

AC v8.4 EP Curriculum Map

Y5-10 Science



Year 5

Introduction to Science

Content Descriptor	EP Lessons	
<p><i>Note: this folder contains resources designed to support teachers in introducing students to the world of Science. There are no specific content descriptors that relate to this content.</i></p>	<ul style="list-style-type: none">• What is Science?• Careers In Science• Safety Guidelines and Hazards• Science Equipment• The Bunsen Burner• Measuring and Reading Scales• Interpreting Diagrams• Scientific Method• Variables• Fair Tests• Repeatability, Reliability and Accuracy• Making Results Tables• Constructing Graphs• Interpreting Graphs• Evaluating in Science	<p><i>Practical Investigation: Heating Water</i></p> <ul style="list-style-type: none">• Pre-Lab Heating Water• Post-Lab Heating Water• Risk Assessment (in RiskAssess)• Student Worksheet PDF• Teacher Guide PDF• Laboratory Technician Guide PDF• Editable Documents - Word (.docx)

Biological Sciences

Content Descriptor	EP Lessons in 2. Adaptations	
<p>Living things have structural features and adaptations that help them to survive in their environment</p> <ul style="list-style-type: none">investigating Aboriginal and Torres Strait Islander Peoples' knowledge of the adaptations of certain species and how those adaptations can be exploitedexplaining how particular adaptations help survival such as nocturnal behaviour, silvery coloured leaves of dune plantsdescribing and listing adaptations of living things suited for particular Australian environmentsexploring general adaptations for particular environments such as adaptations that aid water conservation in deserts	<p><i>1. Adaptations for Survival</i></p> <ul style="list-style-type: none">Introduction to AdaptationsAdaptations in Shape or FormAdaptations Inside the BodyAdaptations in BehaviourNocturnal ActivityDune PlantsCamouflageCharacteristics and Adaptations of Living Things that Fly <p><i>2. Adaptations to Environments</i></p> <ul style="list-style-type: none">EnvironmentsRock Pool EnvironmentsLife in a Rock PoolDesert EnvironmentsLife in the DesertPolar EnvironmentsLife at the Poles	<p>Activity: Blubber Gloves</p> <ul style="list-style-type: none">Blubber Gloves!Student WorksheetTeacher Guide <p><i>3. Glossary</i></p> <ul style="list-style-type: none">Definitions List: AdaptationsDefinitions MCO: AdaptationsSpelling List: Adaptations <p><i>4. Topic Test</i></p> <ul style="list-style-type: none">Topic Test: Adaptations

Chemical Sciences

Content Descriptor	EP Lessons in 3. States of Matter	
<p>Solids, liquids and gases have different observable properties and behave in different ways</p> <ul style="list-style-type: none"> recognising Aboriginal and Torres Strait Islander Peoples' knowledge and understanding of evaporation and how the effect of evaporation can be reduced to conserve water, such as by covering surfaces (OI.2, OI.5) recognising Aboriginal and Torres Strait Islander People's knowledge and understanding of solids, liquids and gases (OI.5) recognising that substances exist in different states depending on the temperature observing that gases have mass and take up space, demonstrated by using balloons or bubbles exploring the way solids, liquids and gases change under different situations such as heating and cooling recognising that not all substances can be easily classified on the basis of their observable properties 	<p><i>1. States of Matter</i></p> <ul style="list-style-type: none"> Introduction to Matter Solids Liquids Gases Gases have Masses? Comparing States of Water Secretive Substances Extreme Conditions <p><i>2. Changing States of Matter</i></p> <ul style="list-style-type: none"> Temperature and States of Matter Melting Freezing Boiling and Evaporation Condensation Sublimation Deposition 	<p>Activity: Cloud in a Jar</p> <ul style="list-style-type: none"> Cloud in a Jar Student Worksheet Teacher Guide <p><i>3. Glossary</i></p> <ul style="list-style-type: none"> Definitions List: States of Matter Definitions MCQ: States of Matter Spelling List: States of Matter <p><i>4. Topic Test</i></p> <ul style="list-style-type: none"> Topic Test: States of Matter

Earth and Space Sciences

Content Descriptor	EP Lessons in 4. The Solar System	
<p>The Earth is part of a system of planets orbiting around a star (the sun)</p> <ul style="list-style-type: none"> researching Aboriginal and Torres Strait Islander Peoples' understanding of the night sky and its use for timekeeping purposes as evidenced in oral cultural records, petroglyphs, paintings and stone arrangements (OI.3, OI.5) identifying the planets of the solar system and comparing how long they take to orbit the sun modelling the relative size of and distance between Earth, other planets in the solar system and the sun recognising the role of the sun as a provider of energy for the Earth 	<p><i>1. The Solar System</i></p> <ul style="list-style-type: none"> Planet Earth Introduction to the Solar System The Sun Years Days The Inner Planets The Outer Planets Sizes in Space Distances in Space 	<p>Activity: A Fruity Solar System</p> <ul style="list-style-type: none"> A Fruity Solar System Student Worksheet Teacher Guide <p><i>2. Glossary</i></p> <ul style="list-style-type: none"> Definitions List: The Solar System Definitions MCQ: The Solar System Spelling List: The Solar System <p><i>3. Topic Test</i></p> <ul style="list-style-type: none"> Topic Test: The Solar System

Physical Sciences

Content Descriptor	EP Lessons in 5. Light
<p>Light from a source forms shadows and can be absorbed, reflected and refracted</p> <ul style="list-style-type: none">recognising Aboriginal and Torres Strait Islander Peoples' understanding of refraction as experienced in spear fishing and in shimmering body paint, and of absorption and reflection as evidenced by material selected for construction of housing (OI.3, OI.5)drawing simple labelled ray diagrams to show the paths of light from a source to our eyescomparing shadows from point and extended light sources such as torches and fluorescent tubesclassifying materials as transparent, opaque or translucent based on whether light passes through them or is absorbedrecognising that the colour of an object depends on the properties of the object and the colour of the light sourceexploring the use of mirrors to demonstrate the reflection of lightrecognising the refraction of light at the surfaces of different transparent materials, such as when light travels from air to water or air to glass	<p>1. The Path of Light</p> <ul style="list-style-type: none">LightHow Do We See?The Movement of LightThe Speed of LightRay DiagramsShadowsComparing Shadows <p>2. Interaction with Light</p> <ul style="list-style-type: none">Types of ObjectsThe Colour of LightAbsorptionMirrorsRefractionExtension: Refraction and Ray Diagrams <p>3. Glossary</p> <ul style="list-style-type: none">Definitions List: LightDefinitions MCQ: LightSpelling List: Light <p>4. Topic Test</p> <ul style="list-style-type: none">Topic Test: Light

Biological Sciences

Content Descriptor	EP Lessons in 1. Living Things and their Environment	
<p>The growth and survival of living things are affected by physical conditions of their environment</p> <ul style="list-style-type: none">investigating Aboriginal and Torres Strait Islander Peoples' knowledge and understanding of the physical conditions necessary for the survival of certain plants and animals in the environment (O1.2, O1.3)investigating how changing the physical conditions for plants impacts on their growth and survival such as salt water, use of fertilisers and soil typesobserving the growth of fungi such as yeast and bread mould in different conditionsresearching organisms that live in extreme environments such as Antarctica or a desertconsidering the effects of physical conditions causing migration and hibernation	<p><i>1. The Environment</i></p> <ul style="list-style-type: none">Living and Non-Living ThingsMRS GRENEnvironmentsExtreme Environments <p><i>2. Living Things and their Environments</i></p> <ul style="list-style-type: none">Non-Living Factors Affecting PlantsLiving Factors Affecting PlantsNon-living Factors Affecting FungiLiving Factors Affecting FungiNon-Living Factors Affecting AnimalsLiving Factors Affecting AnimalsExtreme Environments: The Scorching DesertsExtreme Environments: The Deep Dark SeaExtreme Environments: The Freezing PolesMigrationHibernation <p>Activity: Growing Mould</p> <ul style="list-style-type: none">Growing Mould!Student WorksheetTeacher Guide	<p><i>3. Glossary</i></p> <ul style="list-style-type: none">Definitions List: Living Things and their EnvironmentDefinitions MCQ: Living Things and their EnvironmentSpelling List: Living Things and their Environment <p><i>4. Topic Test</i></p> <ul style="list-style-type: none">Topic Test: Living Things and Their Environment

Chemical Sciences

Content Descriptor	EP Lessons in 2. Chemical Changes	
<p>Changes to materials can be reversible or irreversible</p> <ul style="list-style-type: none">investigating Aboriginal and Torres Strait Islander Peoples' knowledge of reversible processes, such as the application of adhesives, and of irreversible processes, such as the use of fuels for torches (OI.5)describing what happens when materials are mixedinvestigating the solubility of common materials in waterinvestigating the change in state caused by heating and cooling of a familiar substanceinvestigating irreversible changes such as rusting, burning and cookingexploring how reversible changes can be used to recycle materialsinvestigate reversible changes such as melting, freezing and evaporating	<p><i>1. Materials and Mixtures</i></p> <ul style="list-style-type: none">Pure and Impure SubstancesMixturesSolubilitySolvents and Solutes <p>Activity: Growing Sugar Crystals</p> <ul style="list-style-type: none">Growing Sugar CrystalsStudent WorksheetTeacher Guide <p><i>2. Changes in State</i></p> <ul style="list-style-type: none">States of MatterChanging States Through HeatingChanging States Through Cooling <p><i>3. Irreversible and Reversible Reactions</i></p> <ul style="list-style-type: none">Physical Changes and Reversible ReactionsIrreversible ReactionsRustingCooking and BurningRecycling MetalRecycling PlasticRecycling GlassRefrigeratorsMelting Polar Ice	<p><i>4. Glossary</i></p> <ul style="list-style-type: none">Definitions List: Chemical ChangesDefinitions MCO: Chemical ChangesSpelling List: Chemical Changes <p><i>5. Topic Test</i></p> <ul style="list-style-type: none">Topic Test: Chemical Changes

Earth and Space Sciences

Content Descriptor	EP Lessons in 3. Extreme Natural Events	
<p>Sudden geological changes and extreme weather events can affect Earth's surface</p> <ul style="list-style-type: none">researching Aboriginal and Torres Strait Islander peoples' cultural stories that provide evidence of geological events (OI.3)investigating major geological events such as earthquakes, volcanic eruptions and tsunamis in Australia, the Asia region and throughout the worldrecognising that earthquakes can cause tsunamisdescribing how people measure significant geological eventsexploring ways that scientific understanding can assist in natural disaster management to minimise both long- and short-term effectsconsidering the effect of drought on living and non-living aspects of the environment	<p>1. <i>Introduction To Earth</i></p> <ul style="list-style-type: none">Layers of the EarthThe AtmosphereThe Geosphere <p>2. <i>Drought</i></p> <ul style="list-style-type: none">Weather in the OutbackEffects of DroughtCoping with Drought <p>3. <i>Cyclones and Floods</i></p> <ul style="list-style-type: none">Tropical CyclonesThe Effects of CyclonesCyclone Winston 2016The Queensland Floods of 2011 <p>4. <i>Earthquakes</i></p> <ul style="list-style-type: none">EarthquakesEarthquake HazardsMeasuring EarthquakesTsunamis <p>5. <i>Volcanoes</i></p> <ul style="list-style-type: none">Volcanic EruptionsLiving with VolcanoesSTEM: Disaster Recovery Robots	<p>6. <i>Glossary</i></p> <ul style="list-style-type: none">Definitions List: Extreme Natural EventsDefinitions MCO: Extreme Natural EventsSpelling List: Extreme Natural Events <p>7. <i>Topic Test</i></p> <ul style="list-style-type: none">Topic Test: Extreme Natural Events

Physical Sciences

Content Descriptor	EP Lessons in 4. Electricity	
<p>Electrical energy can be transferred and transformed in electrical circuits and can be generated from a range of sources</p> <ul style="list-style-type: none">recognising the need for a complete circuit to allow the flow of electricityinvestigating different electrical conductors and insulatorsexploring the features of electrical devices such as switches and light globesinvestigating how moving air and water can turn turbines to generate electricityinvestigating the use of solar panelsconsidering whether an energy source is sustainable	<p><i>1. Energy</i></p> <ul style="list-style-type: none">EnergyTypes of EnergyEnergy Conservation <p><i>2. Circuits</i></p> <ul style="list-style-type: none">What is Electricity?Where Electricity Comes FromCircuitryOpen and Closed CircuitsCircuit DiagramsConductorsInsulators <p><i>3. Electrical Generation</i></p> <ul style="list-style-type: none">Wind as a ResourceWind TurbinesSolar EnergyWater PowerRenewable Energy	<p><i>4. Glossary</i></p> <ul style="list-style-type: none">Definitions List: ElectricityDefinitions MCO: ElectricitySpelling List: Electricity <p><i>5. Topic Test</i></p> <ul style="list-style-type: none">Topic Test: Electricity

