



Sample Scope and Sequence

Science, SCC115122

Scope and sequence

Below is a possible sequence of content for Science, SCC115122. This example supports teachers to develop their own scope and sequence documents to meet the needs of learners.

Work requirements have been identified within this possible sequence of content. Providers must ensure there are sufficient opportunities for learners to demonstrate improvement over time and/or consistency of achievement against each criterion.

This sample scope and sequence must be adapted by schools in order to meet the Office of TASC's [Standards for Providers](#)¹ including ensuring that internal assessments are fair, equitable and comparable.

Providers can use the [Assessment Documentation: Self-Evaluation Toolkit for Teachers](#)² to check their plans for assessment, assessment tools and assessment records.

The Office of TASC have specific advice and requirements for the development of school-based scope and sequence documents. Please visit the [TASC website](#)³ for more information.

Context statement

This sample scope and sequence was developed for a class size of 20-25 learners in a single campus senior secondary environment. Learners participated in 3 x 90-minute lessons per week. Learners have access to devices as required at school. Some learners have their own device.

Course specific advice

This document is part of a set of baseline resources to support teachers to implement Science, SCC115122. Teachers are encouraged to view the accredited [Course Document](#)⁴ and [Course Implementation Guide](#)⁵ to assist them in developing their own scope and sequence for their specific context. A Community of Practice exists for this course, please visit our [website](#)⁶ for more information.

¹ <https://www.tasc.tas.gov.au/providers/quality-assurance/standards-for-providers/>

² https://www.tasc.tas.gov.au/wp-content/uploads/2022/06/SelfEvaluation_AssessmentDocumentation.pdf

³ <https://www.tasc.tas.gov.au/>

⁴ <https://www.tasc.tas.gov.au/students/courses/science/>

⁵ <https://1land12.education.tas.gov.au/learning-areas/science/>

⁶ <https://1land12.education.tas.gov.au/communities-of-practice/>

Time / Module	Mapping to course content	Example learning activity	Assessment Task	Relative Weighting	Work Requirement	Criterion	Criterion Elements
Term 1 - Week 1 Module 1- Biological, Earth and Space Sciences	Science safety and rules of the Science Lab. Equipment in Science.	<ul style="list-style-type: none"> • Explain why we have rules in the Lab. • Apply the science room rules to their own classroom. • Identify and understand the use of common science equipment: <ul style="list-style-type: none"> » Science room picture - identify the dangers. » Design a science safety poster showing the rules (or even one rule). » Match the science equipment on the sheet with the real thing. » Measuring instruments. 	<p>Module 1 - Work Requirement 1 of 2 (Task 1)</p> <p>Biological, Earth and Space Sciences - Folio</p> <p>Mode/Format: Folio</p> <p>See the course document for more information.</p>	Minor	Yes	C1 C2 C3 C4	E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3
Term 1 - Week 2 Module 1- Biological, Earth and Space Sciences	Ecological Processes. Life on Earth. Vertebrates and Invertebrates. Classification and Dichotomous Keys.	<ul style="list-style-type: none"> • Explore the Kingdoms of Life. • Compare the difference between vertebrates and invertebrates. • Identify why and how we classify organisms. • Explain the meaning of the words “characteristic” and “dichotomous”. • Apply knowledge of dichotomous keys to making a classroom key: <ul style="list-style-type: none"> » “Plant/Animal or Other” individual or group activity (using plant/animal and bacteria pictures or specimens). » Backbone or not? -compare skeleton of a human and a specimen of a jellyfish (or similar). » Vertebrate/invertebrate classification sheet. » Excursion to the Museum. » What is a Characteristic? Make a list of your characteristics. » “Classifying Stuff” groups activity. • ‘Using a dichotomous key’ worksheet. • Design a Dichotomous Key. 	<p>Module 1 - Work Requirement 1 of 2 (Task 2)</p> <p>Biological, Earth and Space Sciences - Folio</p> <p>Mode/Format: Folio</p> <p>See the course document for more information.</p>	Minor	Yes	C1 C2 C3 C4	E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3

