

NSW Science Content Map

Education Perfect Science is an online learning resource with scaffolded Smart Lessons aligned to the NSW Curriculum. This table aligns the lessons provided by Education Perfect to the NSW Curriculum.

Stage 5 NSW Curriculum	
Science Understanding	
Physical World	Education Perfect Lessons
<p>Energy transfer through different mediums can be explained using wave and particle models. (ACSSU182)</p>	<p>Science Understanding Heat Transfer Conduction Convection Radiation Conductors and Insulators Sound Sound Formation Pitch and Loudness Hearing Sound Light as a Wave Colour Materials Reflection Refraction Total Internal Reflection Lenses Light: Summary Curved Mirrors Plane Mirrors and Reflection Snell's Law Radio Waves Cell Phones Internet X-rays Science as a Human Endeavour Bushfires Housing Insulation Australian Aboriginal Music Bionic Ears Turned Down for What: Workplace Noise Bionic Eye The History of Lenses You, Me and UV Radar Working in Physics Science Investigations Convection in Liquids Heat Conduction</p>

	<p> Insulators Radiation Musical Bottles Slinky Waves Speed of Sound Straw Instruments Colourful Candy Law of Reflection Lenses Periscopes Refraction Science Comprehension History of Radio Communication </p>
<p>The motion of objects can be described and predicted using the laws of physics. (ACSSU229)</p>	<p> Science Understanding Distance and Time Displacement Speed and Velocity Acceleration Using the Acceleration Formula Distance-Time and Displacement-Time Graphs Velocity-Time Graphs Acceleration-Time Graphs Summary of Motion Graphs Introduction to Forces Types of Forces Newton's First Law Newton's Second Law Newton's Third Law Car Safety Systems Investigation Planetary Motion Tides Science as a Human Endeavour Car Safety Systems How BB-8 Works Rockets Sports Science Science Investigations Balloon Rocket Egg Drop Gravity Reaction Times Ticker Timers Truckapults Science Comprehension History of Rockets </p>
<p>Scientific understanding of current electricity has resulted in technological developments designed to improve the efficiency in generation and use of electricity.</p>	<p> Science Understanding Useful and Wasted Energy Work and Power Energy Efficiency Energy Calculations Electricity </p>

	<ul style="list-style-type: none"> Electric Circuits Current Resistance Voltage Introduction to Ohm's Law Batteries Conductors and Insulators Circuits in Series Circuits in Parallel Circuits Comparison Calculating Using Ohm's Law Science as a Human Endeavour Electricity Generation Steam Engines The Sixth Sense: Electroreception War of the Currents Science Investigations Energy Efficiency of Bouncy Balls Battery Voltages Building Circuits Ohm's Law Resistance Static Electricity Science Comprehension Development of Light Bulbs
<p>Energy conservation in a system can be explained by describing energy transfers and transformations. (ACSSU190)</p>	<ul style="list-style-type: none"> Science Understanding Types of Energy Conservation of Energy Energy Transfer Energy Transformations Science as a Human Endeavour Energy in Food Science Investigations Building an Electromagnet Energy in Food Energy in Skate Parks Roller Coasters
<p>Earth and Space</p>	<p>Education Perfect Lessons</p>
<p>Scientific understanding, including models and theories, are contestable and are refined over time through a process of review by the scientific community. (ACSHE157, ACSHE191)</p>	<ul style="list-style-type: none"> Science Understanding Universe Introduction Scientific Theory Scientific Notation Gravity Light and Light Speed Radar Ranging The Life Cycle of Stars Distances between Stars, Parallax and Parsecs Properties of Stars Hertzsprung-Russell Diagrams The Big Bang Theory