Biological Sciences

Content Descriptor	EP Lessons in 2. Classification	
<p>Classification helps organise the diverse group of organisms</p> <ul style="list-style-type: none"> investigating classification systems used by Aboriginal and Torres Strait Islander Peoples and how they differ with respect to approach and purpose from those used by contemporary science (OI.3, OI.5) considering the reasons for classifying such as identification and communication grouping a variety of organisms on the basis of similarities and differences in particular features considering how biological classifications have changed over time classifying using hierarchical systems such as kingdom, phylum, class, order, family, genus, species using scientific conventions for naming species using provided keys to identify organisms surveyed in a local habitat 	<p>1. What is Classification?</p> <ul style="list-style-type: none"> Introduction to Classification Classification of Life <p>Classifying Leaves</p> <ul style="list-style-type: none"> Classifying Leaves Risk Assessment (in RiskAssess) Student Worksheet PDF Teacher Guide PDF Laboratory Technician Guide PDF Editable Documents - Word (.docx) <p>2. Living or Non-Living?</p> <ul style="list-style-type: none"> Living or Non-Living? MRS GREN <p>3. Dichotomous Keys</p> <ul style="list-style-type: none"> Introduction to Dichotomous Keys Branching Keys Guess Who: Animal Edition Tabular Keys Circular Keys <p>Lab Activity: Building Dichotomous Keys</p> <ul style="list-style-type: none"> Building Dichotomous Keys Risk Assessment (in RiskAssess) Student Worksheet PDF Teacher Guide PDF Laboratory Technician Guide PDF Editable Documents - Word (.docx) <p>Lab Activity: Using Dichotomous Keys</p> <ul style="list-style-type: none"> Using Dichotomous Keys Student Worksheet PDF Teacher Guide PDF Editable Documents - Word (.docx) 	<p>4. Linnaean Classification</p> <ul style="list-style-type: none"> Linnaean Classification Binomial Nomenclature Species and Hybrids Carl Linnaeus <p>5. Examples of Classification</p> <ul style="list-style-type: none"> Animal Phyla Dragons in the Deep Identifying Species Introduction to Plant Classification STEM - Kangaroo Counter Tardigrades in Parking Lots The Platypus Vertebrates <p>Researching Phyla</p> <ul style="list-style-type: none"> Researching Phyla Risk Assessment (in RiskAssess) Student Worksheet PDF Teacher Guide PDF Editable Documents - Word (.docx) <p>6. Glossary</p> <ul style="list-style-type: none"> Definitions List: Classification Definitions MCO: Classification Spelling List: Classification <p>7. Topic Tests</p> <ul style="list-style-type: none"> Classification and Using Keys Linnaean Classification Topic Test: Classification and Using Keys Topic Test: Linnaean Classification

Content Descriptor	EP Lessons in 3. Interactions in Ecosystems	
<p>Interactions between organisms, including the effects of human activities can be represented by food chains and food webs</p> <ul style="list-style-type: none"> investigating Aboriginal and Torres Strait Islander Peoples' responses to the disruptive interactions of invasive species and their effect on important food webs that many communities are a part of, and depend on, for produce and medicine (OI.2, OI.5, OI.6) using food chains to show feeding relationships in a habitat constructing and interpreting food webs to show relationships between organisms in an environment classifying organisms of an environment according to their position in a food chain recognising the role of microorganisms within food chains and food webs investigating the effect of human activity on local habitats, such as deforestation, agriculture or the introduction of new species exploring how living things can cause changes to their environment and impact other living things, such as the effect of cane toads researching specific examples of human activity, such as the effects of palm oil production in Sumatra and Borneo 	<p>1. Ecosystems</p> <ul style="list-style-type: none"> Ecology Species vs Organism Ecosystems Biotic and Abiotic Factors Interdependent Relationships Comprehension: Sustainable Bush Tucker Extension: Ecosystem Conservation <p>Lab Activity: Collecting Invertebrates in Quadrats</p> <ul style="list-style-type: none"> Collecting Invertebrates in Quadrats Risk Assessment (in RiskAssess) Student Worksheet PDF Lab Report Material PDF Teacher Guide PDF Laboratory Technician Guide PDF Editable Documents - Word (.docx) <p>Lab Activity: Measuring Abiotic Factors in Water</p> <ul style="list-style-type: none"> Measuring Abiotic Factors in Water Risk Assessment (in RiskAssess) Student Worksheet PDF Lab Report Material PDF Teacher Guide PDF Laboratory Technician Guide PDF Editable Documents - Word (.docx) <p>2. Food Chains and Food Webs</p> <ul style="list-style-type: none"> Food Chains Food Webs Decomposers Consumers Predators, Prey and Competition Predator-Prey Dynamics <p>Lab Activity: Build a Food Web</p> <ul style="list-style-type: none"> Build a Food Web Student Worksheet PDF Teacher Guide PDF Laboratory Technician Guide PDF Editable Documents - Word (.docx) 	<p>3. Changes in the Environment</p> <ul style="list-style-type: none"> Deforestation Introduced Species Cane Toads as an Introduced Species An Agricultural Affair Harnessing Fire in Australia Oil Pollution and Industrial Waste Pesticides The Palm Oil Predicament <p>Lab Activity: Growing Plants under Different Conditions</p> <ul style="list-style-type: none"> Growing Plants under Different Conditions Risk Assessment (in RiskAssess) Student Worksheet PDF Laboratory Technician Guide PDF Teacher Guide PDF Editable Documents - Word (.docx) <p>4. Organisms in Ecosystems</p> <ul style="list-style-type: none"> Adaptations Antarctica Diurnal vs Nocturnal Saving the Tasmanian Devil <p>5. Human Impacts on Ecosystems</p> <ul style="list-style-type: none"> Australian Bushfires Climate Change Introduced and Invasive Species Invasive Species in Australia What is Pollution? Pollution and Ecosystems Data Interpretation: Marine Ecosystems and Overfishing <p><i>Resources continue over the page</i></p>

	<ul style="list-style-type: none"> • Extension: Scientific Methods of Conservation • Extension: Species Conservation in Australia • Extension: Water Pollution and Solutions • STEM: A Green Utopia • STEM: Alternate Fuels • STEM: Vertical Garden 	<p>6. <i>Glossary</i></p> <ul style="list-style-type: none"> • Definitions List: Interactions in Ecosystems • Definitions MCQ: Interactions in Ecosystems • Spelling List: Interactions in Ecosystems <p>7. <i>Topic Test</i></p> <ul style="list-style-type: none"> • Biotic and Abiotic Factors • Topic Test: Biotic and Abiotic Factors
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Chemical Sciences

Content Descriptor	EP Lessons in 4. Mixtures	
<p>Mixtures, including solutions, contain a combination of pure substances that can be separated using a range of techniques</p> <ul style="list-style-type: none"> • investigating separation techniques used by Aboriginal and Torres Strait Islander Peoples, such as hand picking, sieving, winnowing, yandying, filtering, cold-pressing and steam distilling (OI.5) • recognising the differences between pure substances and mixtures and identifying examples of each • identifying the solvent and solute in solutions • investigating and using a range of physical separation techniques such as filtration, decantation, evaporation, crystallisation, chromatography and distillation • exploring and comparing separation methods used in the home 	<p>1. <i>Mixtures and Substances</i></p> <ul style="list-style-type: none"> • Introduction to Mixtures • Pure Substances and Mixtures • Focus on Data: Graphs and Tables of Mixtures <p>2. <i>Solutions</i></p> <ul style="list-style-type: none"> • Solute and Solvent • Concentration • Focus on Data: Saturation and Line Graphs <p>Lab Activity: Temperature and Dissolving</p> <ul style="list-style-type: none"> • Temperature and Dissolving • Risk Assessment (in RiskAssess) • Student Worksheet PDF • Lab Report Material PDF • Teacher Guide PDF • Laboratory Technician Guide PDF • Editable Documents - Word (.docx) <p>3. <i>Suspensions</i></p> <ul style="list-style-type: none"> • Suspensions • Colloids • Emulsions 	<p>4. <i>Separating Mixtures</i></p> <ul style="list-style-type: none"> • Introduction to Separation • Filtration • Evaporation • Distillation • Centrifuging • Extension: Adsorption • Extension: Chromatography • Extension: Crystallisation • Extension: Magnetic and Electrostatic Separation <p>5. <i>Separation Investigations</i></p> <ul style="list-style-type: none"> • Open-Ended Separation Investigation <p>Lab Activity: Candy Crystals</p> <ul style="list-style-type: none"> • Pre Lab: Candy Crystals • Post Lab: Candy Crystals • Risk Assessment (in RiskAssess) • Student Worksheet PDF • Teacher Guide PDF • Laboratory Technician Guide PDF • Editable Documents - Word (.docx) <p><i>Resources continue over the page</i></p>

Lab Activity: Chromatography: Separating Colours

- [Chromatography: Separating Colours](#)
- [Post Lab: Chromatography: Separating Colours](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

Lab Activity: Filtration

- [1a. Pre Lab: Filtration](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Post Lab: Filtration](#)
- [Student Worksheet PDF](#)
- [Lab Report Material PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

Lab Activity: Making a Solar Still

- [Making a Solar Still](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

Lab Activity: Separating a Basic Mixture

- [Separating a Basic Mixture](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Lab Report Material PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

6. *Mixtures Around Us*

- [Blood as a Mixture](#)
- [Separation In Food](#)
- [Separation in Industries](#)
- [Indigenous Art using Mixtures](#)
- [Water Treatment](#)
- [Recycling Sewage](#)
- [STEM Activity: The Zombie Apocalypse Water Shortage](#)

7. *Glossary*

- [Definitions List: Mixtures](#)
- [Definitions MCQ: Mixtures](#)
- [Spelling List: Mixtures](#)

8. *Topic Tests*

- [Topic Test: Identifying Mixtures](#)
- [Topic Test: Separating Mixtures](#)

Earth and Space Sciences

Content Descriptor	EP Lessons in 5. Earth, Moon and Sun	
<p>Predictable phenomena on Earth, including seasons and eclipses, are caused by the relative positions of the sun, Earth and the moon</p> <ul style="list-style-type: none">researching knowledges held by Aboriginal and Torres Strait Islander Peoples regarding the phases of the moon and the connection between the lunar cycle and ocean tides (OI.3, OI.5)researching Aboriginal and Torres Strait Islander Peoples' oral traditions and cultural recordings of solar and lunar eclipses and investigating similarities and differences with contemporary understandings of such phenomena (OI.3, OI.9)Investigating Aboriginal and Torres Strait Islander Peoples' calendars and how they are used to predict seasonal changes (OI.3, OI.5)investigating natural phenomena such as lunar and solar eclipses, seasons and phases of the mooncomparing times for the rotation of Earth, the sun and moon, and comparing the times for the orbits of Earth and the moonmodelling the relative movements of the Earth, sun and moon and how natural phenomena such as solar and lunar eclipses and phases of the moon occurexplaining why different regions of the Earth experience different seasonal conditions	<p>1. The Universe</p> <ul style="list-style-type: none">The UniverseGravity and OrbitsAsteroids and MeteoroidsCometsComprehension: Why Doesn't Earth Have Rings?Extension: Planetary Motion <p>2. The Sun</p> <ul style="list-style-type: none">Planet EarthEarth, Moon and SunDay and NightSeasonsTime Zones <p>Lab Activity: Seasons and the Angle of the Sun</p> <ul style="list-style-type: none">Seasons and the Angle of the SunRisk Assessment (in RiskAssess)Student Worksheet PDFTeacher Guide PDFLaboratory Technician Guide PDFEditable Documents - Word (.docx) <p>3. Moon and Eclipses</p> <ul style="list-style-type: none">Phases of the MoonTidesLunar EclipseSolar EclipseFocus on Data: Tides and the Moon <p>Lab Activity: Modelling The Earth, Moon and Sun</p> <ul style="list-style-type: none">Modelling The Earth, Moon and SunRisk Assessment (in RiskAssess)Student Worksheet PDFTeacher Guide PDFLaboratory Technician Guide PDFEditable Documents - Word (.docx)	<p>4. Astronomy</p> <ul style="list-style-type: none">TelescopesIndigenous ConstellationsModels of the Solar SystemChanging SeasonsCalendars and the Solar YearExploring SpaceExploring the Moon, Mars and BeyondSatellitesPluto - The Big Little Planet <p>Lab Activity: Making a Sundial</p> <ul style="list-style-type: none">Making a SundialRisk Assessment (in RiskAssess)Student Worksheet PDFTeacher Guide PDFLaboratory Technician Guide PDFEditable Documents - Word (.docx) <p>Lab Activity: Pinhole Camera</p> <p>1. Making a Pinhole Camera</p> <ul style="list-style-type: none">Making a Pinhole CameraRisk Assessment (in RiskAssess)Student Worksheet PDFTeacher Guide PDFLaboratory Technician Guide PDFEditable Documents - Word (.docx) <p>2. Using a Pinhole Camera</p> <ul style="list-style-type: none">Using a Pinhole Camera to Calculate Diameter of the SunRisk Assessment (in RiskAssess)Student Worksheet PDFTeacher Guide PDFLaboratory Technician Guide PDFEditable Documents - Word (.docx) <p><i>Resources continue over the page</i></p>