Time / Module	Mapping to course content	Example learning activity	Assessment Task	Relative Weighting	Work Requirement	Criterion	Criterion Elements
Term 1 - Week 3 Module 1- Biological, Earth and Space Sciences	Ecological Processes. Interdependency of Living Things - What is an Ecosystem? Living and non-living things. Making Observations of the real world.	<ul style="list-style-type: none"> Examine levels of organisation on Earth. Identify key vocab words “biosphere, biome, ecosystem, community, population, individual”. Define ecosystem and its types. Produce an ecosystem concept map. Explain the meaning of the words “abiotic” and “biotic” and apply to the real world. Apply knowledge of what’s living and what’s not to the real world. Define what makes something “living” or “non-living”. Living and non-living identification sheet - list the abiotic and biotic components. Observe and record data of the living world. Identify living and non-living components. Use and read science measuring equipment. Practise using data loggers and other measuring devices in class and recording data on some river/pond water. “Mini Ecosystems” – abiotic and biotic factors in a school garden ecosystem: <ul style="list-style-type: none"> » Draw, take photos or record a video showing the living and non-living components of an ecosystem. 	Module 1 - Work Requirement 1 of 2 (Task 3) Biological, Earth and Space Sciences - Folio Mode/Format: Folio See the course document for more information.	Minor	Yes	C1 C2 C3 C4	E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3
Term 1 - Week 4 Module 1- Biological, Earth and Space Sciences	Ecological Processes - Excursion to Local Environment. Using the Tamar River as an example. Time to organise folio for Module 1: Work Requirement 1 of 2.	<ul style="list-style-type: none"> Explore the local environment. Apply knowledge of how abiotic factors impact systems in real life. Make predictions and draw conclusions. Record data. Communicate information. Interpret and analyse data. Work collaboratively. Communicate information. Work collaboratively. Measure and record abiotic factors of the river. 	Module 1 - Work Requirement 1 of 2 (Task 4) Biological, Earth and Space Sciences - Folio Mode/Format: Folio See the course document for more information.	Major	Yes	C1 C2 C3 C4	E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3

Time / Module	Mapping to course content	Example learning activity	Assessment Task	Relative Weighting	Work Requirement	Criterion	Criterion Elements
		<ul style="list-style-type: none"> • Observe human made changes to the river edge. take photos. • Examine uses of the river and the river foreshore. • Observe the impact of the tides-predict the challenges to motorboats / yachts / rowers / ferries / wildlife. • Discuss the impacts of floods in this area. • Observe and record sources of pollution. • Print photos and data. • Begin poster construction. • Finalise group posters for presentation (4 min dialogue between teacher and learners about findings). 					

Time / Module	Mapping to course content	Example learning activity	Assessment Task	Relative Weighting	Work Requirement	Criterion	Criterion Elements
Term 1 - Week 5	Biological Processes - Requirements for Life. Photosynthesis. The water cycle. Water for life.	<ul style="list-style-type: none"> Identify things needed for life. Examine how plants and animals are all reliant on each other for survival. Recognise the sun is the ultimate source of energy. Write the equation for photosynthesis. Photosynthesis definition – why we are reliant on plants for survival. Produce a mind map on A3 paper group work - what do all living things need to survive? Photosynthesis in plants experiment. Conduct a safe science experiment. Recognise the importance of water for all life. Identify the key processes of the water cycle. Examine how the water cycle can be disrupted (droughts/climate change/ forest clearing/overuse of ground water). Vocabulary – what are the meanings of the terms in the water cycle. Label and colour in the water cycle diagram. Discussion of how water moves through the environment. Investigate transpiration in plants. Explore where our drinking water comes from. Investigation how water is treated. Examine issues with contaminated water and the water crisis. Examine how much water is used daily on average by households. Group discussion – make a list of how can we reduce the amount of water wastage? Construct a mini water filtration system (with plastic bottles, sand gravel, rocks, alum and dirty water). 	Module 1 - Work Requirement 1 of 2 (Task 5) Biological, Earth and Space Sciences - Folio Mode/Format: Folio See the course document for more information.	Major	Yes	C1 C2 C3 C4	E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3

Time / Module	Mapping to course content	Example learning activity	Assessment Task	Relative Weighting	Work Requirement	Criterion	Criterion Elements
Term 1 - Week 6 Module 1- Biological, Earth and Space Sciences	Biological Processes - Interdependence of Living Things. Food chains. Food webs. Excursion to Local Environment. Using Cataract Gorge as an example. Time to organise folio for Module 1: Work Requirement 1 of 2.	<ul style="list-style-type: none"> Examine how energy passes through ecosystems. Compare different types of consumers. Recognise a food chain. Identify trophic levels. Vocabulary - define producers, herbivores, carnivores, omnivores, and decomposers. <ul style="list-style-type: none"> » in groups, suggest examples of each. Can one group survive without the other? Food chain activity - place the organisms in the correct order. Explain the difference between a food chain and a food web. Recognise that food webs are complex. label the arrows on a basic food web picture. DPIPWE food web activity - string and species cards (do outside). What happens when one species is removed? Explore the local environment and apply knowledge of how abiotic factors determine biotic factors. Identify plant species and diversity. Record and interpret data. Observe differences in each side of the gorge. Measure and observe abiotic and biotic factors on both sides of the gorge. Observe aspect, slope, geology, soil and moisture. Record data, use photos in a poster or video recording. 	Module 1 - Work Requirement 1 of 2 (Task 6) Biological, Earth and Space Sciences - Folio Mode/Format: Folio See the course document for more information.	Major	Yes	C1 C2 C3 C4	E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3

