on experimental methods to identify improvements. They communicate using scientific terminology and representations, including force diagrams. This unit precedes Unit 4: Moving right along — Applications in real systems. The assessment for this unit will be conducted in Unit 4: Moving right along - Applications in real systems.</p> <p><b>Unit 4: Moving right along — applications in real systems</b> Students build upon understandings of force and motion, developed in Unit 3 and apply these to situations and problems in everyday life. They apply their understanding of fair testing to construct, test, and modify a balloon-powered vehicle and analyse the forces acting on the vehicle. Students build on their understanding of simple machines to examine how changes to levers and pulley systems affect forces within more complex systems. They investigate the application of scientific understanding of force and motion in transport systems and consider how scientific and technological developments have improved vehicular safety. This unit follows on from Unit 3: Moving right along — exploring motion</p>	<p><b>Unit 5: Heavenly bodies</b> Students understand the relative positions of the Earth, moon and sun in space. Students describe the rotations and orbits of the Earth and moon relative to the sun. Students understand that science knowledge changes with new evidence and they identify how the positions of the Earth, moon and sun cause different predictable phenomena such as eclipses, tides, phases of the moon and solar phenomena. Students explore and compare cultural beliefs related to phases of the moon, eclipses and solar phenomena. Students examine how science and technology have contributed to understanding solar storms and reducing their effects on Earth. Further predictable phenomena will be studied in Unit 6: Sensational seasons.</p> <p><b>Unit 6: Sensational seasons</b> Students explore the relationship between the tilt of the Earth on its axis, its rotation and revolution around the sun and seasons. They understand that different environmental factors define the seasons for different cultures. Students also examine the relationship between the angle of the Earth's tilt and the intensity of the sunlight hitting the Earth. They examine data about weather and climate from different sources. Students understand that the behaviour and appearance of plants and animals and the activity and practices of humans change in response to seasonal changes. They explore how science understanding influences the development of practices within agriculture. This unit follows Unit 5: Heavenly bodies.</p>	<p><b>Unit 7: Organising organisms</b> Students classify organisms based on their physical characteristics. They apply scientific conventions to construct and use dichotomous keys to assist and describe classification. Students analyse the effectiveness of dichotomous keys and suggest improvements. They explore how improvements in microscope technology led to changes in classification systems. Students consider how and why classification systems are used in a variety of occupations. They explore feeding relationships between organisms in an environment using food chains and food webs and construct representations of these relationships using second-hand data. Students apply their understandings from this unit in Unit 8: Affecting organisms.</p> <p><b>Unit 8: Affecting organisms</b> Students investigate how a range of environmental changes and human activities can impact food webs in different ecosystems. Students explore native food webs and consider how these are understood and used by Aboriginal peoples and Torres Strait Islander peoples. They examine how a range of human activities can impact on marine environments and explore the work of scientists and other occupations working in Antarctica.</p>