	<p> Cosmic Background Radiation Red Shift Relativity Science as a Human Endeavour End of the Universe Life Observing Space Science Investigations Flame Tests Measuring Parallax </p>
<p>The theory of plate tectonics explains global patterns of geological activity and continental movement. (ACSSU180)</p>	<p> Science Understanding Igneous Rocks Metamorphic Rocks Sedimentary Rocks Compositional Layers of the Earth Wegener's Theory of Continental Drift Seafloor Spreading and Hess' Theory Plate Tectonics Divergent Plate Boundaries Convergent Plate Boundaries Transform Boundaries and Faults Formation of Volcanoes Types of Lava Volcanic Hazards Earthquakes Measuring Earthquakes Seismic Hazards Earth's Magnetic Field Science as a Human Endeavour Development of the Geological Timescale Evidence of the Earth's Structure Supercontinents Volcano Exploration Robots Science Investigations Build a Seismometer Science Comprehension Subduction Zones and Ophiolite Belts </p>
<p>People use scientific knowledge to evaluate claims, explanations or predictions in relation to interactions involving the atmosphere, biosphere, hydrosphere and lithosphere. (ACSHE160, ACSHE194)</p>	<p> Science Understanding Spheres Water Cycle Carbon Cycle Nitrogen Cycle Phosphorus Cycle Climate and Weather Ocean Currents El Nino and La Nina Biodiversity Human Influences on Climate The Greenhouse Effect The Enhanced Greenhouse Effect Causes </p>

	Effects: Temperature Effects: Polar Ice Science as a Human Endeavour Carbon Capture Carbon Footprints CFCs and the Ozone Layer Computer Modelling and the Environment Science Investigations Climate Change Polar Ice
Living World	Education Perfect Lessons
<p>Multicellular organisms rely on coordinated and interdependent internal systems to respond to changes in their environment. (ACSSU175)</p>	Science Understanding Unicellular and Multicellular Organisms Homeostasis Control Systems The Nervous System The Neuron Nerve Pathways Sensory Receptors and the Eye The Endocrine System Endocrine System in Action Immune System First & Second Lines of Defence The Third Line of Defence & Lymphatic System What are Diseases? What are Pathogens? Cancer Chickenpox Malaria Degenerative Diseases Endocrine Diseases Pathogens Starfish Nervous System Science as a Human Endeavour Disease Treatment How are Diseases Spread? Science Investigations Eye Dissection Kidney Dissection Testing Reflexes
<p>Conserving and maintaining the quality and sustainability of the environment requires scientific understanding of interactions within, the cycling of matter and the flow of energy through ecosystems.</p>	Science Understanding Introduction to Ecology The Biosphere and Biomes Species and Organisms Parts of an Ecosystem Abiotic Factors Biotic Factors and Competition Symbiosis Adaptations Producers

	<ul style="list-style-type: none"> Consumers and Decomposers Food Chains and Food Webs Trophic Levels The Carbon Cycle Biodiversity Bushfires Drought Flooding The Greenhouse Effect The Nitrogen Cycle Science as a Human Endeavour Human Impacts Invasive Species Oil Spills Pesticides Predicting Population Changes Science Investigations Designing Experiments on Pollution Photosynthesis and Starch Researching Carmichael Coal Mine Sampling a Leaf Litter Ecosystem
<p>Advancements in scientific understanding often rely on developments in technology, and technological advances are often linked to scientific discoveries (ACSHE158, ACSHE192)</p>	<ul style="list-style-type: none"> Science Understanding Basics of DNA Structure of DNA Nitrogenous Bases Genes and Genetic Information Homologous Chromosomes Sex Chromosomes DNA Replication Mitosis Gametes and Fertilisation Meiosis Mitosis vs. Meiosis Mendel Alleles Inheriting Alleles and Punnett Squares Making Punnett Squares Allele Interactions Pedigrees Sex Linkage Sex Linkage, Punnett Squares and Pedigrees Chromosomal Abnormalities Science as a Human Endeavour Discovering the Double Helix Genomics The Ethics of Genetics The History of Genetic Thought Science Investigations Extracting DNA Modelling Inheritance and Alleles Observing Mitosis Researching Inbreeding in Dogs