Time / Module	Mapping to course content	Example learning activity	Assessment Task	Relative Weighting	Work Requirement	Criterion	Criterion Elements
Term 1 - Week 7 Module 1- Biological, Earth and Space Sciences	Earth Science. The Structure of our Earth. Geological Processes. Natural Disasters.	<ul style="list-style-type: none"> Examine the Earth's structure. Apply this to a model with correct proportions. Label a diagram of the Earth's structure. Construct a plasticine Earth model of the 4 layers. Recognise that the Earth has evolved over geological timescales. Examine the theory of plate tectonics and continental drift. Relate knowledge on plate movement to the Ring of Fire. Discussion about how the continents were once joined and are still moving. Watch a video on the process of shifting plates⁷ Pangea puzzle activity - cut out and glue together. Plate tectonics activity - colour each plate and label with their correct names. Identify and explore volcanic eruptions, tsunamis, and earthquakes as part of Earth's geological processes. Explore where volcanoes currently exist, which are active and parts of a volcano. Predict impacts of volcanic eruptions. Explore the 3D Geography⁸ website to gather information about volcanoes (use some of the worksheets). Work can be presented on a poster. 	Module 1 - Work Requirement 1 of 2 (Task 7) Biological, Earth and Space Sciences - Folio Mode/Format: Folio See the course document for more information.	Major	Yes	C1 C2 C3 C4	E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3

⁷ <https://www.britannica.com/video/167290/land-Earth-continents-positions-landmass-Pangea>

⁸ <https://www.3dgeography.co.uk/what-is-a-volcano>

Time / Module	Mapping to course content	Example learning activity	Assessment Task	Relative Weighting	Work Requirement	Criterion	Criterion Elements
Term 1 - Week 8 Module 1- Biological, Earth and Space Sciences	Earth Science. Volcanoes. Rocks and Minerals. The Importance of Minerals. Time to organise work for Module 1: Work Requirement 1 of 2.	<ul style="list-style-type: none"> Identify how volcanoes are formed. Identify the parts of a volcano. <ul style="list-style-type: none"> » Activity: what's inside a volcano? <ul style="list-style-type: none"> – make a model volcano from plasticine, bicarb soda and vinegar. Identify the difference between the 3 major rock types. Apply geological processes to different rock types. Explain how fossils are formed. Discuss characteristics and formation of sedimentary, metamorphic and igneous rocks. Examine rock samples in class - classify each according to their characteristics. Make a fossil from plaster of paris, sand, a mould and a shell/leaf/feather. Examine different important minerals used by man-bauxite, haematite, lithium. Explore uses of minerals by society. Examine different minerals in class. Explore the Bell Bay Aluminium⁹ website for information on mineral use (or any other site/s). 	Module 1 - Work Requirement 1 of 2 (Task 8) Biological, Earth and Space Sciences - Folio Mode/Format: Folio See the course document for more information.	Major	Yes	C1 C2 C3 C4	E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3

⁹ <https://www.riotinto.com/en/operations/australia/bell-bay>

Time / Module	Mapping to course content	Example learning activity	Assessment Task	Relative Weighting	Work Requirement	Criterion	Criterion Elements
Term 1 - Week 9 Module 1 - Biological, Earth and Space Sciences	Space Science - The Earth in Space. Components of our Solar System. Changes in Time and Seasons. The Power of the Tides.	<ul style="list-style-type: none"> Identify where Earth sits in relation to the Sun, Moon, and planets. Explore features of each planet. Label the planets and fill out information about each planet. “the requirements for life” brainstorm. Identify that the Earth rotates on its axis and orbits the sun. Recognise night, day and seasons. Identify differences between day/night and summer/winter (temperature/day length). Demonstrate skills in applying planetary changes with activities (e.g. growing vegetables, sleeping, working). Demonstrate with a globe how the Earth spins around the sun and how it spins on its axis. Label the seasons on a diagram. Examine how daylight changes with the seasons. List the activities we do during the day/night/winter/spring/autumn/summer. Examine how the Moon was formed. Recognise the phases of the Moon. Recognise that it is the Moon that causes tide fluctuations. Explore some of the impacts of tidal surges during storms and increase in sea levels due to climate change. Phases of the moon drawings. Watch how tides work¹⁰. 	Module 1 - Work Requirement 1 of 2 (Task 9) Biological, Earth and Space Sciences - Folio Mode/Format: Folio See the course document for more information.	Major	Yes	C1 C2 C3 C4	E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3
Term 1 - Week 10 Module 1 - Biological, Earth and Space Sciences	Space Science - Technology and Space Travel. Explore how space travel has changed over time. Investigate advancements in space technology and its contribution to society.	<ul style="list-style-type: none"> History of Space exploration -first lunar landing-video and discussion. Explore Space X¹¹ latest developments with space travel: <ul style="list-style-type: none"> » list major achievements. 	Module 1 - Work Requirement 2 of 2 Biological, Earth and Space Sciences - Presentation Mode/Format: Performance	Major	Yes	C1 C2 C3 C4	E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3, E4