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8	<p><b>Unit 1: Particles matter</b> Students are introduced to the particle model of matter and use it to explain properties. They investigate the physical and chemical properties of materials and identify signs of chemical change. Students relate the properties of materials to their use in everyday applications and evaluate the effectiveness of the material for its identified purpose. They examine traditional uses of natural material by Aboriginal peoples and Torres Strait Islander peoples. Students plan and conduct investigations of the properties of materials identifying risk and applying safety guidelines. They use data to identify relationships, draw conclusions, evaluate the quality of data collected and suggest improvements to experimental methods. This unit needs to precede Unit 2: Chemistry of common substances. The assessment for this unit will be conducted in Unit 2: Chemistry of common substances.</p> <p><b>Unit 2: Chemistry of common substances</b> Students extend their application of the particle model of matter to represent and explain differences between elements, compounds and mixtures, and differences between physical and chemical change. They are introduced to the periodic table of elements, including symbolic representation of elements. Students continue to investigate the physical and chemical properties of materials and explain how these relate to material use. They plan and conduct fair tests, ensuring safety guidelines are followed. Students record observations and collect, summarise and analyse data. They evaluate the quality of the data collected during fair tests and suggest ways the quality of the data could be improved. Students use their data to draw evidence-based conclusions about the suitability of a material for a specific use and make recommendations of the most appropriate material for an identified purpose. This unit needs to follow Unit 1: Particles matter.</p>	<p><b>Unit 3: Rocks never die</b> Students explore different types of rocks and the minerals of which they are composed. They compare the different processes and timescales involved in the formation and breakdown of igneous, sedimentary and metamorphic rocks as part of the rock cycle. Students investigate the properties of minerals and analyse data to identify patterns and relationships between mineral composition, location and the type of rock formed. They identify rock specimens and model processes of rock formation. They use a variety of representations, including geologic cross-sections, to analyse relationships between and draw conclusions about rock types, rock cycle processes and the geological history of an area. This unit needs to precede Unit 4: Rock my world. The assessment for this unit will be conducted in Unit 4: Rock my world.</p> <p><b>Unit 4: Rock my world</b> Students apply their understanding of rocks and minerals to describe the properties of soil, formed from the weathering of rocks, and the impact of soil degradation on the environment and agriculture. They research an issue that has led to soil degradation and consider how collaboration across different fields of science and technological advancements are helping to address this issue. Students learn how mineral-based resources are sourced, extracted, processed and used, including how Aboriginal peoples and Torres Strait Islander peoples quarry and use rocks and minerals. They summarise information from secondary sources to draw conclusions about how knowledge from different fields of science is used in locating, extracting and processing a particular mineral-based resource, and how science and technology contribute to the development and advancement of sustainable mining processes. Students use representations and scientific understanding to analyse relationships and draw conclusions about rock and mineral-based resources. This unit needs to follow Unit 3: Rocks never die.</p>	<p><b>Unit 5: Energy in my life</b> Students classify energy forms. They investigate different forms of potential energy, making predictions and conducting fair tests, ensuring safety guidelines are followed. Students process and analyse experimental data and evaluate experimental methods used in investigations. They use models and representations to examine kinetic energy and its relationship with potential energy and heat energy. Students communicate how energy is transferred and transformed through systems and use diagrams to represent energy flow. They recognise that energy can be transformed into usable and unusable forms, and consider how this can affect the efficiency of a system. Students discuss the use and influence of science on the use of energy resources and consider how the efficiency of the production of energy could influence the use of these resources by society. This unit needs to precede Unit 6: What's up? The assessment for this unit will be conducted in Unit 6: What's up.</p> <p><b>Unit 6: What's up</b> Students identify the different forms of energy that they observe in order to explain and represent how energy transfers and transformations cause change in simple systems. They plan and conduct investigations into factors affecting energy transfers and transformations. They identify variables, and construct representations of patterns and trends in their data in order to draw conclusions. They evaluate the effectiveness of their investigations. Students also examine Australia's use of renewable and non-renewable energy resources. They consider the impact of photovoltaic technology becoming available to Australia's First Peoples living in remote Australian communities. Students evaluate the impacts of transitioning to renewable resources compared with the continued use of fossil fuels, and examine how science and technology are contributing to making the transition socially, economically and environmentally sustainable. This unit needs to follow Unit 5: Energy in my life.</p>	<p><b>Unit 7: Building blocks of life</b> Students identify cells as the basic units of living things. They use microscopes and images to distinguish between multi-cellular and unicellular organisms and identify specialised cellular structures. Students understand how to prepare wet mount slides and correctly construct biological drawings from microscopic observations. They compare similarities and differences between plant and animal cell structure. Students examine the relationship between the structure and function of specialised plant and animal cells, including reproductive cells, and understand the advantages of cell specialisation. They analyse the development of cell theory as a result of historical scientific work and use the findings to validate the tenets of the theory. Students identify and construct scientifically investigable questions and problems related to the relationship between cell structure and function. This unit needs to precede Unit 8: Survival.</p> <p><b>Unit 8: Survival</b> Students analyse the relationships between structure and function of organs in the major systems of the human body, including the reproductive system. They examine and compare organs and systems in other animals and plants. Students research the structure of a system and its component organs and describe how the structure supports the functions of the system within the body. They examine different reproductive strategies and discuss how these contribute to the survival of multi-cellular organisms, and analyse data and trends in reproductive cycles. Students investigate the relationship between structure and function in the systems of vascular plants. They explore the concepts of ethical guidelines to consider the impact of animal welfare frameworks when planning investigations in science education. This unit needs to follow Unit 7: Building blocks of life.</p>