	<p>5. <i>Glossary</i></p> <ul style="list-style-type: none"> • Definitions List: Earth, Moon and Sun • Definitions MCQ: Earth, Moon and Sun • Spelling List: Earth, Moon and Sun 	<p>6. <i>Topic Test</i></p> <ul style="list-style-type: none"> • Topic Test: Days, Seasons and Time
<p>Content Descriptor</p> <p>Some of Earth’s resources are renewable, including water that cycles through the environment, but others are non-renewable</p> <ul style="list-style-type: none"> • exploring Aboriginal and Torres Strait Islander Peoples’ connections with, and valuing of, water and water resource management (OI.2, OI.3) • considering what is meant by the term ‘renewable’ in relation to the Earth’s resources • considering timescales for regeneration of resources • comparing renewable and non-renewable energy sources, including how they are used in a range of situations • considering the water cycle in terms of changes of state of water • investigating factors that influence the water cycle in nature • exploring how human management of water impacts on the water cycle 	<p>EP Lessons in 6. Earth’s Resources & the Water Cycle</p> <p>1. <i>Introduction to Earth’s Resources</i></p> <ul style="list-style-type: none"> • Introduction to Earth’s Resources • Renewable and Non-Renewable Energy Sources <p>2. <i>Non-Renewable Resources</i></p> <ul style="list-style-type: none"> • Fossil Fuels as a Resource • Soil as a Resource • Minerals and Ores as Resources • Mining • Nuclear Fuel as a Resource • Investigation: Coal vs. Solar for Australia’s Future <p>3. <i>Renewable Resources</i></p> <ul style="list-style-type: none"> • Living Things as a Resource • Air as a Resource • Wind as a Resource • Wind Turbines • Solar Energy • Water Power • Geothermal Energy • Comprehension: The Power of Sunshine • Focus on Data: Choosing Renewables <p>Lab Activity: Solar Oven</p> <ul style="list-style-type: none"> • Solar Oven • Risk Assessment (in RiskAssess) • Student Worksheet PDF • Lab Report Material PDF • Teacher Guide PDF • Laboratory Technician Guide PDF • Editable Documents - Word (.docx) 	<p>Lab Activity: Turbine Power</p> <ul style="list-style-type: none"> • Turbine Power • Risk Assessment (in RiskAssess) • Student Worksheet PDF • Lab Report Material PDF • Teacher Guide PDF • Laboratory Technician Guide PDF • Editable Documents - Word (.docx) <p>4. <i>Ecological Energy</i></p> <ul style="list-style-type: none"> • Renewable Energy • Antarctica, a Shared Continent • Changing Seasons • STEM: A Limitless Source Of Energy <p>Lab Activity: Weather in a Jar</p> <ul style="list-style-type: none"> • Weather in a Jar • Risk Assessment (in RiskAssess) • Student Worksheet PDF • Teacher Guide PDF • Laboratory Technician Guide PDF • Editable Documents - Word (.docx) <p>5. <i>The Water Cycle</i></p> <ul style="list-style-type: none"> • Water on Earth • Water Cycle • States of Water • The Water Cycle as a Closed System • Influences on the Water Cycle <p><i>Resources continue over the page</i></p>

Lab Activity: Evaporation

- [Evaporation](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Lab Report Material PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

6. *Water Management*

- [Water Management](#)
- [Water Conservation](#)
- [Hydroelectricity](#)
- [Irrigation](#)
- [Science, Tradition and Modern Medicine](#)
- [Comprehension: The Great Artesian Basin](#)
- [Extension: Aquifers](#)
- [Focus on Data: Our Water Use](#)

Lab Activity: Make Your Own Aquifer

- [Make Your Own Aquifer](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

Lab Activity: Purifying Saltwater

- [Purifying Saltwater](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

7. *Glossary*

- [Definitions List: Earth's Resources](#)
- [Definitions List: The Water Cycle](#)
- [Definitions MCQ: Earth's Resources](#)
- [Definitions MCQ: The Water Cycle](#)
- [Spelling List: Earth's Resources](#)
- [Spelling List: The Water Cycle](#)

8. *Topic Tests*

- [Topic Test: The Water Cycle](#)
- [Topic Test: Types of Resources](#)
- [Topic Test: Water on Earth](#)

Physical Sciences

Content Descriptor	EP Lessons in 7. Forces	
<p>Change to an object's motion is caused by unbalanced forces, including Earth's gravitational attraction, acting on the object</p> <ul style="list-style-type: none">investigating the effect of forces through the application of simple machines, such as the bow and arrows used by Torres Strait Islander Peoples or the spear throwers used by Aboriginal Peoples (OI.5, OI.7)investigating the effects of applying different forces to familiar objectsinvestigating common situations where forces are balanced, such as stationary objects, and unbalanced, such as falling objectsinvestigating a simple machine such as lever or pulley systemexploring how gravity affects objects on the surface of Earthconsidering how gravity keeps planets in orbit around the sun	<p>1. Introduction to Forces</p> <ul style="list-style-type: none">Introduction to ForcesBalanced and Unbalanced ForcesExtension: Calculating Net ForceExtension: Newton's Laws of Motion <p>Lab Activity: Build a Marshmallow Blaster</p> <ul style="list-style-type: none">Build a Marshmallow BlasterRisk Assessment (in RiskAssess)Student Worksheet PDFLab Report Material PDFTeacher Guide PDFLaboratory Technician Guide PDFEditable Documents - Word (.docx) <p>2. Types of Forces</p> <ul style="list-style-type: none">Contact and Non-Contact ForcesGravityMagnetismElectrostatic ForceWeight and MassFocus on Data: Space Travel: The Weight Loss Sensation! <p>Lab Activity: Mapping Magnetic Fields</p> <ul style="list-style-type: none">Mapping Magnetic FieldsRisk Assessment (in RiskAssess)Student Worksheet PDFTeacher Guide PDFLaboratory Technician Guide PDFEditable Documents - Word (.docx) <p>Lab Activity: Modelling Gravity</p> <ul style="list-style-type: none">Modelling GravityRisk Assessment (in RiskAssess)Student Worksheet PDFTeacher Guide PDFLaboratory Technician Guide PDFEditable Documents - Word (.docx)	<p>3. Simple Machines</p> <ul style="list-style-type: none">LeversInclined PlanesWheels, Axles and PulleysGearsBicycle InvestigationExtension: Gear Ratio <p>Lab Activity: A Ramp as a Simple Machine</p> <ul style="list-style-type: none">Pre Lab: A Ramp as a Simple MachinePost Lab: A Ramp as a Simple MachineRisk Assessment (in RiskAssess)Student Worksheet PDFLab Report Material PDFTeacher Guide PDFLaboratory Technician Guide PDFEditable Documents (.docx) <p>Lab Activity: Levers</p> <ul style="list-style-type: none">LeversRisk Assessment (in RiskAssess)Student Worksheet PDFTeacher Guide PDFLaboratory Technician Guide PDFEditable Documents - Word (.docx) <p>4. Forces in Everyday Life</p> <ul style="list-style-type: none">FrictionFact or Friction?Ancient Tools and WeaponsSafety SystemsSports ScienceComparing RobotsEarth's Magnetic FieldHow Planes Stay UpExtension: Maglev TrainsExtension: Planetary MotionExtension: Tides

Lab Activity: Build an Electroscope

- [Build an Electroscope](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

Lab Activity: Friction and Mass

- [Investigating Friction and Mass](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Lab Report Material PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

Lab Activity: Friction and Surfaces

- [Investigating Friction and Surfaces](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Lab Report Material PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

5. *Glossary*

- [Definitions List: Forces](#)
- [Definitions MCQ: Forces](#)
- [Spelling List: Forces](#)

6. *Topic Test*

- [Topic Test: Forces](#)

Biological Sciences

Content Descriptor	EP Lessons in 1. Cells	
<p>Cells are the basic units of living things; they have specialised structures and functions</p> <ul style="list-style-type: none">examining a variety of cells using a light microscope, by digital technology or by viewing a simulationdistinguishing plant cells from animal or fungal cellsidentifying structures within cells and describing their functionrecognising that some organisms consist of a single cellrecognising that cells reproduce via cell divisiondescribing mitosis as cell division for growth and repair	<p>1. Introduction to Cells</p> <ul style="list-style-type: none">What is a Cell?Size of CellsComprehension: The Origin of Mitochondria <p>Lab Activity: Jelly Cells</p> <ul style="list-style-type: none">Jelly CellsRisk Assessment (in RiskAssess)Student Worksheet PDFTeacher Guide PDFLaboratory Technician Guide PDFEditable Documents - Word (.docx) <p>2. Microscopes</p> <ul style="list-style-type: none">Parts and Function of a MicroscopeUsing a MicroscopeMagnificationTypes of MicroscopesFocus on Data: The Size of Cells <p>Lab Activity: Pond Critters</p> <ul style="list-style-type: none">Pond CrittersRisk Assessment (in RiskAssess)Species Identification Guide PDFStudent Worksheet PDFTeacher Guide PDFLaboratory Technician Guide PDFEditable Documents - Word (.docx)	<p>Lab Activity: Preparing and Observing Cells</p> <ul style="list-style-type: none">Preparing and Observing CellsRisk Assessment (in RiskAssess)Student Worksheet PDFTeacher Guide PDFLaboratory Technician Guide PDFEditable Documents - Word (.docx) <p>Lab Activity: Using a Microscope</p> <p>1. Background Information</p> <ul style="list-style-type: none">Parts and Function of a MicroscopeMagnification and ResolutionHow to Use a Microscope <p>2. Investigation: Using a Microscope</p> <ul style="list-style-type: none">Using a MicroscopeRisk Assessment (in RiskAssess)Student Worksheet PDFTeacher Guide PDFLaboratory Technician Guide PDFEditable Documents - Word (.docx) <p>3. Types of Cells</p> <ul style="list-style-type: none">Introduction to Types of Cells: Pond Water InvestigationEukaryotic CellsProkaryotic CellsAnimal Cell StructurePlant Cell StructureBacterial Cell StructureFungal Cell StructureProkaryotic vs. EukaryoticAnimal vs. Plant Cells <p><i>Resources continue over the page</i></p>

	<ul style="list-style-type: none"> • Focus on Data: Food Safety and Salmonella • Scientific Writing: Comparing Plant and Animal Cells <p>4. Cell Division</p> <ul style="list-style-type: none"> • Cell Division in Bacteria • Cell Division in Humans - Mitosis • Cell Division in Humans: Meiosis <p>5. Levels of Organisation</p> <ul style="list-style-type: none"> • Levels of Organisation • Specialised Animal Cells: Muscle and Nerve Cells • Specialised Animal Cells: Blood Cells and Fat Cells • Specialised Plant Cells: Photosynthetic and Guard Cells • Specialised Plant Cells: Root Hairs and Conducting Cells • Types of Tissue <p>6. How Cells Have Shaped Biology</p> <ul style="list-style-type: none"> • Cell Theory • History of Microscopes • Stem Cells • Stem Cell Therapy 	<p>7. Treating and Preventing Disease</p> <ul style="list-style-type: none"> • Pasteur & Koch • Antibiotics • Disease Treatment and Control • Vaccination <p>8. Glossary</p> <ul style="list-style-type: none"> • Definitions List: Cells • Definitions MCQ: Cells • Spelling List: Cell Organelles • Spelling List: Cells <p>9. Topic Tests</p> <ul style="list-style-type: none"> • Animal and Plant Cells • Cells • Plant and Animal Cells + Cells • Topic Test: Animal and Plant Cells • Topic Test: Cells • Topic Test: Plant and Animal Cells + Cells
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Content Descriptor	EP Lessons in 2. Living Systems	
<p>Multi-cellular organisms contain systems of organs carrying out specialised functions that enable them to survive and reproduce</p> <ul style="list-style-type: none"> • identifying the organs and overall function of a system of a multicellular organism in supporting the life processes • describing the structure of each organ in a system and relating its function to the overall function of the system • examining the specialised cells and tissues involved in structure and function of particular organs • comparing similar systems in different organisms such as digestive systems in herbivores and carnivores, respiratory systems in fish and mammals • distinguishing between asexual and sexual reproduction • comparing reproductive systems of organisms 	<p>1. Introduction to Body Systems</p> <ul style="list-style-type: none"> • Introduction to Body Systems • Organ Systems • Comprehension: Ancient Anatomy <p>Lab Activity: First Aid and Body Systems</p> <ul style="list-style-type: none"> • First Aid and Body Systems • Risk Assessment (in RiskAssess) • Student Worksheet PDF • Teacher Guide PDF • Editable Documents - Word (.docx) 	<p>2. Digestive System</p> <ul style="list-style-type: none"> • Digestive System As A Whole • Food Groups • Mouth and Oesophagus • Stomach and Small Intestine • Large Intestine and Rectum • Comparing Digestion in Other Animals • The Microbes That Control What We Do <p><i>Resources continue over the page</i></p>

3. Respiratory System

- [Introduction to the Respiratory System](#)
- [Breathing](#)
- [Gas Exchange](#)
- [Respiration in Cells](#)
- [Comparing Respiration](#)

4. Circulatory System

- [Introduction to the Circulatory System](#)
- [The Heart](#)
- [Blood Vessels](#)
- [Blood](#)
- [Focus on Data: Relative Heart Size](#)