¹⁰ <https://www.youtube.com/watch?v=3RdkXs8BibE>

¹¹ <https://www.spacex.com/>

Time / Module	Mapping to course content	Example learning activity	Assessment Task	Relative Weighting	Work Requirement	Criterion	Criterion Elements
		<ul style="list-style-type: none"> Technological advancements that are used every day (e.g. thermal blankets, mobile phones, heart pacemakers, satellites and GPS, miniaturisation of computers). Design and build a rocket. 	See the course document for more information.				E1, E2, E3
Term 2 - Week 1 Module 2 - Physical and Chemical Sciences	<p>The Properties of Matter. Explore what matter is and how it can change.</p> <p>The States of Matter - Physical Changes of Matter. The States of Matter - Chemical Changes of Matter.</p>	<ul style="list-style-type: none"> Describe the differences between a solid, liquid and gas using the particle theory. Properties of Solids, Liquids and Gases. Task: label liquid, solid or gas. Explore how matter can change states. Name each of the processes of matter changing states (e.g. freezing, melting, etc.). Identify the concept of physical changes resulting in the creation of no new substances. Discuss and label physical changes. Match word meanings. Watch the Let's Talk Science Physical and Chemical Changes in the Kitchen¹². Activity: how substances change when heated or cooled (e.g. heating a metal ring, heating and freezing coloured water, heating/cooling a gas). Activity: classify or rank pictures of different types of 'matter' as most solid-like to most liquid-like. Explore how matter can change into a new substance through heating or a chemical reaction. Identify the difference between a physical and chemical change. Discuss and label the chemical changes task. Discuss chemical reactions in everyday life (e.g. cooking, digestion, rusting, photosynthesis, combustion). Activity: identify either physical or chemical change-stations set up around the room. 	<p>Module 2 - Work Requirement 1 of 2 (Task 1)</p> <p>Physical and Chemical Sciences – Folio</p> <p>Mode/Format: Folio</p> <p>See the course document for more information.</p>	Minor	Yes	C1 C2 C5 C6	E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3

¹² <https://letstalkscience.ca/educational-resources/stem-in-context/physical-and-chemical-changes-in-kitchen>

Time / Module	Mapping to course content	Example learning activity	Assessment Task	Relative Weighting	Work Requirement	Criterion	Criterion Elements
Term 2 - Week 2 Module 2 - Physical and Chemical Sciences	Chemical Changes - explore the difference between exothermic and endothermic reactions. Mixing Matter - soluble or insoluble. Separating Solutions.	<ul style="list-style-type: none"> Apply exothermic and endothermic reactions to real life. Discuss the meaning of the terms “exothermic” and “endothermic” and give examples of common exothermic and endothermic reactions. Explain the processes involved in heat packs and cold packs. Predict which substances will dissolve and which will not: <ul style="list-style-type: none"> » Activity: Will it dissolve or not? Write down your predictions. Recognise and explain the terms ‘solution’, ‘solvent’ and ‘solute’. Vocabulary words sheet-solution, solvent, solute, mixture. Discuss the difference between a solution and a suspension: <ul style="list-style-type: none"> » Activity: create solutions and mixtures using different solutes and solvents. Predict which will dissolve and which will not. Investigate different techniques for separating solutions. Recognise the meaning of words such as evaporation, filtration, sieving, distillation, centrifuging, decantation, chromatography. Predict what can or can’t be separated. Brainstorm: how would you separate substances? Vocabulary words sheet-filter, evaporate, sieve, decant, distil. Demonstration of different separating techniques. Activity: use different techniques to separate solutions as listed. Predict which substances can be separated. 	Module 2 - Work Requirement 1 of 2 (Task 2) Physical and Chemical Sciences – Folio Mode/Format: Folio See the course document for more information.	Minor	Yes	C1 C2 C5 C6	E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3
Term 2 - Week 3 Module 2 - Physical and	Chemical Science. Separating Solutions.	<ul style="list-style-type: none"> Examine the process of centrifuge Explore the process of forming crystals from supersaturated solutions 	Module 2 - Work Requirement 1 of 2 (Task 3) Physical and Chemical Sciences – Folio	Minor	Yes	C1 C2 C5	E1, E2, E3, E4 E1, E2, E3, E4