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9	<p><b>Unit 1: Energy on the move</b> Students examine, inquire and explain ways in which energy can be transferred through different mediums using the particle model. Students have opportunities to design investigation questions and collect quantitative and qualitative data and information on the flow of heat and electrical energy. They use these findings, scientific knowledge and prior understanding to form conclusions. Students evaluate explanations and claims using scientific knowledge. They assess energy efficiencies in house design and use of electrical appliances for heating and cooling to make informed decisions about the influence of science and technology on energy use. This unit precedes Unit 2: Making Waves.</p> <p><b>Unit 2: Making waves</b> Students build on their knowledge of energy transfer to include the wave-based models of energy transfer related to sound and light. Students investigate wave motion and how different mediums affect sound and light transfer. They explore ways in which humans have used and controlled sound and light energy transfer for practical purposes. Students design and conduct investigations to transmit a form of energy through a medium using available equipment and materials. They analyse experimental and second-hand data and identify relationships within the data. Students explore the structure and use of musical instruments by Aboriginal peoples and Torres Strait Islander peoples. This unit follows Unit 1: Energy on the move.</p>	<p><b>Unit 3: It's elementary</b> Students explore the development of scientific ideas about atoms and their subatomic particles, protons, neutrons and electrons. They investigate the structure and uses of isotopes and consider the processes and products of radioactive decay including radiation and half-life. Students understand that scientific knowledge and ideas about the structure of atoms and isotopes has changed as new evidence has become available. They research the use of radioisotopes in a range of areas of society and consider the impacts of these uses on society, including the technology and occupations resulting from these uses. Students critically evaluate the sources of their researched information.</p> <p><b>Unit 4: Changing Earth</b> Students explore the historical development of the theory of plate tectonics. They model and investigate geological processes involved in Earth movement. Students compare different types of tectonic-plate boundaries and the tectonic events which occur at these boundaries. They explore technological developments that have aided scientists in the study of tectonic-plate movement and consider how these assist societies living in tectonic-event areas. Students research the impact of tectonic events such as earthquakes, tsunamis and volcanoes on humans and describe where science and technology are contributing to the development of safer buildings.</p>	<p><b>Unit 5 &amp; 6: Responding to change</b> Students explore the concepts of change within an ecosystem. They understand that all life is connected through ecosystems. They analyse how biological systems function and maintain balance. They explore how different ecosystems respond to external changes and examine the impacts on populations, the interrelationships occurring within and the flow of matter and energy through an ecosystem. Students formulate questions and conduct research to investigate how an ecosystem responded to an extreme event. Students investigate tolerance ranges and feedback systems that allow organisms to survive and function in different environments. Students will focus on the feedback systems in Humans.</p>	<p><b>Unit 7: Chemical patterns</b> Students engage in the exploration of chemical reactions and the application of these in living and non-living systems. They understand that chemical change involves the rearranging of atoms to form new substances. Students examine energy transfer in reactions, the nature and reactions of acids as well as the conservation of mass in chemical reactions. Students continue to develop their scientific inquiry skills by engaging in a range of investigations including measuring the pH of soils, replicating ocean acidification and examining the chemical reactions used in instant cold packs. They apply their understanding to evaluate claims related to environmental issues and consider how the application of chemistry affects people's lives. This unit precedes Unit 8: Heat and eat. The assessment for this unit will be conducted in Unit 8: Heat and eat.</p> <p><b>Unit 8: Heat and eat</b> Students explore a range of chemical reactions and their application in everyday life. They examine a series of chemical reactions used in food production including fermentation, detoxification, gelation and denaturation. They also explore the reliability of acid/base indicators made from natural plant pigments. Students design and conduct investigations that demonstrate how chemical reactions involving energy transfer can be applied in food preparation. They assess risk, control variables, gather and analyse primary data, identify anomalies, evaluate methods and make recommendations to improve the quality of evidence. This unit follows Unit 7: Chemical patterns.</p>