Lab Activity: Heart Dissection

- [Heart Dissection](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

5. Excretory System

- [Introduction to Excretory System](#)
- [Excretory Organs](#)
- [The Kidneys & Urine Production](#)
- [Kidney Disease](#)

Lab Activity: Kidney Dissection

- [Kidney Dissection](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

6. Musculoskeletal System

- [Introduction to the Musculoskeletal System](#)
- [Bones & Joints](#)
- [Muscles](#)
- [Injuries](#)
- [Extension: Stress Effects on the Body](#)
- [Extension: Trapped in a Cave](#)

7. Reproductive System

- [Sexual Reproduction](#)
- [Asexual Reproduction](#)
- [Male Reproduction](#)
- [Female Reproduction](#)
- [Extension: Contraception](#)
- [Extension: Infertility](#)
- [Extension: Labour & Birth](#)
- [Extension: Lamb in a Bag](#)
- [Extension: Pregnancy](#)
- [Extension: Puberty](#)

8. Plant Systems

- [Photosynthesis](#)
- [Plant Systems](#)
- [Seed Dispersal & Germination](#)
- [Sexual Reproduction in Plants](#)
- [Pollination](#)
- [Asexual Reproduction in Plants](#)
- [Xylem & Phloem \(Maple Syrup\)](#)
- [Extension: Plant Cloning](#)

Lab Activity: Cross Pollination

- [Cross Pollination](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Teacher Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

Lab Activity: Flower Dissection

- [Flower Dissection](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)
- [Revision: Using a Microscope](#)

Resources continue over the page

	<p>9. <i>Organ Transplants</i></p> <ul style="list-style-type: none"> • Organ Transplants • Ethical Issues of Organ Transplants • Ctrl + X, Ctrl + V: Xenotransplants <p>10. <i>Glossary</i></p> <ul style="list-style-type: none"> • Definitions List: Living Systems • Definitions List: Reproductive System • Definitions MCQ: Living Systems • Definitions MCQ: Reproductive System • Spelling List: Living Systems • Spelling List: Reproductive Systems 	<p>11. <i>Topic Tests</i></p> <ul style="list-style-type: none"> • Topic Test: Digestive System • Topic Test: Living Systems (32 marks) • Topic Test: Respiratory System
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Chemical Sciences

Content Descriptor	EP Lessons in 3. Matter	
<p>Properties of the different states of matter can be explained in terms of the motion and arrangement of particles</p> <ul style="list-style-type: none"> • explaining why a model for the structure of matter is needed • modelling the arrangement of particles in solids, liquids and gases • using the particle model to explain observed phenomena linking the energy of particles to temperature changes 	<p>1. <i>Matter Basics and States of Matter</i></p> <ul style="list-style-type: none"> • Introduction to Particles • Particle Model of Matter • States of Matter • Solids • Liquids • Gases • Comprehension: What is the Matter? <p>2. <i>Changing States</i></p> <ul style="list-style-type: none"> • Changing States • Changing States Updated • Melting and Freezing • Boiling, Evaporation and Condensation • Sublimation and Deposition • Heating and Cooling Curves • Extension: Energy In Matter 	<p>Lab Activity: Building a Steam Engine</p> <ul style="list-style-type: none"> • Building a Steam Engine • Risk Assessment (in RiskAssess) • Student Worksheet PDF • Teacher Guide PDF • Laboratory Technician Guide PDF • Editable Documents - Word (.docx) <p>Lab Activity: Making Ice Cream</p> <ul style="list-style-type: none"> • Making Ice Cream • Risk Assessment (in RiskAssess) • Student Worksheet PDF • Teacher Guide PDF • Laboratory Technician Guide PDF • Editable Documents - Word (.docx) <p><i>Resources continue over the page</i></p>

	<p>3. Properties of Matter</p> <ul style="list-style-type: none"> • Mass and Volume • Density • Density and Buoyancy • Pressure • Viscosity • Diffusion • Heating and Cooling Effects on Volume • Pressure, Compression and Temperature • Extension: Newtonian and Non-Newtonian Fluids <p>Lab Activity: Building a Density Tower</p> <ul style="list-style-type: none"> • Building a Density Tower • Risk Assessment (in RiskAssess) • Student Worksheet PDF • Lab Report Material PDF • Teacher Guide PDF • Laboratory Technician Guide PDF • Editable Documents - Word (.docx) <p>4. Matter in Nature</p> <ul style="list-style-type: none"> • When Water Freezes • The Water Cycle and Weather • States of Matter in Space • Extension: Melting Polar Ice 	<p>Lab Activity: Observing Atmospheric Pressure</p> <ul style="list-style-type: none"> • Observing Atmospheric Pressure • Risk Assessment (in RiskAssess) • Student Worksheet PDF • Lab Report Material PDF • Teacher Guide PDF • Laboratory Technician Guide PDF • Editable Documents - Word (.docx) <p>5. Matter in Technology</p> <ul style="list-style-type: none"> • Air Conditioners • Refrigerators and Refrigerants <p>6. Glossary</p> <ul style="list-style-type: none"> • Definitions List: Matter • Definitions MCQ: Matter • Spelling List: Matter <p>7. Topic Test</p> <ul style="list-style-type: none"> • Topic Test: Matter
<p>Content Descriptor</p>	<p>EP Lessons in 4. Elements and Compounds</p>	
<p>Differences between elements, compounds and mixtures can be described at a particle level</p> <ul style="list-style-type: none"> • modelling the arrangement of particles in elements and compounds • recognising that elements and simple compounds can be represented by symbols and formulas • locating elements on the periodic table 	<p>1. Elements, Compounds and Mixtures.</p> <ul style="list-style-type: none"> • Introduction to Elements, Compounds and Mixtures • Atoms • Elements • Metals, Non-Metals and Metalloids • First 10 Elements • Quiz- First 10 Elements (Name to Symbol) • Quiz- First 10 Elements (Symbol to Name) • Extension: The Periodic Table • Focus On Data: Identifying Metals, Nonmetals and Metalloids 	<p>Lab Activity: Flame Test</p> <ul style="list-style-type: none"> • Pre Lab: Flame Test • Post Lab: Flame Test • Risk Assessment (in RiskAssess) • Student Worksheet PDF • Lab Report Material PDF • Teacher Guide PDF • Laboratory Technician Guide PDF • Editable Documents - Word (.docx) <p><i>Resources continue over the page</i></p>

	<p>Lab Activity: Indirect Observations</p> <ul style="list-style-type: none"> • 1a. Pre Lab: Indirect Observations • Risk Assessment (in RiskAssess) • Post Lab: Indirect Observation • Student Worksheet PDF • Lab Report Material PDF • Teacher Guide PDF • Laboratory Technician Guide PDF • Editable Documents - Word (.docx) <p>2. <i>Compounds and Molecules</i></p> <ul style="list-style-type: none"> • Molecules • Compounds • Elements and Compounds in Household Products • Properties and Uses of Everyday Elements and Compounds • Chemical Formulas • Extension: Chemical Bonding • Extension: Constructing Molecular Models <p>Lab Activity: Making Models</p> <ul style="list-style-type: none"> • 1a. Pre Lab: Making Models • Risk Assessment (in RiskAssess) • Post Lab: Making Models • Student Worksheet PDF • Teacher Guide PDF • Laboratory Technician Guide PDF • Editable Documents - Word (.docx) 	<p>3. <i>Advances in Chemistry</i></p> <ul style="list-style-type: none"> • Discovering Elements • Marie Curie and Radioactivity • Materials Science • Carbon Chemistry • Comprehension: Cosmetics and Chemistry: A Historical Perspective <p>4. <i>Glossary</i></p> <ul style="list-style-type: none"> • Definitions List: Elements and Compounds • Definitions MCQ: Elements and Compounds • Spelling List: Elements and Compounds <p>5. <i>Topic Tests</i></p> <ul style="list-style-type: none"> • Topic Test: Elements and Compounds (40 marks) • Topic Test: First 10 Elements
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Content Descriptor	EP Lessons in 5. Introduction to Chemical Reactions	
<p>Chemical change involves substances reacting to form new substances</p> <ul style="list-style-type: none"> • investigating chemical reactions employed by Aboriginal and Torres Strait Islander Peoples in the production of substances such as quicklime, plaster, pigments, acids, salts and ethanol (OI.5) • identifying the differences between chemical and physical changes • identifying evidence that a chemical change has taken place • investigating simple reactions such as combining elements to make a compound • recognising that the chemical properties of a substance, for example its flammability and ability to corrode, will affect its use 	<p>1. <i>Physical Properties and Physical Change</i></p> <ul style="list-style-type: none"> • Physical Change • Physical Properties • Physical Properties of Metals and Non-Metals • Focus on Data: Turning Observations Into Facts 	<p>2. <i>Chemical Reactions and Properties</i></p> <ul style="list-style-type: none"> • Chemical Changes • Chemical Reactions • Chemical Properties • Writing Word Reactions • Comprehension: By Our Powers Combined • Extension: Writing Symbol Equations <p><i>Resources continue over the page</i></p>

Lab Activity: Fire and Reactions

- [Combustion Reactions](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

Lab Activity: Making Recycled Paper

- [Making Recycled Paper](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

Lab Activity: Observing Chemical Reactions

- [Observing Chemical Reactions](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

Lab Activity: Rusting In Different Environments

- [Rusting in Different Environments](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Lab Report Material PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

3. Chemical Compounds, Properties and Transformations

- [Using Substances Based on their Properties](#)
- [Alchemy](#)
- [Recycling](#)
- [Synthetic Materials](#)
- [Working In Chemistry](#)
- [Comprehension: Watching Paint Dry](#)

4. Glossary

- [Definitions List: Introduction to Chemical Reactions](#)
- [Definitions MCQ: Introduction to Chemical Reactions](#)
- [Spelling List: Introduction to Chemical Reactions](#)

5. Topic Test

- [Topic Test: Physical and Chemical Changes](#)

Earth and Space Sciences

Content Descriptor	EP Lessons in 6. Rocks	
<p>Sedimentary, igneous and metamorphic rocks contain minerals and are formed by processes that occur within Earth over a variety of timescales</p> <ul style="list-style-type: none"> exploring the traditional geological knowledge of Aboriginal and Torres Strait Islander Peoples that is used in the selection of different rock types for different purposes (OI.2, OI.5) representing the stages in the formation of igneous, metamorphic and sedimentary rocks, including indications of timescales involved identifying a range of common rock types using a key based on observable physical and chemical properties recognising that rocks are a collection of different minerals considering the role of forces and energy in the formation of different types of rocks and minerals recognising that some rocks and minerals, such as ores, provide valuable resources 	<p>1. Structure of the Earth</p> <ul style="list-style-type: none"> Earth's Structure Mechanical Layers of the Earth Extension: Dissecting the Earth <p>2. Earth's Processes</p> <ul style="list-style-type: none"> The Geological Timescale Developing the Geological Timescale Erosion and Sedimentation Weathering Australian Landforms formed by Volcanism and Chemical Weathering Australian Landforms formed by Physical Weathering, Erosion and Sedimentation <p>Lab Activity: Cooling Crystals</p> <ul style="list-style-type: none"> Cooling Crystals Risk Assessment (in RiskAssess) Student Worksheet PDF Lab Report Material PDF Teacher Guide PDF Laboratory Technician Guide PDF Editable Documents - Word (.docx) <p>Lab Activity: Simulating Erosion</p> <ul style="list-style-type: none"> Simulating Erosion Risk Assessment (in RiskAssess) Student Worksheet PDF Lab Report Material PDF Teacher Guide PDF Laboratory Technician Guide PDF Editable Documents - Word (.docx) <p>3. Minerals</p> <ul style="list-style-type: none"> Introduction to Minerals Identifying Minerals Minerals and Rocks as Resources 	<ul style="list-style-type: none"> Mining and Mineral Exploration Comprehension: Zircons are Forever Focus on Data: Comparing Minerals <p>4. Rock Types</p> <ul style="list-style-type: none"> The Rock Cycle Sedimentary Rocks Igneous Rocks Metamorphic Rocks Fossils Australian Fossils Feathery Dinosaurs Comprehension: Baked Rocks in the Lachlan Fold Belt Focus on Data: Rock Density <p>Lab Activity: Build a Stratigraphic Column</p> <ul style="list-style-type: none"> Build a Stratigraphic Column Risk Assessment (in RiskAssess) Student Worksheet PDF Teacher Guide PDF Laboratory Technician Guide PDF Editable Documents - Word (.docx) <p>5. Exploring Earth and Beyond</p> <ul style="list-style-type: none"> Martian Geology Volcanology <p>6. Glossary</p> <ul style="list-style-type: none"> Definitions MCQ: Introduction to Geology Definitions MCQ: Rocks Spelling List: Introduction to Geology Spelling List: Rocks <p>7. Topic Tests</p> <ul style="list-style-type: none"> Topic Test: Earth Processes Topic Test: Minerals and Rocks