Time / Module	Mapping to course content	Example learning activity	Assessment Task	Relative Weighting	Work Requirement	Criterion	Criterion Elements
Chemical Sciences	Separating Colours - Explore the Process of Chromatography. Elements, Compounds and Mixtures.	<ul style="list-style-type: none"> • Discussion of centrifuge processes in blood separation, dairy industry etc. • Activity: growing crystals from copper sulphate • Apply chromatography techniques to real life-forensic science • Discuss the process of chromatography • Applications of chromatography • Activity: separating marker colours • Vocabulary word meaning task - element, compound, mixture. • Identify an element, a compound and a mixture • Explain the difference between an element, compound, mixture • Activity: explore common elements, compounds and mixtures-carbon, lead, copper, table salt, water, shampoo, concrete. 	Mode/Format: Folio See the course document for more information.			C6	E1, E2, E3, E4 E1, E2, E3

Time / Module	Mapping to course content	Example learning activity	Assessment Task	Relative Weighting	Work Requirement	Criterion	Criterion Elements
Term 2 - Week 4 Module 2 - Physical and Chemical Sciences	Chemical Science. Pressure and Matter. Everyday Chemistry. The Periodic Table - Some Important Elements.	<ul style="list-style-type: none"> Explore how pressure can change matter from one state to another (e.g. gas in BBQ gas bottle, aerosol in a deodorant can). Understand the process of sublimation. Predict what happens to objects put into dry ice. Definition of sublimation and how it differs from melting. Activity: using 3 syringes depressing each to represent pressure being applied to a gas, liquid and solid. Demonstrations with dry ice - discussions of applications, learners predict what will happen to each object. Examine everyday applications of chemistry and chemical reactions. Activities: make cornflour slime, milk glue, ice-cream. Demonstration: sulphuric acid and sugar/glycerol and potassium permanganate/others. Examine the periodic table. Identify some common everyday elements. Explore uses of some important elements. Activity: match the name with the correct symbol. Group work: choose 5 solids, 5 liquids and 5 gases - write down for each: <ul style="list-style-type: none"> » the name of the element. » the origin of the element. » what it is used for as an element. » what it is used for as a compound. 	Module 2 - Work Requirement 1 of 2 (Task 4) Physical and Chemical Sciences – Folio Mode/Format: Folio See the course document for more information.	Minor	Yes	C1 C2 C5 C6	E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3

Time / Module	Mapping to course content	Example learning activity	Assessment Task	Relative Weighting	Work Requirement	Criterion	Criterion Elements
Term 2 - Week 5 Module 2 - Physical and Chemical Sciences	Chemical Science. Acids and Bases. Acids and Bases in the Environment. Time to organise folio for Module 2: Work Requirement 1 of 2.	<ul style="list-style-type: none"> Examine the pH scale. Identify common acids and bases. Explore different ways to measure pH. Investigate the pH of different solutions. Discussion - what is an acid and a base? Make a list of some common household acids and bases. Label the pH scale worksheet. Practise using pH measuring devices. Make predictions as to which solutions are acidic and which are basic. Examine common acid and bases in everyday life and ways to neutralise them. Activity: predict then measure the pH of various (safe) substances (e.g. vinegar, lemon juice, liquid soap, ammonia or bleach, milk, bicarb soda, coke, Mylanta - using pH paper and digital devices). Examine some of the impacts of acid rain. Explore impacts of ocean acidification. Discussion on how acid rain forms. Watch National Geographic's video¹³ on acid rain. Make a poster depicting the impact on the environment or building/structures etc. of either ocean acidification or acid rain. 	Module 2 - Work Requirement 1 of 2 (Task 5) Physical and Chemical Sciences – Folio Mode/Format: Folio See the course document for more information.	Major	Yes	C1 C2 C5 C6	E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3

¹³ <https://teleskola.mt/impacts-of-energy-demand-acid-rain/>

Time / Module	Mapping to course content	Example learning activity	Assessment Task	Relative Weighting	Work Requirement	Criterion	Criterion Elements
Term 2 - Week 6 Module 2 - Physical and Chemical Sciences	Physical Sciences – Energy. Types of Energy. Explore the different forms of energy. Energy Transformations.	<ul style="list-style-type: none"> Examine the different types of energy using examples. Apply forms of energy to real life. Distinguish between potential and kinetic energy. Discussion: what is energy and the different types of energy. Learners brainstorm where they have seen energy being used or created. Task of matching up different form of energy or utilise Wizer Me's interactive energy types and transformations¹⁴ website. Activity: energy from a chemical reaction (vinegar and bicarbonate soda, and stopper a test tube). Identify sources of energy. Sketch scientific equipment. Activity: stations around the room with different set-ups of energy: light, sound, heat, electrical, kinetic etc. <ul style="list-style-type: none"> » learners name the energy type and sketch the set-up. Explain how energy is transferred Recognise energy can change from one form to another. Recognise the law of energy conservation. Apply examples of energy changes to real life. Discussion about how energy can change forms. Discussion of how energy is always conserved. Energy transformations task. Activity: "What is the Energy Change?" stations set up around the room. 	Module 2 - Work Requirement 1 of 2 (Task 6) Physical and Chemical Sciences – Folio Mode/Format: Folio See the course document for more information.	Major	Yes	C1 C2 C5 C6	E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3