	Term 1	Term 2	Term 3	Term 4
10	<p><b>Unit 1: Life blueprints</b></p> <p>Students explore genetics and heredity. They examine the relationship between DNA, genes, alleles and heritable traits of an organism. Students will describe and compare the two main forms of cell division in eukaryotes and explain how genetic material is transferred from parent to offspring during cell division. They will examine how meiosis and mutation contribute to genetic variety between organisms. Students will analyse different patterns of inheritance for autosomal and sex-linked crosses and use Punnett squares to predict genotypes and phenotypes of offspring from different genetic crosses. They will consider how genetic diseases are inherited and analyse a multi-generational pedigree to describe patterns of inheritance. Students will explore how genetic research is applied to areas such as genetic modification and genetic testing and consider the impacts of these on society and individuals, including ethical considerations.</p> <p>This unit precedes Unit 2: Life evolves.</p> <p><b>Unit 2: Life evolves</b></p> <p>Students build on their knowledge of genetics and inheritance gained in Unit 1. They will develop an understanding of how the diversification of life from a single ancestral species, is explained by Darwin's theory of evolution by natural selection. Students will research the development of the theory of evolution and how ideas have been refined over time by a range of scientists, as new evidence becomes available and consider how technological advancements have contributed to the advancement of evolutionary theory. They will model and understand the mechanisms that explain the ways in which evolution can occur. Students will critically analyse the validity of evolutionary evidence found in secondary sources and communicate their understanding of the theories and processes of evolution using scientific language, conventions and representations.</p> <p>This unit follows Unit 1: Life blueprints</p>	<p><b>Unit 5: Moving along</b></p> <p>Students explore and apply Newton's three laws of motion to predict, describe and calculate the effect of forces on the motion of objects. They develop questions and hypotheses, assess risks, and consider accuracy when using a range of methods, including the use of digital technologies, to collect reliable data. Students analyse data and draw conclusions using their knowledge of Newton's laws of motion. They explain sources of uncertainty and describe ways to improve experimental methods to improve data quality.</p> <p>This unit needs to precede Unit 6: <i>Energy of motion</i>.</p> <p><b>Unit 6: Energy of motion</b></p> <p>Students investigate the impact of forces and energy on the motion of objects. They use the laws of motion and the Law of Conservation of Energy to predict, describe and explain the consequences of the rapid changes in the forces and energy acting during collisions. They evaluate vehicle safety features using their knowledge of force and motion. Students use their understandings to design an energy-absorbing feature and explain the changes in motion using physics concepts and experimental results.</p> <p>This unit should follow Unit 5 <i>Moving along</i> as it consolidates and extends the concepts taught in that unit</p>	<p><b>Unit 3: Chemistry isn't magic</b></p> <p>Students collect and analyse data to identify patterns in atomic structure and the properties of elements and how these relate to the organisation of the periodic table. They use scientific knowledge of an atom's electron arrangement to predict the formation of ions. Students make predictions and draw conclusions from experimental data about the products of chemical reactions and represent reactions in balanced chemical equations. Students examine how scientific understanding of the atomic model has been refined over time. Understanding developed in this unit will be applied and assessed in this unit and Unit 4: Chemical reactions matter.</p> <p><b>Unit 4: Chemical reactions matter</b></p> <p>Students explore the factors that affect reaction rates through observation and experimentation. Students plan, conduct, evaluate and report on an investigation into reaction rate of a chemical process. They examine different types of reactions and consider the usefulness of the products. Students consider how the development of useful products and chemical processes, particularly polymers and pharmaceuticals, have been driven by societal needs, and the impact this has had on society and the environment. They explore how traditional knowledge has led to the development of new pharmaceuticals, and issues related to intellectual ownership of the knowledge of these products.</p>	<p><b>Unit 7: Global Systems</b></p> <p>Students explore how Earth is composed of four interacting and dynamic 'spheres', within which the global systems and cycles operate. These are the lithosphere, hydrosphere, atmosphere and biosphere. Students consider how matter cycles within and between these spheres, such as in the carbon cycle and the water cycle, and use scientific knowledge to evaluate how humans have influenced flow between these systems. They design and conduct reliable and fair fieldwork investigations to collect, analyse and evaluate data related to carbon emissions produced by human activity and consider the role of the biosphere in carbon storage. Students explore approaches used to minimise carbon emissions and methods of sequestering carbon. They also consider how ethical decision making in relation to global systems could improve the state of the planet.</p> <p><b>Unit 8: The universe</b></p> <p>Students understand that the universe is made up of a variety of features, including galaxies, stars and solar systems, and the Big Bang theory can be used to explain the origin of the universe. They outline the Big Bang theory and review evidence supporting the theory. Students identify the limitations of the Big Bang theory and recognise that theories are revised and scientific ideas change over time, as new evidence is gathered. They examine different types of star life cycles and investigate the contributions that technology has made to increased knowledge of stars over time. Students understand that light from stars provides information about composition and relative motions of galaxies. They examine information related to theories about the origin and fate of the universe.</p> <p>Students summarise how understandings of the universe have changed through new discoveries due to improved technologies. They develop an understanding of Aboriginal peoples' and Torres Strait Islander peoples' use of astronomical knowledge and link selected spinoffs from space research to everyday applications. Students examine recent developments in astronomy and identify new career opportunities.</p>