<p>The theory of evolution by natural selection explains the diversity of living things and is supported by a range of scientific evidence. (ACSSU185)</p>	<p>Science Understanding Geological Time Theories and Evidence Fossils and the Fossil Record Evidence from Living Species Geographical Distribution Biodiversity Extinction Darwin's Theory of Evolution Mechanisms of Evolution Natural Selection Artificial Selection Examples of Evolution Science as a Human Endeavour Artificial Selection: The Good, the Bad and the Downright Strange Back to the Sea: Cetacean Evolution Our Evolution The History of Evolutionary Thought The Wallace Line Science Investigations Assessing Biodiversity Building an Evolutionary Timeline Great Ape Genealogy Survival of the Mutants</p>
<p>Chemical World</p>	<p>Education Perfect Lessons</p>
<p>Scientific understanding changes and is refined over time through a process of review by the scientific community.</p>	<p>Science Understanding Review: Matter Atomic Structure Atomic Symbols What are Isotopes? The Periodic Table Introduction to Ions Ionic Compounds Ions in Solution Naming Ionic Compounds Introduction to Radioactivity Types of Radiation Half-Lives Nuclear Bombs Nuclear Fission Nuclear Power Types of Radiation Writing Nuclear Equations Science as a Human Endeavour Effects of Radiation on Humans Models of the Atom Radioactivity in Industry Radioactivity in Medicine Science Investigations Build an Atom</p>

	Skittle Half Lives
<p>The atomic structure and properties of elements are used to organise them in the Periodic Table. (ACSSU186)</p>	<p>Science Understanding History of the Atomic Model Electron Configuration The Periodic Table Trends in the Periodic Table Introduction to Bonding Metallic Bonding Ionic Bonding Covalent Bonding Groups 1 and 2 Group 14 Group 17 Group 18 Other Groups</p> <p>Science as a Human Endeavour Chemical: Friend or Foe? Spectroscopy</p> <p>Science Investigations Flame Test Ionic Bonding Card Game Modelling Bonding using Tennis Balls</p>
<p>Chemical reactions involve rearranging atoms to form new substances; during a chemical reaction mass is not created or destroyed. (ACSSU178)</p>	<p>Science Understanding Acids Bases Indicators Acid-Metal Reactions Neutralisation Reactions Endothermic and Exothermic Reactions Combustion Reactions Oxidation Reactions Types of Chemical Reactions</p> <p>Science as a Human Endeavour Acid Rain: Reactions Around Us Combustion and the Environment Photosynthesis: Reactions Around Us Respiration: Reactions Around Us</p> <p>Science Investigations Acids and Metals</p> <p>Science Comprehension Acids and Bases</p>
<p>Different types of chemical reactions are used to produce a range of products and can occur at different rates and involve energy transfer. (ACSSU187)</p>	<p>Science Understanding Chemical vs. Physical Chemical Reactions Composition and Decomposition Reactions Acid Reactions Precipitation Reactions Oxidation and Reduction Rate of Reaction Agitation, Concentration and Surface Area</p>

	Activation Energy, Temperature and Catalysts Collision Theory Collision Theory and Rate of Reaction Rate of Reaction Equations Factors Affecting Reaction Rates Reaction Equations The Mole Empirical and Molecular Formulae Moles and Equations Science as a Human Endeavour Analytical Chemistry Extracting Metals Fuels and Pharmaceuticals Polymers Science Investigations Milk Plastic Modelling Rate of Reaction
Science as a Human Endeavour	
Nature and development of science	Education Perfect Lessons
<p>Scientific understanding, including models and theories, is contestable and is refined over time through a process of review by the scientific community (ACSHE191)</p>	Physical World Australian Aboriginal Music The History of Lenses Working in Physics Rockets War of the Currents Earth and Space End of the Universe Life Development of the Geological Timescale Evidence of the Earth's Structure Supercontinents Living World Predicting Population Changes Discovering the Double Helix The History of Genetic Thought Our Evolution The History of Evolutionary Thought The Wallace Line Chemical World Models of the Atom Spectroscopy
<p>Advances in scientific understanding often rely on technological advances and are often linked to scientific discoveries (ACSHE192)</p>	Physical World The History of Lenses Radar Rockets War of the Currents Earth and Space Observing Space