¹⁴ <https://app.wizer.me/category/science/TE5ELR-energy-types-transformations>

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Term 2 - Week 7 Module 2 - Physical and Chemical Sciences	Physical Sciences - Energy The 2 nd Law. Energy at Work. Renewable Energy.	<ul style="list-style-type: none"> Investigate how different materials can lose energy during an energy change. Explore energy efficient lighting, appliances and insulations in homes. Discussion: Heat is lost during energy conversions. Label the energy lost on a diagram worksheet. Activity 1: examine different light globes and which produce the most heat. Activity 2: wrap cans in different types of insulation, fill with hot water and measure the rate of temp decrease - predict which will insulate the best. Identify machines that need energy to work and the energy sources they need. Predict consequences of this energy being unavailable. Group work: make a list of machines/appliances and the energy they need to run. Examine renewable and non-renewable: learners make a list of each. <ul style="list-style-type: none"> » watch a video explaining renewable energy¹⁵. Create a poster about one renewable energy source, or do “Energy in a Nut” activity to measure the temperature increase in water burning various nuts (use alternative food). Explore the ever-increasing need for clean energy. Apply knowledge of renewable energy sources to the real world-hydro power. Examine energy transformations. Field Trip to the Trevallyn Power Station or to an alternative site (or create a stream turbine in class). 	Module 2 - Work Requirement 1 of 2 (Task 7) Physical and Chemical Sciences – Folio Mode/Format: Folio See the course document for more information.	Major	Yes	C1 C2 C5 C6	E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3

¹⁵ <https://www.youtube.com/watch?v=KEeH4EniM3E>

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Term 2 - Week 8 Module 2 - Physical and Chemical Sciences	Physical Sciences - Sound and Light Energy. What is Sound? Different Sounds. Light Energy - What is Light?	<ul style="list-style-type: none"> Identify that sound is a form of energy. Explore how sound is created. Examine the structure of the human ear. Discussion on how our ear works to pick up vibrations in the air. Examine and label a diagram of the inside of the ear. Explore how sound is used - ultrasound, sonar, echo location, radar. Demonstration: show how air particles can be compressed using a can, balloon stretched over one opening and a lit candle. Demonstration: sound waves using an oscilloscope. Explore factors that vary the type of sound produced. Recognise that fact that sound needs air. Activity: stations set up around the room with different sound activities (e.g. tuning fork and water, etc.). Learners draw the apparatus and explain what is occurring at each. Demonstration: phone in a bell jar and remove air. Examine the properties of light. Record observations. Make predictions. Brainstorm: why light is important to us/what would happen if we had no light? Discussion about light energy and its properties. Discussion white light-spectrum. Activity: splitting light with ray boxes and prisms. 	Module 2 - Work Requirement 1 of 2 (Task 8) Physical and Chemical Sciences – Folio Mode/Format: Folio See the course document for more information.	Minor	Yes	C1 C2 C5 C6	E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3

Time / Module	Mapping to course content	Example learning activity	Assessment Task	Relative Weighting	Work Requirement	Criterion	Criterion Elements
Term 2 - Week 9 Module 2 - Physical and Chemical Sciences	Physical Sciences - Refraction and Reflection. Forces, Energy and Motion - What is Force? Gravitational Force.	<ul style="list-style-type: none"> Examine how light is reflected and refracted. Explore issues related to light being refracted. Record observations. Explore how the lens in our eyes works. Discussion - what happens when light hits water, windows, etc. Demonstration: can light bend? (use a laser and clear plastic tubing with water to demonstrate light bending). Activity: reflection and refraction of light - record observations, draw and label set-up. Eye diagram – difference between being long and short sighted and how this is corrected with glasses/contacts. Identify that forces act on us and everything around us. Explore different types of forces. Examine what happens when things are subjected to different forces. Brainstorm where you have felt or seen forces at work. <ul style="list-style-type: none"> » watch a video explaining what a force is¹⁶ Discussion of forces - examples of push, pull and twist forces/contact non-contact forces. Complete worksheet to identify “push” or “pull” forces. Activity: stations set up with different activities for learners to try out using forces. learners to predict what will happen and draw the set up. Recognise that gravity is a force that affects all things on earth and tides. Explore what happens without gravity. Discussion: what is gravity / how it affects us on earth. Activity: observe what happens when balls of the same size but different mass are dropped from a height 	Module 2 - Work Requirement 1 of 2 (Task 9) Physical and Chemical Sciences – Folio Mode/Format: Folio See the course document for more information.	Minor	Yes	C1 C2 C5 C6	E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3