Physical Sciences

Content Descriptor	EP Lessons in 7. Energy	
<p>Energy appears in different forms, including movement (kinetic energy), heat and potential energy, and energy transformations and transfers cause change within systems</p> <ul style="list-style-type: none">investigating traditional fire-starting methods used by Aboriginal and Torres Strait Islander Peoples and their understanding of the transformation of energy (OI.5, OI.7)recognising that kinetic energy is the energy possessed by moving bodiesrecognising that potential energy is stored energy, such as gravitational, chemical and elastic energyinvestigating different forms of energy in terms of the effects they cause, such as gravitational potential causing objects to fall and heat energy transferred between materials that have a different temperaturerecognising that heat energy is often produced as a by-product of energy transfer, such as brakes on a car and light globesusing flow diagrams to illustrate changes between different forms of energy	<p>1. Introduction to Energy and Units of Energy</p> <ul style="list-style-type: none">What is Energy?Units of EnergyKinetic EnergyPotential EnergyIdentifying KE or PEConverting between Joules (J) & Kilojoules (kJ)Converting between Kilojoules (kJ) & Megajoules (MJ)Extension: Energy CalculationsExtension: Qualitative and Quantitative Data <p>Lab Activity: Energy in Skate Parks</p> <ul style="list-style-type: none">Energy in Skate ParksStudent Worksheet PDFLab Report Material PDFTeacher Guide PDFEditable Documents - Word (.docx) <p>2. Energy Transfer and Transformation</p> <ul style="list-style-type: none">Law of Conservation of EnergyEnergy TransformationsEnergy Transformation and FoodDisplaying Energy TransformationsExtension: Cars of the Future <p>Lab Activity: Energy Transformations</p> <ul style="list-style-type: none">Energy TransformationsRisk Assessment (in RiskAssess)Student Worksheet PDFTeacher Guide PDFLaboratory Technician Guide PDFEditable Documents - Word (.docx)	<p>Lab Activity: Investigating Heat Energy</p> <ul style="list-style-type: none">Investigating Heat EnergyRisk Assessment (in RiskAssess)Student Worksheet PDFLab Report Material PDFTeacher Guide PDFLaboratory Technician Guide PDFEditable Documents - Word (.docx) <p>Lab Activity: Rube Goldberg Machines</p> <ul style="list-style-type: none">Rube Goldberg MachinesRisk Assessment (in RiskAssess)Student Worksheet PDFTeacher Guide PDFLaboratory Technician Guide PDFEditable Documents - Word (.docx) <p>3. Heat Transfer</p> <ul style="list-style-type: none">Introduction to Heat TransferConductors and InsulatorsConductionConvectionRadiationHeat Production <p>Lab Activity: Building a Solar Oven</p> <ul style="list-style-type: none">Building a Solar OvenRisk Assessment (in RiskAssess)Student Worksheet PDFTeacher Guide PDFLaboratory Technician Guide PDFEditable Documents - Word (.docx)Radiation Investigation <p><i>Resources continue over the page</i></p>

4. Energy Efficiency

- [Useful and Wasted Energy](#)
- [Reducing Energy Consumption](#)
- [The Power Grid and You](#)
- [Energy Efficient Houses](#)
- [Extension: Cogeneration and Engines](#)
- [Extension: The Development of Flight](#)
- [Focus on Data: Energy Efficiency](#)

Lab Activity: Bouncy Balls and Energy Efficiency

- [Bouncy Balls and Energy Efficiency](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Lab Report Material PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

5. Glossary

- [Definitions List: Energy](#)
- [Definitions MCQ : Energy](#)
- [Spelling List: Energy](#)

6. Topic Test

- [Topic Test: Types of Energy](#)

Biological Sciences

Content Descriptor	EP Lessons in 1. Homeostasis and Disease	
<p>Multi-cellular organisms rely on coordinated and interdependent internal systems to respond to changes to their environment</p> <ul style="list-style-type: none"> describing how the requirements for life (for example oxygen, nutrients, water and removal of waste) are provided through the coordinated function of body systems such as the respiratory, circulatory, digestive, nervous and excretory systems explaining how body systems work together to maintain a functioning body using models, flow diagrams or simulations identifying responses using nervous and endocrine systems investigating the response of the body to changes as a result of the presence of micro-organisms investigating the effects on humans of exposure to electromagnetic radiations such as X-rays and microwaves 	<p>1. Homeostasis</p> <ul style="list-style-type: none"> Basics of Homeostasis Homeostatic Terms Stimulus-Response Model Negative and Positive Feedback Modelling Human Thermoregulation Control Systems - Nervous vs Endocrine Focus on Data: Body Temperature Focus on Data: Regulating Blood Glucose Levels <p>2. Nervous System</p> <ul style="list-style-type: none"> Introduction To The Nervous System Nerves and Neurons Central and Peripheral Nervous System Sympathetic and Parasympathetic Nervous System Nerve Pathways Sensory Organs The Eye Extension: From Zero to Hero! Honey Bee Mathematicians Extension: Starfish Nervous System <p>Lab Activity: Eye Dissection</p> <ul style="list-style-type: none"> Eye Dissection Risk Assessment (in RiskAssess) Student Worksheet PDF Teacher Guide PDF Laboratory Technician Guide PDF Editable Documents - Word (.docx) 	<p>Lab Activity: Reaction Times</p> <ul style="list-style-type: none"> Reaction Times Risk Assessment (in RiskAssess) Student Worksheet PDF Teacher Guide PDF Laboratory Technician Guide PDF Editable Documents - Word (.docx) <p>Lab Activity: Testing Reflexes</p> <ul style="list-style-type: none"> Testing Reflexes Student Worksheet PDF Teacher Guide PDF Laboratory Technician Guide PDF Editable Documents - Word (.docx) <p>3. Endocrine System</p> <ul style="list-style-type: none"> Introduction to the Endocrine System Glands of the Endocrine System Hormones of the Endocrine System Regulating Blood Sugar Use of Hormones in the Dairy Industry Extension: Endocrine Diseases <p>4. Disease</p> <ul style="list-style-type: none"> Introduction to Diseases Bacterial Diseases Viral Diseases Viral Infection: Chickenpox Parasitic Diseases Parasitic Infection: Malaria Fungal Diseases Disease Transmission <p><i>Resources continue over the page</i></p>

	<ul style="list-style-type: none"> • Modelling Disease Outbreak and Spread • Antibiotics • Superbugs are the Real Super Villains • Vaccinations • Smelly Socks and Malaria Transmission • Spread of Infectious Disease • Managing Pandemics in the Asia Region • The Identification of a Mystery Disease • Comprehension: The History of Disease • Extension: Degenerative Diseases • Extension: Pathogens <p>5. Immune System</p> <ul style="list-style-type: none"> • Introduction to the Immune System • Immune System: The Body's First and Second Lines of Defence • The Third Line of Defence (Lymphatic System) • Pasteur & Koch • Snake Antivenom Production 	<p>Extension: Immune Response and Defence Against Disease</p> <ul style="list-style-type: none"> • Introduction to the Immune Response • Plant Defence Systems • Introduction to Active & Passive Immunity • Adaptive Immune Response I • Adaptive Immune Response II • Innate Immune Response I • Innate Immune Response II <p>6. Glossary</p> <ul style="list-style-type: none"> • Definitions List: Disease • Definitions List: Homeostasis • Definitions MCQ: Disease • Definitions MCQ: Homeostasis • Spelling List: Disease • Spelling List: Homeostasis <p>7. Topic Tests</p> <ul style="list-style-type: none"> • Topic Test: Homeostatic Concepts • Topic Test: The Nervous System
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Content Descriptor	EP Lessons in 2. Ecosystems	
<p>Ecosystems consist of communities of interdependent organisms and abiotic components of the environment; matter and energy flow through these systems</p> <ul style="list-style-type: none"> • investigating the interdependence of communities and the role of Aboriginal and Torres Strait Islander Peoples in maintaining their environment (OI.2, OI.5) • exploring interactions between organisms such as predator/prey, parasites, competitors, pollinators and disease • examining factors that affect population sizes such as seasonal changes, destruction of habitats, introduced species • considering how energy flows into and out of an ecosystem via the pathways of food webs, and how it must be replaced to maintain the sustainability of the system • investigating how ecosystems change as a result of events such as bushfires, drought and flooding 	<p>1. Introduction to Ecosystems</p> <ul style="list-style-type: none"> • Introduction to Ecology • The Biosphere and Biomes • Species and Organisms <p>Lab Activity: Sampling a Leaf Litter Ecosystem</p> <ul style="list-style-type: none"> • Sampling a Leaf Litter Ecosystem • Risk Assessment (in RiskAssess) • Student Worksheet PDF • Lab Report Material PDF • Teacher Guide PDF • Laboratory Technician Guide PDF • Editable Documents - Word (.docx) 	<p>2. Components of Ecosystems</p> <ul style="list-style-type: none"> • Parts of an Ecosystem • Abiotic Factors • Biotic Factors and Competition • Adaptations • Symbiosis • Focus on Data: Predator-Prey Dynamics • Focus on Data: Taking a Lichen to Moss <p><i>Resources continue over the page</i></p>

3. Energy in Ecosystems

- [Producers](#)
- [Consumers and Decomposers](#)
- [Food Chains and Food Webs](#)
- [Trophic Levels](#)
- [The Carbon Cycle](#)
- [Extension: The Nitrogen Cycle](#)

Lab Activities: Photosynthesis and Starch

- [Photosynthesis and Starch](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Lab Report Material PDF](#)
- [Teacher Worksheet PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

4. Changes in Ecosystems

- [Biodiversity](#)
- [Comprehension: Adapting for Survival](#)
- [Australian Bushfires](#)
- [Drought](#)
- [Flooding](#)
- [Will I Stay or Will I Go?](#)
- [Human Impacts](#)
- [Invasive Species](#)
- [Oil Spills](#)
- [Pesticides](#)
- [Apocalypse Now: Natural Disasters of September, 2017](#)
- [History of Conservation](#)
- [Predicting Population Changes](#)
- [Comprehension: Bee Kind](#)
- [Extension: The Greenhouse Effect](#)
- [STEM: Kangaroo Counter](#)
- [STEM: Life on Mars](#)
- [Writing Task: Saving Australia's Wildlife](#)

Lab Activities: Designing Experiments on Pollution

1. Designing Experiments on Pollution

- [Designing Experiments on Pollution](#)
- [Student Worksheet PDF](#)
- [Teacher Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

2. Writing a Scientific Report

- [Writing a Scientific Report](#)
- [Scientific Report Outline PDF](#)
- [Student Worksheet PDF](#)
- [Teacher Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

Lab Activities: Researching the Carmichael Coal Mine

- [Background Information: Different Perspectives on Mining](#)
- [Research Project: The Carmichael Coal Mine](#)
- [Student Worksheet PDF](#)
- [Teacher Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

5. Glossary

- [Definitions List: Ecosystems](#)
- [Definitions MCQ: Ecosystems](#)
- [Spelling List: Ecosystems](#)

6. Topic Tests

- [Topic Test: Interactions Between Organisms](#)
- [Topic Test: Interactions in Ecosystems \(40 marks\)](#)
- [Topic Test: Producers, Consumers and Decomposers](#)

Chemical Sciences

Content Descriptor	EP Lessons in 3. Atoms and Radioactivity	
<p>All matter is made of atoms that are composed of protons, neutrons and electrons; natural radioactivity arises from the decay of nuclei in atoms</p> <ul style="list-style-type: none">investigating how radiocarbon and other dating methods have been used to establish that Aboriginal Peoples have been present on the Australian continent for more than 60,000 years (01.6)describing and modelling the structure of atoms in terms of the nucleus, protons, neutrons and electronscomparing the mass and charge of protons, neutrons and electronsdescribing in simple terms how alpha and beta particles and gamma radiation are released from unstable atoms	<p>1. Atomic Structure</p> <ul style="list-style-type: none">Atoms, Pure Substances and MixturesAtomic StructureModels of the AtomAtomic Symbols <p>Lab Activity: Build an Atom</p> <ul style="list-style-type: none">Build an AtomRisk Assessment (in RiskAssess)Student Worksheet PDFTeacher Guide PDFLaboratory Technician Guide PDFEditable Documents - Word (.docx) <p>2. Ions and Isotopes</p> <ul style="list-style-type: none">Introduction to IonsElectron Configuration of IonsIonic CompoundsIons in SolutionNaming Ionic CompoundsWhat are Isotopes?Extension: Polyatomic Ions and Compounds <p>3. Radioactivity</p> <ul style="list-style-type: none">What is Radioactivity?Radioactivity in IndustryRadioactivity in MedicineEffects of Radiation on HumansMarie Curie and RadioactivityExtension: Half-LivesExtension: Nuclear BombsExtension: Nuclear FissionExtension: Nuclear PowerExtension: Types of Radiation 1Extension: Types of Radiation 2Extension: Writing Nuclear EquationsFocus on Data: Name That Radiation!	<p>Lab Activity: Skittle Half Lives</p> <ul style="list-style-type: none">Skittle Half-LivesRisk Assessment (in RiskAssess)Student Worksheet PDFTeacher Guide PDFLaboratory Technician Guide PDFEditable Documents - Word (.docx) <p>4. Glossary</p> <ul style="list-style-type: none">Definitions List: Atoms & RadioactivityDefinitions MCQ: Atoms & RadioactivitySpelling List: Atoms & Radioactivity <p>5. Topic Test</p> <ul style="list-style-type: none">Topic Test: Atoms & The Periodic Table with Radioactivity