	<p> Evidence of the Earth's Structure Volcano Exploration Robots CFCs and the Ozone Layer Computer Modelling and the Environment </p> <p>Living World</p> <p> Disease Treatment Discovering the Double Helix Genomics The History of Evolutionary Thought The Wallace Line </p> <p>Chemical World</p> <p> Models of the Atom Radioactivity in Industry Radioactivity in Medicine Spectroscopy Polymers </p>
<p>Use and influence of science</p>	<p>Education Perfect Lessons</p>
<p>People use scientific knowledge to evaluate whether they accept claims, explanations or predictions, and advances in science can affect people's lives, including generating new career opportunities (ACSHE194)</p>	<p>Physical World</p> <p> Bushfires Bionic Ears Turned Down for What: Workplace Noise Bionic Eye You, Me and UV Radar Working in Physics How BB-8 Works Sports Science Electricity Generation Steam Engines </p> <p>Earth and Space</p> <p> End of the Universe Life Observing Space Volcano Exploration Robots </p> <p>Living World</p> <p> Disease Treatment Human Impacts Invasive Species Oil Spills Pesticides Predicting Population Changes Genomics The Ethics of Genetics </p> <p>Chemical World</p> <p> Radioactivity in Medicine Chemical: Friend or Foe? Acid Rain: Reactions Around Us Combustion and the Environment Photosynthesis: Reactions Around Us Respiration: Reactions Around Us </p>

	Analytical Chemistry Fuels and Pharmaceuticals
<p>Values and needs of contemporary society can influence the focus of scientific research (ACSHE230)</p>	<p>Physical World</p> <p>Bushfires Housing Insulation Bionic Ears Turned Down for What: Workplace Noise Bionic Eye You, Me and UV Radar Working in Physics Car Safety Systems Sports Science Electricity Generation Steam Engines The Sixth Sense: Electroreception Energy in Food</p> <p>Earth and Space</p> <p>Volcano Exploration Robots Carbon Capture Carbon Footprints CFCs and the Ozone Layer Computer Modelling and the Environment</p> <p>Living World</p> <p>Disease Treatment How are Diseases Spread? Human Impacts The Ethics of Genetics Artificial Selection: The Good, the Bad and the Downright Strange Back to the Sea: Cetacean Evolution</p> <p>Chemical World</p> <p>Effects of Radiation on Humans Radioactivity in Industry Acid Rain: Reactions Around Us Combustion and the Environment Extracting Metals Fuels and Pharmaceuticals</p>
Science Inquiry Skills	
Questioning and predicting	Education Perfect Lessons
<p>Formulate questions or hypotheses that can be investigated scientifically (ACSIS198)</p>	<p>Science Investigations</p> <p>Heat Conduction Insulators Radiation Slinky Waves Refraction Balloon Rocket</p>

	Truckapults Building Circuits Energy in Food Energy in Skate Parks Climate Change Designing Experiments on Pollution Assessing Biodiversity Modelling Bonding using Tennis Balls Acids and Metals Science Inquiry Skills Lessons Hypothesising and Predicting
Planning and conducting	Education Perfect Lessons
<p>Plan, select and use appropriate investigation types, including fieldwork and laboratory experimentation, to collect reliable data; assess risk and address ethical issues associated with these methods (ACSIS199)</p>	Science Investigations Convection in Liquids Heat Conduction Insulators Radiation Musical Bottles Slinky Waves Speed of Sound Straw Instruments Colourful Candy Law of Reflection Lenses Periscopes Refraction Balloon Rocket Egg Drop Gravity Reaction Times Ticker Timers Truckapults Energy Efficiency of Bouncy Balls Battery Voltages Building Circuits Ohm's Law Resistance Static Electricity Building an Electromagnet Energy in Food Energy in Skate Parks Roller Coasters Flame Tests Measuring Parallax Build a Seismometer Climate Change Polar Ice Eye Dissection Kidney Dissection Testing Reflexes

	<p> Eye Dissection Kidney Dissection Testing Reflexes Designing Experiments on Pollution Photosynthesis and Starch Sampling a Leaf Litter Ecosystem Extracting DNA Modelling Inheritance and Alleles Observing Mitosis Assessing Biodiversity Building an Evolutionary Timeline Great Ape Genealogy Survival of the Mutants Build an Atom Skittle Half Lives Flame Test Ionic Bonding Card Game Modelling Bonding using Tennis Balls Acids and Metals Milk Plastic Science Inquiry Skills Lessons Control Variables and Control Groups Fair Tests Repeatability and Reliability Sample Size Validity Variables Safety Equipment </p>
<p>Select and use appropriate equipment, including digital technologies, to collect and record data systematically and accurately (ACSIS200)</p>	<p> Science Investigations Convection in Liquids Heat Conduction Insulators Radiation Musical Bottles Speed of Sound Law of Reflection Lenses Refraction Egg Drop Reaction Times Ticker Timers Truckapults Energy Efficiency of Bouncy Balls Battery Voltages Ohm's Law Resistance Static Electricity Building an Electromagnet Energy in Food Energy in Skate Parks Flame Tests Measuring Parallax </p>