¹⁶ <https://www.youtube.com/watch?v=uoKo3DbfYZk>

Time / Module	Mapping to course content	Example learning activity	Assessment Task	Relative Weighting	Work Requirement	Criterion	Criterion Elements
Term 2 - Week 10 Module 2 - Physical and Chemical Sciences	Physical Sciences. Friction and Motion. Magnetism. Mechanical Force.	<ul style="list-style-type: none"> Recognise what motion is. Explore how different surfaces will impact the speed of an object. Predict the surface with least friction. Make observations and measurements. Discuss how motion occurs due to a force applied to it. Activity: explore motion on different surfaces. Recognise that magnetic force repels or attracts. Explore how magnetic force works. Recognise the earth has a strong magnetic force. Discussion - what is magnetic force? Applications of magnets in our lives. Earth's magnetic field - and its importance. Task: magnets. Activity: observe the magnetic field of a magnet. Investigate forces acting when machines are used. Examine how machines have made life more efficient. Discussion: different simple machines are used every day (e.g. scissors, staplers, pliers, spoons, pulleys, ramps, levers). How these all make our life easier and do the work for us. Activity: identify and draw 5 machines set up in classroom. 	<p>Module 2 - Work Requirement 2 of 2</p> <p>Physical and Chemical Sciences – Presentation</p> <p>Mode/Format: Performance</p> <p>See the course document for more information.</p>	Major	Yes	C1 C2 C5 C6	E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3

Time / Module	Mapping to course content	Example learning activity	Assessment Task	Relative Weighting	Work Requirement	Criterion	Criterion Elements
Term 3 - Week 1 Module 3 – Scientific Inquiry	Planning an Inquiry. Writing a Hypothesis. Variables - Independent and Dependent Variables. Report Writing.	<ul style="list-style-type: none"> Examine the process of scientific method. Identify that we ask questions, then make predictions. Examine cause and effect. Examine what makes a good hypothesis. Practice writing hypotheses. Discussion on scientific method. Watch Study.com's video on writing a hypothesis¹⁷. Worksheet: arrange the steps of the scientific method into their correct order. Hypothesis practice worksheet. Explore the meaning of independent and dependent. Understand why a control is needed. Learners learn different ways to observe, measure and record data. Discuss why we need to create fair experiments. Learners list the factors in a basic experiment example that need to be kept constant. Discuss why we need a control. Discuss factors we cannot control. Discussion of various ways of making observations or measuring and recording results. 	Module 3 - Work Requirement 1 of 2 (Task 1) Science Inquiry – Folio Mode/Format: Folio See the course document for more information.	Minor	Yes	C1 C2 C7 C8	E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3

¹⁷ <https://study.com/academy/lesson/how-to-write-a-hypothesis-lesson-for-kids.html#lesson>

Time / Module	Mapping to course content	Example learning activity	Assessment Task	Relative Weighting	Work Requirement	Criterion	Criterion Elements
Term 3 - Week 2 to Week 5 Module 3 – Scientific Inquiry	<p>Biological, Earth and Space Sciences:</p> <p>Learners develop a folio of work related to their particular project. Written notes, diagrams or photos during the development/planning stage and throughout the project should be recorded and saved in a document. This can be electronic or in a journal or both.</p> <p>Observations and results should be documented, photographed or videoed to be used as evidence of assessment.</p> <p>How learners present their projects will be as suited to each learner or group, but a 3.5 to 4-minute dialogue about the project and findings needs to be presented to the teacher. Learners need to be able to answer questions about their project-if in a group, all learners need to take a turn in answering.</p> <p>Possible Scientific Inquiry Topics:</p> <p>Assessment of Learner’s projects-ongoing throughout the term.</p>	<ul style="list-style-type: none"> • Explore ways to communicate scientific knowledge. • Adapt to changes and solve problems. • Make predictions. • Work collaboratively in a group. • Evaluate results and draw conclusions. • Reflect on observations and results and suggest improvements. • Apply theories and models to real life. • Explore examples of technology used in science. • Explore and describes uses of technology in the local community. • Explain how technology has been used to improve our lives. <p>Learners to pick 1 (or 2 smaller related) projects:</p> <ul style="list-style-type: none"> • Create a terrarium or aquaponic set-up - best plants to use. • Design an experiment that looks at factors that impact plant growth (e.g. soil type, water, fertilizer, temp, light). • Investigate which agricultural grasses germinate with the least amount of water. • Explore what natural substances can be used as dyes. • Design a system to record rate of decomposition of different materials-paper, cardboard, compostable garbage bags etc. • Observe transpiration in different plants-factors that can affect the rate. • Local ecosystem analysis: coliform counts before and after rainfall. • Pollution survey and other human impacts, species surveys-create a food web, geological survey-rock and soil types, measure tide heights over a 2-week period-does rainfall increase height? 	<p>Module 3 - Work Requirement 1 of 2 (Task 2)</p> <p>Science Inquiry – Folio</p> <p>Mode/Format: Folio</p> <p>See the course document for more information.</p>	Major	Yes	C1 C2 C7 C8	E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3