Content Descriptor	EP Lessons in 4. Chemical Reactions: Conservation of Mass	
<p>Chemical reactions involve rearranging atoms to form new substances; during a chemical reaction mass is not created or destroyed</p> <ul style="list-style-type: none"> identifying reactants and products in chemical reactions modelling chemical reactions in terms of rearrangement of atoms describing observed reactions using word equations considering the role of energy in chemical reactions recognising that the conservation of mass in a chemical reaction can be demonstrated by simple chemical equations 	<p>1. Conservation of Mass</p> <ul style="list-style-type: none"> Conservation of Mass Balancing Equations Extension: Constructing Molecular Models Focus on Data: Breaking the Law (of Conservation of Mass)? <p>Lab Activity: Conservation of Mass</p> <ul style="list-style-type: none"> Conservation of Mass Risk Assessment (in RiskAssess) Student Worksheet PDF Lab Report Material PDF Teacher Guide PDF Laboratory Technician Guide PDF Editable Docs - Word (.docx) <p>2. Chemical Equations</p> <ul style="list-style-type: none"> Writing Word Equations Writing Chemical and Molecular Equations 	<p>Lab Activity: Marshmolecules</p> <ul style="list-style-type: none"> Marshmolecules - Conservation of Mass Risk Assessment (in RiskAssess) Student Worksheet PDF Teacher Guide PDF Laboratory Technician Guide PDF Editable Docs - Word (.docx) <p>3. Glossary</p> <ul style="list-style-type: none"> Definitions List: Conservation of Mass Definitions MCQ: Conservation of Mass Spelling List: Conservation of Mass <p>4. Topic Test</p> <ul style="list-style-type: none"> Topic Test: Writing Chemical Equations
Content Descriptor	EP Lessons in 5. Chemical Reactions: Types of Chemical Reactions	
<p>Chemical reactions, including combustion and the reactions of acids, are important in both non-living and living systems and involve energy transfer</p> <ul style="list-style-type: none"> investigating how Aboriginal and Torres Strait Islander Peoples use fire-mediated chemical reactions to facilitate energy and nutrient transfer in ecosystems through the practice of firestick farming (OI.2, OI.5) investigating reactions of acids with metals, bases, and carbonates investigating a range of different reactions to classify them as exothermic or endothermic recognising the role of oxygen in combustion reactions and comparing combustion with other oxidation reactions comparing respiration and photosynthesis and their role in biological processes describing how the products of combustion reactions affect the environment 	<p>1. Chemical Reactions</p> <ul style="list-style-type: none"> Introduction to Chemical Reactions Reactants and Products Focus on Data: Identifying Chemical Reactions <p>Lab Activity: Identifying Chemical Reactions</p> <ul style="list-style-type: none"> Identifying Chemical Reactions Risk Assessment (in RiskAssess) Student Worksheet PDF Lab Report Material PDF Teacher Guide PDF Laboratory Technician Guide PDF Editable Docs - Word (.docx) 	<p>2. Combustion</p> <ul style="list-style-type: none"> Endothermic and Exothermic Reactions Combustion Reactions Oxidation Reactions Combustion and the Environment Extension: Types of Chemical Reactions <p>3. Acids and Bases</p> <ul style="list-style-type: none"> Acids Bases pH and Indicators Acid-Metal Reactions Neutralisation Reactions Reaction in Action: Baking Soda and Vinegar Comprehension: Acids and Bases

Lab Activity: Acids and Metals

- [Acids and Metals](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

4. *Reactions Around Us*

- [Photosynthesis](#)
- [Respiration](#)
- [Fermentation](#)
- [Waste Management](#)
- [Acid Rain](#)
- [Analysing Chemical Reactions in Production Processes](#)
- [Comprehension: Chemistry: Glorified Baking?](#)

Lab Activity: Make Your Own Forge

- [Make Your Own Forge](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Lab Report Material PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Docs - Word \(.docx\)](#)

5. *Glossary*

- [Definitions List: Types of Chemical Reaction](#)
- [Definitions MCQ: Types of Chemical Reaction](#)
- [Spelling List: Types of Chemical Reaction](#)

6. *Topic Tests*

- [Topic Test: Acids and Bases](#)
- [Topic Test: Chemical Reactions Basics](#)

Earth and Space Sciences

Content Descriptor	EP Lessons in 6. Changing Earth	
<p>The theory of plate tectonics explains global patterns of geological activity and continental movement</p> <ul style="list-style-type: none"> recognising the major plates on a world map modelling sea-floor spreading relating the occurrence of earthquakes and volcanic activity to constructive and destructive plate boundaries considering the role of heat energy and convection currents in the movement of tectonic plates relating the extreme age and stability of a large part of the Australian continent to its plate tectonic history 	<p><i>1. Structure of the Earth</i></p> <ul style="list-style-type: none"> Earth's Structure Mechanical Layers of the Earth <p><i>2. Plate Tectonics</i></p> <ul style="list-style-type: none"> Wegener's Theory of Continental Drift Seafloor Spreading & Magnetic Striping Plate Tectonics Plate Boundaries Faults Comprehension: Ice Tectonics on Europa Comprehension: Subduction Zones and Ophiolite Belts Extension: Earth's Magnetic Field <p>Lab Activity: Deep Time and Plate Tectonics</p> <ul style="list-style-type: none"> Deep Time and Plate Tectonics Risk Assessment (in RiskAssess) Student Worksheet PDF Teacher Guide PDF Laboratory Technician Guide PDF Editable Documents - Word (.docx) <p><i>3. Tectonic Events</i></p> <ul style="list-style-type: none"> Volcano Formation Types of Lava Volcanic Hazards Volcanic Eruptions Earthquakes Measuring Earthquakes Earthquake Hazards Causes of Tsunamis Tsunami Hazards Volcano Exploration Robots Comprehension: Hot Rocks of the Cosgrove Hotspot Track Focus on Data: Understanding Megaquakes 	<p>Lab Activity: Build a Seismometer</p> <ul style="list-style-type: none"> Build a Seismometer Risk Assessment (in RiskAssess) Student Worksheet PDF Teacher Guide PDF Laboratory Technician Guide PDF Editable Documents - Word (.docx) <p>Lab Activity: The Hotspot Debate</p> <ul style="list-style-type: none"> The Hotspot Debate Student Worksheet PDF Teacher Guide PDF Laboratory Technician Guide PDF Editable Documents - Word (.docx) <p><i>4. Geological History</i></p> <ul style="list-style-type: none"> The Geological Timescale Developing the Geological Timescale Supercontinents Writing Task: The Time Traveller's Holiday Guide! <p><i>5. Glossary</i></p> <ul style="list-style-type: none"> Definitions MCQ: Introduction to Geology Definitions MCQ: Plate Tectonics Definitions MCQ: Rocks Spelling List: Introduction to Geology Spelling List: Plate Tectonics Spelling List: Rocks <p><i>6. Topic Tests</i></p> <ul style="list-style-type: none"> Topic Test: Plate Tectonics Topic Test: Volcanoes and Earthquakes

Physical Sciences

Content Descriptor	EP Lessons in 7. Energy Transfer Through Different Mediums	
<p>Energy transfer through different mediums can be explained using wave and particle models</p> <ul style="list-style-type: none">investigating the impact of material selection on the transfer of sound energy in Aboriginal and Torres Strait Islander Peoples' traditional musical, hunting and communication instruments (OI.5)investigating aspects of heat transfer and conservation in the design of Aboriginal and Torres Strait Islander Peoples' bedding and clothing in the various climatic regions of Australia (OI.5, OI.7)exploring how and why the movement of energy varies according to the medium through which it is transferreddiscussing the wave and particle models and how they are useful for understanding aspects of phenomenainvestigating the transfer of heat in terms of convection, conduction and radiation, and identifying situations in which each occursunderstanding the processes underlying convection and conduction in terms of the particle modelinvestigating factors that affect the transfer of energy through an electric circuitexploring the properties of waves, and situations where energy is transferred in the form of waves, such as sound and light	<p><i>1. Communication With Waves</i></p> <ul style="list-style-type: none">The Electromagnetic SpectrumRadio WavesComprehension: UltrasoundX-raysYou, Me and UVCell PhonesRadarInternetElectromagnetic Radiation and MedicineWorking in PhysicsThe Branches of PhysicsComprehension: History of Radio Communication <p>Lab Activity: Energy in Classrooms</p> <ul style="list-style-type: none">Energy in ClassroomsStudent Worksheet PDFTeacher Guide PDFEditable Documents - Word (.docx) <p>Lab Activity: Radio Wave Blockers</p> <ul style="list-style-type: none">Radio Wave BlockersRisk Assessment (in RiskAssess)Student Worksheet PDFLab Report Material PDFTeacher Guide PDFLaboratory Technician Guide PDFEditable Documents - Word (.docx) <p>Lab Activity: Slinky Waves</p> <ul style="list-style-type: none">Slinky WavesRisk Assessment (in RiskAssess)Student Worksheet PDFTeacher Guide PDFLaboratory Technician Guide PDFEditable Documents - Word (.docx)	<p><i>2. Heat Transfer</i></p> <ul style="list-style-type: none">Heat TransferConductors and InsulatorsConductionConvectionRadiationHousing InsulationBushfiresComprehension: Heat Transfer in the Atmosphere and the OceansExtension: The Cosmic Microwave BackgroundFocus on Data: The Speed of Heat Transfer <p>Lab Activity: Convection in Liquids</p> <ul style="list-style-type: none">Convection in LiquidsRisk Assessment (in RiskAssess)Student Worksheet PDFLab Report Material PDFTeacher Guide PDFLaboratory Technician Guide PDFEditable Documents - Word (.docx) <p>Lab Activity: Heat Conduction</p> <ul style="list-style-type: none">Heat ConductionRisk Assessment (in RiskAssess)Student Worksheet PDFLab Report Material PDFTeacher Guide PDFLaboratory Technician Guide PDFEditable Documents - Word (.docx) <p><i>Resources continue over the page</i></p>

Lab Activity: Insulators

- [Insulators](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Lab Report Material PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

Lab Activity: Radiation

- [Radiation](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Lab Report Material PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

3. Electricity

- [Electricity](#)
- [Circuits](#)
- [Circuits in Series](#)
- [Circuits in Parallel](#)
- [Comparing Circuits](#)
- [Electrical Conductors and Insulators](#)
- [Current](#)
- [Resistance](#)
- [Voltage](#)
- [Introduction to Ohm's Law](#)
- [Calculating Using Ohm's Law](#)
- [Batteries](#)
- [Extension: Household Circuits and Electrical Safety](#)
- [Extension: The Sixth Sense: Electroreception](#)
- [Extension: War of the Currents](#)
- [Extension: Ways in which the Use of Electricity by Society has Changed Over Time](#)

Lab Activity: Battery Voltages

- [Battery Voltages](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

Lab Activity: Building Circuits

- [Building Circuits](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

Lab Activity: Ohm's Law

- [Ohm's Law](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Lab Report Material PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

Lab Activity: Resistance

- [Resistance](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Lab Report Material PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

Lab Activity: Static Electricity

- [Static Electricity](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

Resources continue over the page

4. Sound

- [Sound Waves](#)
- [Sound Formation](#)
- [Pitch and Loudness](#)
- [Australian Aboriginal Music](#)
- [Hearing Sound](#)
- [Bionic Ears](#)
- [The Tiny Toadlet's Conundrum](#)
- [Turned Down for What: Workplace Noise](#)

Lab Activity: Musical Bottles

- [Musical Bottles](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Lab Report Material PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

Lab Activity: Speed of Sound

- [Speed of Sound](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Lab Report Material PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

Lab Activity: Straw Instruments

- [Straw Instruments](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Lab Report Material PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

5. Light

- [Light as a Wave](#)
- [Colour](#)
- [Transparent, Translucent and Opaque](#)
- [Reflection](#)
- [Plane Mirrors and Reflection](#)
- [Curved Mirrors](#)
- [Drawing Ray Diagrams](#)
- [Refraction](#)
- [Lenses](#)
- [Refractive Index](#)
- [Total Internal Reflection](#)
- [Bionic Eyes](#)
- [The History of Lenses](#)
- [Light: Summary](#)
- [Comprehension: Development of Light Bulbs](#)
- [Extension: Snell's Law](#)

Lab Activity: Build a Periscope

- [Build a Periscope](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

Lab Activity: Colourful Candy

- [Colourful Candy](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Lab Report Material PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

Resources continue over the page

Lab Activity: Law of Reflection

- [Law of Reflection](#)
- [Student Worksheet PDF](#)
- [Lab Report Material PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

Lab Activity: Lenses

- [Lenses](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

Lab Activity: Optical Fibres

- [Optical Fibres](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

Lab Activity: Refraction

- [Refraction](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Lab Report Material PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