## Whole school assessment plan: 7–10 overview

Categories of student products include: **written**, **spoken/signed**, **performance**, **multimodal** and **visual** **Systemic tasks** include: NAPLAN, † denotes supervised conditions

	Term 1	Term 2	Term 3	Term 4
7	<p><b>Experimental Investigation</b>  <b>Unit 1: Separating a mixture</b>            Students describe techniques to separate pure substances from a mixture, plan experimental methods, select equipment that improves accuracy, describe how they considered safety, summarise data, refer to their data when suggesting improvements to their methods, and communicate ideas, methods and findings using scientific language and appropriate representations.</p> <p><b>Research Assignment</b>  <b>Unit 2: Solving water issues</b>            Students explain the water cycle process and sustainable water management strategies, consider the impact of chosen strategies on Australian communities, and describe how scientific and cultural knowledge has been used to solve real-world water issues.</p>	<p><b>NAPLAN †</b></p> <p><b>Experimental Investigation</b>  <b>Unit 3 &amp; 4: Experimenting with balloon powered vehicles</b>            Students plan and conduct an investigation into how forces acting on a racer affect its motion, and use evidence to draw conclusions. To suggest improvements to the method by referring to the quality of data and communicate using scientific language and appropriate representations.</p>	<p><b>Exam†</b>  <b>Unit 5: Understanding Earth, moon and sun systems</b>            Students explain phenomena experienced on Earth due to the relative positions of the Earth, moon and sun using scientific language and appropriate representations.</p> <p><b>Multimodal Presentation</b>  <b>Unit 6: Exploring the seasons</b>            Students explain how the seasons on Earth and how understanding seasons has been used to address a real-world problem. They summarise data from different sources, describe trends and use scientific language and appropriate representations.</p>	<p><b>Exam†</b>  <b>Unit 7 &amp; 8: Classifying creatures</b>            Students classify and organise diverse organisms by using dichotomous keys and use evidence to construct a dichotomous key using scientific conventions. Students construct food webs, predict the effects of human and environmental changes on interactions between organisms and describe how scientific knowledge has been used to address issues associated with invasive species.</p>
8	<p><b>Experimental Investigation</b>  <b>Unit 1 &amp; 2: Investigating the chemistry of common substances</b>            Students plan, conduct, evaluate and report on an experimental investigation of the physical and chemical properties of fabrics in order to reach conclusions about their suitability for use in a poolside chair. Students explain observed changes using the particle model of matter.</p>	<p><b>Exam†</b>  <b>Unit 3 &amp; 4: Understanding rock cycle processes</b>            Students compare and account for differences in rock types and processes of rock formation, including the timescales involved. They construct and use representations to analyse patterns and draw conclusions about rock types, rock forming processes and the geological history of landscapes. Students describe a situation in which scientists collaborated with other occupations to generate a solution to a contemporary problem, and identify risk and suggest risk management strategies associated with geological fieldwork. They use appropriate language and representations to communicate science ideas.</p>	<p><b>Experimental Investigation</b>  <b>Unit 5 &amp; 6: Exploring energy transfers and transformations</b>            Students design, conduct and evaluate an experimental investigation of energy changes by building a rube Goldberg machine. They analyse energy flow and explain how the system functions in terms of energy transfers and transformations. Students present evidence-based findings using appropriate scientific language and representations.</p>	<p><b>Written Assignment (Poster/ 3D model)</b>  <b>Unit 7: Understanding the nature of the cell</b>            Students analyse the relationship between the structure and function of a cell and identify and construct investigable questions and problems. They identify historical problems and explain how, over time, evidence has led to an improved understanding of cells and the development of cell theory.</p> <p><b>Exam†</b>  <b>Unit 8: Understanding reproductive structure and function</b>            Students analyse the relationships between structure and function of organs within different reproductive systems. They consider ethics when planning investigations and reflect on the implications of solutions for different groups. Students analyse trends occurring in reproduction cycles.</p>