Time / Module	Mapping to course content	Example learning activity	Assessment Task	Relative Weighting	Work Requirement	Criterion	Criterion Elements
		<ul style="list-style-type: none"> • Research floods in Launceston over the past 100 years and how technology has helped alleviate this problem. • Create a model of the earth showing its internal structure. • Create a 'working' model volcano showing internal structures. • Build a model solar system- with sun/planets correct proportions and distances. • Investigate which common household substances are best at controlling weeds (salt solution, vinegar, hot water). 					
Term 3 - Week 6 to Week 10 Module 3 – Scientific Inquiry	Physical and Chemical Sciences. Possible Scientific Inquiry Topics: <ul style="list-style-type: none"> • Learners to pick 1 (or 2 smaller) projects that are in some way related to their first project or projects. 	Assessment of learners projects – ongoing throughout the term: <ul style="list-style-type: none"> • Explore ways to communicate scientific knowledge. • Adapt to changes and solve problems. • Make predictions. • Work collaboratively in a group. • Evaluate results and draw conclusions. • Reflect on observations and results and suggest improvements • Apply theories and models to real life • Explore examples of technology used in science • Explore and describes uses of technology in the local community • Explain how technology has been used to improve our lives. • “ocean acidification”/“acid rain” investigations on shells/plants/different metals • Test which rocks dissolve the fastest in different acidic solutions • Explore renewable energy sources- design a water wheel/solar powered 'car'/wind turbine • Build a “machine” to show a change in energy (e.g. elastic band car, water, wheel, wind turbine, catapult) • Explore uses of black light in forensics 	Module 3 - Work Requirement 1 of 2 (Task 3) Science Inquiry – Folio Mode/Format: Folio See the course document for more information.	Minor	Yes	C1 C2 C7 C8	E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3

Time / Module	Mapping to course content	Example learning activity	Assessment Task	Relative Weighting	Work Requirement	Criterion	Criterion Elements
		<ul style="list-style-type: none"> • Make a pinhole camera. • Record the energy usage in your house for a week. • Investigate the most energy efficient appliances for your home. • Design a solar still to collect clean water. • Investigate which metals rust the fastest in a variety of solutions. • Explore the ph of different household products and the impact these have on plant growth. • Research how to make bath bombs/soap/cosmetics - (lip gloss). • Test what concentration of salt is needed to stop water from freezing. 					
Term 4 - Week 1 Module 3 – Scientific Inquiry	Scientific inquiry folio.	<ul style="list-style-type: none"> • Finalisation of inquiries. • Selecting examples from their folio and organising to demonstrate their inquiries. 	Module 3 - Work Requirement 1 of 2 (Task 4) Science Inquiry – Folio Mode/Format: Folio See the course document for more information.	Minor	Yes	C1 C2 C7 C8	E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3
Term 4 - Week 2 Module 3 – Scientific Inquiry	Scientific inquiry folio.	<ul style="list-style-type: none"> • Selecting examples from their folio and organising to demonstrate their inquiries. 	Module 3 - Work Requirement 1 of 2 (Task 5) Science Inquiry – Folio Mode/Format: Folio See the course document for more information.	Major	Yes	C1 C2 C7 C8	E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3
Term 4 - Week 3 Module 3 – Scientific Inquiry	Scientific Inquiry Presentation.	<ul style="list-style-type: none"> • Scientific inquiry presentation • Preparation of multimodal presentations 	Module 3 - Work Requirement 2 of 2 (Task 1) Science Inquiry – Presentation Mode/Format: Performance See the course document for more information.	Major	Yes	C1 C2 C7 C8	E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3
Term 4 - Week 4 Module 3 – Scientific Inquiry	Scientific Inquiry Presentation.	<ul style="list-style-type: none"> • Delivery of multimodal presentations. 	Module 3 - Work Requirement 2 of 2 (Task 2) Science Inquiry – Presentation	Major	Yes	C1 C2 C7	E1, E2, E3, E4

Time / Module	Mapping to course content	Example learning activity	Assessment Task	Relative Weighting	Work Requirement	Criterion	Criterion Elements
			Mode/Format: Performance See the course document for more information.			C8	E1, E2, E3, E4 E1, E2, E3, E4 E1, E2, E3

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