6. *Glossary*

- [Definitions List: Communication with Waves](#)
- [Definitions List: Electricity](#)
- [Definitions List: Heat](#)
- [Definitions List: Light](#)
- [Definitions List: Sound](#)
- [Definitions MCQ: Communication With Waves](#)
- [Definitions MCQ: Electricity](#)
- [Definitions MCQ: Heat](#)
- [Definitions MCQ: Light](#)
- [Definitions MCQ: Sound](#)
- [Spelling List: Communication With Waves](#)
- [Spelling List: Electricity](#)
- [Spelling List: Heat](#)
- [Spelling List: Light](#)
- [Spelling List: Sound](#)

7. *Topic Tests*

- [Topic Test: Light](#)

Biological Sciences

Content Descriptor	EP Lessons in 1. Genetics	
<p>Transmission of heritable characteristics from one generation to the next involves DNA and genes</p> <ul style="list-style-type: none"> investigating Aboriginal and Torres Strait Islander Peoples' knowledge of heredity as evidenced by the strict adherence to kinship and family structures, especially marriage laws (OI.8) describing the role of DNA as the blueprint for controlling the characteristics of organisms using models and diagrams to represent the relationship between DNA, genes and chromosomes recognising that genetic information passed on to offspring is from both parents by meiosis and fertilisation representing patterns of inheritance of a simple dominant/recessive characteristic through generations of a family predicting simple ratios of offspring genotypes and phenotypes in crosses involving dominant/recessive gene pairs or in genes that are sex-linked describing mutations as changes in DNA or chromosomes and outlining the factors that contribute to causing mutations 	<p>1. DNA the Molecule</p> <ul style="list-style-type: none"> Discovering the Double Helix Basics of DNA Structure of DNA Nitrogenous Bases The History of Genetic Thought The Knotty New DNA Structure! Extension: Proteins Focus on Data: DNA Fingerprinting: Thirsty Thievery <p>Lab Activity: Extracting DNA</p> <ul style="list-style-type: none"> Extracting DNA Risk Assessment (in RiskAssess) Student Worksheet PDF Lab Report Material PDF Teacher Guide PDF Laboratory Technician Guide PDF Editable Documents - Word (.docx) <p>2. Genes and Chromosomes</p> <ul style="list-style-type: none"> Genes and Genetic Information Homologous Chromosomes Sex Chromosomes The Ethics of Genetics Genomics <p>3. Cell Division</p> <ul style="list-style-type: none"> Mitosis Meiosis Mitosis vs. Meiosis DNA Replication Gametes and Fertilisation Extension: Asexual and Sexual Reproduction 	<p>Lab Activity: Observing Mitosis</p> <ul style="list-style-type: none"> Observing Mitosis Risk Assessment (in RiskAssess) Student Worksheet PDF Lab Report Material PDF Teacher Guide PDF Laboratory Technician Guide PDF Editable Documents - Word (.docx) <p>4. Inheritance</p> <ul style="list-style-type: none"> Mendel Alleles Dominant/Recessive Interactions Inheriting Alleles and Punnett Squares Making Punnett Squares Incomplete Dominance Codominance Pedigrees Sex Linkage Sex Linkage, Punnett Squares and Pedigrees Comprehension: Epigenetics: Inheritance is Strange Focus on Data: The Blue People of Troublesome Creek <p><i>Resources continue over the page</i></p>

	<p>Lab Activity: Modelling Inheritance of Alleles</p> <ul style="list-style-type: none"> • Modelling Inheritance of Alleles • Risk Assessment (in RiskAssess) • Allele Card Handout PDF • Student Worksheet PDF • Lab Report Material PDF • Teacher Guide PDF • Laboratory Technician Guide PDF • Editable Documents - Word (.docx) <p>Lab Activity: Researching Inbreeding in Dogs</p> <ul style="list-style-type: none"> • Background Information - The Consequences of Inbreeding • Research Project - Inbreeding in Dogs • Student Worksheet PDF • Teacher Guide PDF • Editable Documents - Word (.docx) 	<p>5. <i>Mutations</i></p> <ul style="list-style-type: none"> • Mutations • Mutations and Mutagens • Chromosomal Abnormalities • Genetic Diseases • Cancer • Comprehension: Follow Your Nose: Love at First Smell <p>6. <i>Glossary</i></p> <ul style="list-style-type: none"> • Definitions List: Genetics • Definitions MCQ: Genetics • Spelling List: Genetics <p>7. <i>Topic Tests</i></p> <ul style="list-style-type: none"> • Topic Test: Cell Division • Topic Test: DNA, Genes, and Chromosomes
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Content Descriptor	EP Lessons in 2. Evolution	
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<p>The theory of evolution by natural selection explains the diversity of living things and is supported by a range of scientific evidence</p> <ul style="list-style-type: none"> • investigating some of the structural and physiological adaptations of Aboriginal and Torres Strait Islander Peoples to the Australian environment (OI.3, OI.7) • outlining processes involved in natural selection including variation, isolation and selection • describing biodiversity as a function of evolution • investigating changes caused by natural selection in a particular population as a result of a specified selection pressure such as artificial selection in breeding for desired characteristics • relating genetic characteristics to survival and reproductive rates • evaluating and interpreting evidence for evolution, including the fossil record, chemical and anatomical similarities, and geographical distribution of species 	<p>1. <i>The Theory of Evolution</i></p> <ul style="list-style-type: none"> • Geological Time • Theories and Evidence • Darwin's Theory of Evolution • Comprehension: Evolution and Extinction • Extension: The History of Evolutionary Thought • Focus on Data: Natural Selection in Action! <p>Lab Activity: Building an Evolutionary Timeline</p> <ul style="list-style-type: none"> • Building an Evolutionary Timeline • Timeline Guide PDF • Student Worksheet PDF • Teacher Guide PDF • Laboratory Technician Guide PDF • Editable Documents - Word (.docx) 	<p>Lab Activity: Survival of the Mutants</p> <ul style="list-style-type: none"> • Survival of the Mutants • Risk Assessment (in RiskAssess) • Student Worksheet PDF • Lab Report Material PDF • Teacher Guide PDF • Laboratory Technician Guide PDF • Editable Documents - Word (.docx) <p>2. <i>Evidence of Evolution</i></p> <ul style="list-style-type: none"> • The Wallace Line • Geographical Distribution • Evidence from Living Species • Fossils and the Fossil Record • Comprehension: The Ancestor of All Things <p><i>Resources continue over the page</i></p>
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3. Mechanisms of Evolution

- [Biodiversity](#)
- [Mechanisms of Evolution](#)
- [Natural Selection](#)
- [Bacterial Resistance](#)
- [Artificial Selection](#)
- [Artificial Selection: The Good, the Bad and the Downright Strange](#)
- [Extension: Coevolution](#)
- [Extension: Mimicry](#)
- [Extension: Sexual Selection](#)
- [Focus on Data: The Biodiversity Gradient](#)

Lab Activity: Assessing Biodiversity

- [Assessing Biodiversity](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Invertebrate Guide PDF](#)
- [Lab Report Material PDF](#)
- [Student Worksheet PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

4. Explaining Evolution

- [Our Evolution](#)
- [Rewriting Human History](#)
- [The Science of Puppy Dog Eyes](#)
- [Back to the Sea: Cetacean Evolution](#)
- [Feathery Dinosaurs](#)
- [Extinction](#)

Lab Activity: Great Ape Genealogy

- [Great Ape Genealogy](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Lab Report Material PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

5. Glossary

- [Definitions List: Evolution](#)
- [Definitions MCQ: Evolution](#)
- [Spelling List: Evolution](#)

6. Topic Tests

- [Topic Test: The Evidence for Evolution](#)
- [Topic Test: The Mechanisms of Evolution](#)

Chemical Sciences

Content Descriptor	EP Lessons in 3. Atomic Structure and Properties of Elements	
<p>The atomic structure and properties of elements are used to organise them in the Periodic Table</p> <ul style="list-style-type: none">recognising that elements in the same group of the periodic table have similar propertiesdescribing the structure of atoms in terms of electron shellsexplaining how the electronic structure of an atom determines its position in the periodic table and its propertiesinvestigating the chemical activity of metals	<p><i>1. Structure of Atoms</i></p> <ul style="list-style-type: none">What are Atoms, Elements and Compounds?The Structure of an AtomAtomic SymbolsHistory of the Atomic ModelElectron ConfigurationChemicals: Friend or Foe? <p>Lab Activity: Flame Test</p> <ul style="list-style-type: none">Pre Lab: Flame TestPost Lab: Flame TestRisk Assessment (in RiskAssess)Student Worksheet PDFLab Report Material PDFTeacher Guide PDFLaboratory Technician Guide PDFEditable Documents - Word (.docx) <p><i>2. The Periodic Table</i></p> <ul style="list-style-type: none">Overview: The Periodic TableGroup 1 (The Alkali Metals) & Group 2 (The Alkaline Earth Metals)Group 14–The Carbon GroupGroup 17–The HalogensGroup 18 - The Noble GasesOther GroupsTrends in the Periodic TableDesigning the Periodic TableWhat's with the middle and bottom of the Periodic Table?Quiz- First 20 Elements (Name to Symbol)Quiz- First 20 Elements (Symbol to Name)Focus on Data: Understanding the Periodic Table	<p><i>3. Metals</i></p> <ul style="list-style-type: none">Physical Properties of MetalsChemical Properties of MetalsMetals in the Periodic TableMetallic BondingMetal Reactions with OxygenMetal Reactions with WaterMetal Reactions with AcidMetal Displacement ReactionsAlloys and Their UsesMetal Properties RevisionMetal Reactions RevisionComprehension: Metallic Hydrogen or: How I Learned to Stop Worrying and Love the Scientific Proc <p><i>4. Glossary</i></p> <ul style="list-style-type: none">Definitions List: Atoms and the Periodic TableDefinitions MCQ: Atoms and the Periodic TableSpelling List: Atoms and the Periodic Table

Content Descriptor	EP Lessons in 4. Chemical Reactions: Types of Reactions	
<p>Different types of chemical reactions are used to produce a range of products and can occur at different rates</p> <ul style="list-style-type: none"> investigating some of the chemical reactions and methods employed by Aboriginal and Torres Strait Islander Peoples to convert toxic plants into edible food products (OI.5) investigating how chemistry can be used to produce a range of useful substances such as fuels, metals and pharmaceuticals predicting the products of different types of simple chemical reactions using word or symbol equations to represent chemical reactions investigating the effect of a range of factors, such as temperature and catalysts, on the rate of chemical reactions 	<p><i>1. Types of Chemical Reactions</i></p> <ul style="list-style-type: none"> Chemical vs. Physical Chemical Reactions Combination and Decomposition Reactions Acid Reactions Precipitation Reactions Oxidation and Reduction <p>Lab Activity: Identifying Chemical Reactions</p> <ul style="list-style-type: none"> Identifying Chemical Reactions Risk Assessment (in RiskAssess) Student Worksheet PDF Lab Report Material PDF Teacher Guide PDF Laboratory Technician Guide PDF Editable Docs - Word (.docx) <p><i>2. Rates of Reaction</i></p> <ul style="list-style-type: none"> Rate of Reaction Agitation, Concentration and Surface Area Activation Energy, Temperature and Catalysts Extension: Collision Theory Extension: Collision Theory and Rate of Reaction Extension: Factors Affecting Reaction Rates Extension: Rate of Reaction Equations Focus on Data: Graphing Rate of Reaction 	<p>Lab Activity: Modelling Rate of Reaction: Concentration</p> <ul style="list-style-type: none"> Modelling Rate of Reaction: Concentration Risk Assessment (in RiskAssess) Student Worksheet PDF Teacher Guide PDF Laboratory Technician Guide PDF Editable Documents - Word (.docx) <p>Lab Activity: Modelling Rate of Reaction: Temperature</p> <ul style="list-style-type: none"> Modelling Rate of Reaction: Temperature Risk Assessment (in RiskAssess) Student Worksheet PDF Teacher Guide PDF Laboratory Technician Guide PDF Editable Documents - Word (.docx) <p><i>3. Balancing Equations</i></p> <ul style="list-style-type: none"> Chemical Reactions and Equations Conservation of Mass Reactants and Products Writing Chemical Equations 1 Writing Chemical Equations 2 Balancing Chemical Equations Reaction Equations Focus on Data: Breaking the Law (of Conservation of Mass)? <p>Lab Activity: Conservation of Mass</p> <ul style="list-style-type: none"> Conservation of Mass Risk Assessment (in RiskAssess) Lab Report Material PDF Student Worksheet PDF Lab Report Material PDF Teacher Guide PDF Laboratory Technician Guide PDF Editable Docs - Word (.docx)

4. *Creating with Chemistry*

- [Analytical Chemistry](#)
- [Fuels and Pharmaceuticals](#)
- [Polymers](#)
- [Comprehension: Chemical Clocks](#)
- [Comprehension: Chemistry: Glorified Baking?](#)
- [STEM: Alternate Fuels](#)

Lab Activity: Milk Plastic

- [Milk Plastic](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

5. *Extension: Stoichiometry*

- [Extension: Reaction Equations](#)
- [Extension: The Mole](#)
- [Extension: Empirical and Molecular Formulae](#)
- [Extension: Moles and Equations](#)