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	Term 1	Term 2	Term 3	Term 4
9	<p><b>Exam†</b></p> <p><b>Unit 1 &amp; 2: Explaining thermal insulation and transfer of light and sound</b></p> <p>Students explain energy transfers in the environment and analyses home insulation to draw conclusions about a factor that impacts on the effectiveness of an insulation material. Students explain the transfer of energy using different models, design an investigation method, including control and measurement of variables, collect data and identify relationships between variables.</p>	<p><b>NAPLAN †</b></p> <p><b>Research Assignment</b></p> <p><b>Unit 3: Exploring radioisotopes</b></p> <p>Students research a radioisotope, describe and explain its structure, radioactivity and a practical use of this radioisotope, and evaluate how its applications affect people's lives.</p> <p><b>Exam†</b></p> <p><b>Unit 4: Explaining plate tectonics</b></p> <p>Students explain how geological processes result in tectonic events and changes to the Earth's surface, identify patterns and trends in secondary data and evaluate secondary sources to critique validity of claims. They also describe factors that have impacted on the development of the theory of plate tectonics.t</p>	<p><b>Research Assignment</b></p> <p><b>Unit 5 &amp; 6: Ecosystems</b></p> <p>Students investigate how an ecosystem functions and maintains balance within normal tolerance limits. Tolerance limits are explored with attention payed to the body's response to temperature and how this is regulated. They formulate research questions to examine how an ecosystem responds following a human impact or climatic event.</p>	<p><b>Experimental Investigation</b></p> <p><b>Unit 7 &amp; 8: Exploring energy in chemical reactions</b></p> <p>Students research chemical reactions and energy transfers and then design and conduct an investigation to determine the types and quantities of reactants best suited to reheating portable pre-cooked meals.</p>
10	<p><b>Research Task</b></p> <p><b>Unit 1 &amp; 2: Understanding life's blueprints and Evolution</b></p> <p>Students communicate an understanding of the components and processes that influence heredity, and evaluate claims relating to these processes using current scientific views. Students analyse how evolutionary theory has developed over time, evaluating evidence and discussing factors that have prompted its review. They explain processes that underpin evolution and evaluate the validity and reliability of claims made in secondary sources with reference to currently held scientific views.</p>	<p><b>Experimental Investigation</b></p> <p><b>Unit 5 &amp; 6: Investigating changes in motion and energy</b></p> <p>Students use physical sciences concepts to predict and describe changes in motion and energy related to an impact protection feature. They analyse collected data, identify sources of uncertainty, explain improvements to the investigation considering fairness, reliability and use of digital technologies. They develop conclusions and communicate findings in a report.</p>	<p><b>Exam – Data Test and short response</b></p> <p><b>Unit 3 &amp; 4: Understanding chemistry organisation and reaction rates</b></p> <p>Students communicate an understanding of the periodic table as an organiser of elements, and predict processes and products of chemical reactions. Students explore the factors that affect reaction rates, they examine different types of reactions. Students investigate how pharmaceuticals have been driven by societal needs.</p>	<p><b>Exam</b></p> <p><b>Unit 7 &amp; 8: Understanding global systems and the universe.</b></p> <p>Students analyse information about the hydrological and carbon cycles, describing significant stores, flows and human impact through and between spheres. They explain how reliability, fairness and ethical actions have been considered in methodology and enhance the quality of data. Demonstrate scientific understanding of the universe, including theories of the origin of the universe and how new evidence and methodologies support the acceptance of particular explanations and lead to changes in scientific understanding.</p>

**Timing of assessment across P-10 by learning area**

^ School reporting deadlines



Systemic assessment



School-based assessment

¥ The assessment provides an opportunity for planned consistency of teacher judgments activities

		Term 1									Term 2										Term 3										Term 4										
Week		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
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