6. *Glossary*

- [Definitions List: Balancing Equations](#)
- [Definitions List: Chemical Reactions and Rates of Reaction](#)
- [Definitions MCQ: Balancing Equations](#)
- [Definitions MCQ: Chemical Reactions and Rates of Reaction](#)
- [Spelling List: Balancing Equations](#)
- [Spelling List: Chemical Reactions and Rates of Reaction](#)

7. *Topic Tests*

- [Chemical Reactions Revision](#)
- [Topic Test: Chemical Reactions Basics](#)
- [Topic Test: Types of Chemical Reaction](#)
- [Topic Test: Writing Chemical Equations](#)

Earth and Space Sciences

Content Descriptor	EP Lessons in 5. The Universe	
<p>The universe contains features including galaxies, stars and solar systems, and the Big Bang theory can be used to explain the origin of the universe</p> <ul style="list-style-type: none">researching Aboriginal and Torres Strait Islander Peoples' knowledge of celestial bodies and explanations of the origin of the universe (OI.3, OI.5)identifying the evidence supporting the Big Bang theory, such as Edwin Hubble's observations and the detection of microwave radiationrecognising that the age of the universe can be derived using knowledge of the Big Bang theorydescribing how the evolution of the universe, including the formation of galaxies and stars, has continued since the Big Bang	<p><i>1. Introduction to the Universe</i></p> <ul style="list-style-type: none">The Solar System and BeyondModels of the Solar SystemScientific TheoryScientific NotationComprehension: Black Holes <p><i>2. Measuring the Universe</i></p> <ul style="list-style-type: none">Distances in SpaceGravity and the Cosmological PrincipleLight Speed and Light YearsConverting Light YearsSeconds and YearsObserving SpaceRadar RangingExtension: Relativity <p>Lab Activity: Measuring Parallax</p> <ul style="list-style-type: none">Measuring ParallaxRisk Assessment (in RiskAssess)Student Worksheet PDFLab Report Material PDFTeacher Guide PDFLaboratory Technician Guide PDFEditable Documents - Word (.docx) <p><i>3. Galaxies and Stars</i></p> <ul style="list-style-type: none">The Life Cycle of StarsDistances to Stars and ParsecsParallax and Distances Between StarsProperties of StarsReading Hertzsprung-Russell DiagramsCalculating Distance to StarsThe Secret Lives of Ultra-Cool Dwarf StarsLifeThe James Webb Space Telescope	<p>Lab Activity: Flame Tests</p> <ul style="list-style-type: none">Flame Tests2a. Pre Lab: Flame Test2b. Post Lab: Flame TestRisk Assessment (in RiskAssess)Student Worksheet PDFTeacher Guide PDFLaboratory Technician Guide PDFEditable Documents - Word (.docx) <p><i>4. Evidence for the Big Bang</i></p> <ul style="list-style-type: none">The Big Bang TheoryCosmic Background RadiationRed ShiftEnd of the UniverseExtension: Heat & The Cosmic Microwave BackgroundFocus on Data: Redshift and the Expanding Universe <p><i>5. Glossary</i></p> <ul style="list-style-type: none">Definitions List: The UniverseDefinitions MCQ: The UniverseSpelling List: The Universe <p><i>6. Topic Tests</i></p> <ul style="list-style-type: none">Topic Test: Measuring the Universe

Content Descriptor	EP Lessons in 6. Global Systems	
<p>Global systems, including the carbon cycle, rely on interactions involving the biosphere, lithosphere, hydrosphere and atmosphere</p> <ul style="list-style-type: none"> investigating how Aboriginal and Torres Strait Islander Peoples are reducing Australia's greenhouse gas emissions through the reinstatement of traditional fire management regimes (OI.5, OI.9) investigating how human activity affects global systems modelling a cycle, such as the water, carbon, nitrogen or phosphorus cycle within the biosphere explaining the causes and effects of the greenhouse effect investigating the effect of climate change on sea levels and biodiversity considering the long-term effects of loss of biodiversity investigating currently occurring changes to permafrost and sea ice and the impacts of these changes examining the factors that drive the deep ocean currents, their role in regulating global climate, and their effects on marine life 	<p>1. Spheres and Global Cycles</p> <ul style="list-style-type: none"> Spheres Water Cycle The Carbon Cycle The Nitrogen Cycle Phosphorus Cycle Carbon Capture <p>Lab Activity: Convection Currents</p> <ul style="list-style-type: none"> Convection Currents Risk Assessment (in RiskAssess) Student Worksheet PDF Lab Report Material PDF Teacher Guide PDF Laboratory Technician Guide PDF Editable Documents - Word (.docx) <p>2. A Changing Climate</p> <ul style="list-style-type: none"> Climate and Weather Ocean Currents El Niño and La Niña The Greenhouse Effect The Enhanced Greenhouse Effect Human Influences on Climate CFCs and the Ozone Layer Comprehension: If Climate Change is Real, How Come...? Focus on Data: Examining Past Climate Scientific Writing: Arguing For or Against Climate Change <p>Lab Activity: Climate Change</p> <ul style="list-style-type: none"> Climate Change Student Worksheet PDF Lab Report Material PDF Teacher Guide PDF Laboratory Technician Guide PDF Editable Documents - Word (.docx) 	<p>Lab Activity: The Greenhouse Effect</p> <ul style="list-style-type: none"> The Greenhouse Effect Risk Assessment (in RiskAssess) Student Worksheet PDF Lab Report Material PDF Teacher Guide PDF Laboratory Technician Guide PDF Editable Documents - Word (.docx) <p>3. Effects of Climate Change</p> <ul style="list-style-type: none"> Effects of Climate Change on Biodiversity Disappearing Polar Ice Carbon Footprints Effects: Temperature Save the Great Barrier Reef! Apocalypse Now: Natural Disasters Comprehension: Troubled Waters Extension: Pollution Extension: Where Have all the Turtles Gone? <p>Lab Activity: Polar Ice</p> <ul style="list-style-type: none"> Polar Ice Risk Assessment (in RiskAssess) Student Worksheet PDF Lab Report Material PDF Teacher Guide PDF Laboratory Technician Guide PDF Editable Documents - Word (.docx) <p>4. Climate Technology</p> <ul style="list-style-type: none"> Computer Modelling and the Environment STEM: Alternate Fuels STEM: Cleaning Up Our Litter STEM: Cool Robots STEM: Reclaiming our Climate <p><i>Resources continue over the page</i></p>

	<p>5. <i>Glossary</i></p> <ul style="list-style-type: none"> • Definitions List: Global Systems • Definitions MCQ: Global Systems • Spelling List: Global Systems 	<p>6. <i>Topic Tests</i></p> <ul style="list-style-type: none"> • Topic Test: Climate Change • Topic Test: Global Cycles
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Physical Sciences

Content Descriptor	EP Lessons in 7. Energy in Systems	
<p>Energy conservation in a system can be explained by describing energy transfers and transformations</p> <ul style="list-style-type: none"> • recognising that the Law of Conservation of Energy explains that total energy is maintained in energy transfer and transformation • recognising that in energy transfer and transformation, a variety of processes can occur, so that the usable energy is reduced and the system is not 100% efficient • comparing energy changes in interactions such as car crashes, pendulums, lifting and dropping • using models to describe how energy is transferred and transformed within systems 	<p>1. <i>Types of Energy</i></p> <ul style="list-style-type: none"> • Types of Energy • Gravitational Potential Energy • Kinetic Energy <p>Lab Activity: Energy in Food</p> <ul style="list-style-type: none"> • Energy in Food • Risk Assessment (in RiskAssess) • Student Worksheet PDF • Lab Report Material PDF • Teacher Guide PDF • Laboratory Technician Guide PDF • Editable Documents - Word (.docx) <p>Lab Activity: Energy in Skate Parks</p> <ul style="list-style-type: none"> • Energy in Skate Parks • Student Worksheet PDF • Lab Report Material PDF • Teacher Guide PDF • Editable Documents - Word (.docx) • Laboratory Technician Guide PDF <p>2. <i>The Law of Conservation of Energy</i></p> <ul style="list-style-type: none"> • Conservation of Energy • Energy Transfer • Energy Transformations • Work and Power • Energy, Work, and Power • Activity: Investigating Work in Everyday Activities 	<p>Lab Activity: Roller Coasters</p> <ul style="list-style-type: none"> • Roller Coasters • Risk Assessment (in RiskAssess) • Student Worksheet PDF • Lab Report Material PDF • Teacher Guide PDF • Laboratory Technician Guide PDF • Editable Documents - Word (.docx) <p>3. <i>Energy Efficiency</i></p> <ul style="list-style-type: none"> • Useful and Wasted Energy • Energy Efficiency • Energy Calculations • Comprehension: Energy in Rockets • Extension: Electricity Generation • STEM: A Green Utopia <p>Lab Activity: Energy Efficiency of Bouncy Balls</p> <ul style="list-style-type: none"> • Energy Efficiency of Bouncy Balls • Risk Assessment (in RiskAssess) • Student Worksheet PDF • Lab Report Material PDF • Teacher Guide PDF • Laboratory Technician Guide PDF • Editable Documents - Word (.docx) <p><i>Resources continue over the page</i></p>

	<p>4. Energy Changes Around Us</p> <ul style="list-style-type: none"> • Electricity Generation In Australia • Energy in Food • Steam Engines • Levitation at UChicago! • STEM: Life on Mars <p>Lab Activity: Build an Electromagnet</p> <ul style="list-style-type: none"> • Building an Electromagnet • Risk Assessment (in RiskAssess) • Student Worksheet PDF • Lab Report Material PDF • Teacher Guide PDF • Laboratory Technician Guide PDF • Editable Documents - Word (.docx) 	<p>5. Glossary</p> <ul style="list-style-type: none"> • Definitions List: Energy in Systems • Definitions MCQ: Energy in Systems • Spelling List: Energy and Systems
<p>Content Descriptor EP Lessons in 8. Force and Motion</p>		
<p>The motion of objects can be described and predicted using the laws of physics</p> <ul style="list-style-type: none"> • investigating how Aboriginal and Torres Strait Islander Peoples achieve an increase in velocity and subsequent impact force through the use of spear throwers and bows (OI.5) • gathering data to analyse everyday motions produced by forces, such as measurements of distance and time, speed, force, mass and acceleration • recognising that a stationary object, or a moving object with constant motion, has balanced forces acting on it • using Newton's Second Law to predict how a force affects the movement of an object • recognising and applying Newton's Third Law to describe the effect of interactions between two objects 	<p>1. Introduction to Motion</p> <ul style="list-style-type: none"> • Distance and Time • Displacement and Compass Directions • Calculating Displacement • Speed • Acceleration • Using the Acceleration Formula to Calculate Final Velocity • Using the Acceleration Formula to Calculate Initial Velocity • Using the Acceleration Formula to Calculate Time <p>Lab Activity: Ticker Timers</p> <ul style="list-style-type: none"> • Ticker Timers • Risk Assessment (in RiskAssess) • Student Worksheet PDF • Teacher Guide PDF • Laboratory Technician Guide PDF • Editable Documents - Word (.docx) 	<p>2. Graphing Motion</p> <ul style="list-style-type: none"> • Distance-Time Graphs • Displacement-Time Graphs • Velocity-Time Graphs • Acceleration-Time Graphs • Summary of Motion Graphs • Focus on Data: Graphing and Analysing Motion <p>3. Forces</p> <ul style="list-style-type: none"> • Introduction to Forces • Types of Forces: Gravity • Types of Forces: Magnetism vs Friction • Friction • Weight and Mass • Ancient Tools and Weapons • Comprehension: Crashing Drones • Comprehension: History of Rockets • Comprehension: How Planes Stay Up <p style="text-align: right;"><i>Resources continue over the page</i></p>

- [Extension: Earth's Magnetic Field](#)
- [Extension: Pressure](#)
- [Extension: Tides](#)
- [Focus on Data: Space Travel: The Weight Loss Sensation!](#)
- [STEM: The Mass of an Email](#)

Lab Activity: Gravity

- [Gravity](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

4. Newton's Laws of Motion

- [Newton's First Law](#)
- [Newton's Second Law](#)
- [Newton's Third Law](#)
- [Car Safety Systems](#)
- [Car Safety Systems Investigation](#)
- [Sports Science](#)
- [Rockets](#)
- [How BB-8 Works](#)
- [Extension: Planetary Motion](#)

Lab Activity: Balloon Rocket

- [Balloon Rocket](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Lab Report Material PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

Lab Activity: Egg Drop

- [Egg Drop](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Lab Report Material PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

Lab Activity: Truckapults

- [Truckapults](#)
- [Risk Assessment \(in RiskAssess\)](#)
- [Student Worksheet PDF](#)
- [Lab Report Material PDF](#)
- [Teacher Guide PDF](#)
- [Laboratory Technician Guide PDF](#)
- [Editable Documents - Word \(.docx\)](#)

5. Glossary

- [Definitions List: Force and Motion](#)
- [Definitions MCQ: Force and Motion](#)
- [Spelling List: Force and Motion](#)

6. Topic Tests

- [Topic Test: Motion](#)