	Polar Ice Designing Experiments on Pollution Sampling a Leaf Litter Ecosystem Assessing Biodiversity Great Ape Genealogy Survival of the Mutants Build an Atom Flame Test Milk Plastic Science Inquiry Skills Lessons Accuracy Bunsen Burner Equipment Types Separating Substances and Other Equipment Measuring Electricity Measuring in Science Magnification Parts and Function of a Microscope Types of Microscopes Using a Microscope Reading the Meniscus
Processing and analysing data and information	Education Perfect Lessons
<p>Analyse patterns and trends in data, including describing relationships between variables and identifying inconsistencies (AC SIS203)</p>	Science Investigations Heat Conduction Insulators Radiation Speed of Sound Colourful Candy Law of Reflection Refraction Balloon Rocket Gravity Reaction Times Ticker Timers Truckapults Energy Efficiency of Bouncy Balls Battery Voltages Ohm's Law Resistance Energy in Food Energy in Skate Parks Measuring Parallax Polar Ice Designing Experiments on Pollution Great Ape Genealogy Skittle Half Lives Science Inquiry Skills Lessons Algebra - Algebra in Science Algebra - Rearranging Equations

	Interpreting Data Tables Matching Tables to Graphs Organising Data into a Data Table from an Experiment Choosing Appropriate Units Units of Distance Units of Energy Units of Speed Units of Volume Scientific Notation Significant Figures Interpreting Scale Bar Graphs Line Graphs Scatter Graphs
<p>Use knowledge of scientific concepts to draw conclusions that are consistent with evidence (ACSIS204)</p>	<p>Science Investigations Heat Conduction Insulators Reaction Times Truckapults Building Circuits Energy in Food Energy in Skate Parks Climate Change Designing Experiments on Pollution Researching Carmichael Coal Mine Great Ape Genealogy</p> <p>Science Inquiry Skills Lessons Food Webs Interpreting Diagrams Water Cycle</p>
<p>Evaluating</p>	<p>Education Perfect Lessons</p>
<p>Evaluate conclusions, including identifying sources of uncertainty and possible alternative explanations, and describe specific ways to improve the quality of the data (ACSIS205)</p>	<p>Science Investigations Convection in Liquids Heat Conduction Insulators Radiation Speed of Sound Law of Reflection Refraction Balloon Rocket Egg Drop Gravity Reaction Times Ticker Timers Truckapults Energy Efficiency of Bouncy Balls Battery Voltages Building Circuits</p>

	Ohm's Law Resistance Energy in Food Energy in Skate Parks Measuring Parallax Build a Seismometer Eye Dissection Kidney Dissection Testing Reflexes Eye Dissection Kidney Dissection Testing Reflexes Designing Experiments on Pollution Extracting DNA Assessing Biodiversity Building an Evolutionary Timeline Survival of the Mutants Ionic Bonding Card Game Acids and Metals Milk Plastic Science Inquiry Skills Lessons Evaluating in Science
<p>Critically analyse the validity of information in primary and secondary sources, and evaluate the approaches used to solve problems (AC SIS206)</p>	Science Investigations Climate Change Researching Carmichael Coal Mine Researching Inbreeding in Dogs
<p>Communicating</p>	<p>Education Perfect Lessons</p>
<p>Communicate scientific ideas and information for a particular purpose, including constructing evidence-based arguments and using appropriate scientific language, conventions and representations (AC SIS208)</p>	Science Investigations Slinky Waves Speed of Sound Straw Instruments Balloon Rocket Egg Drop Static Electricity Building an Electromagnet Climate Change Designing Experiments on Pollution Researching Carmichael Coal Mine Researching Inbreeding in Dogs Science Inquiry Skills Lessons Graphs in Science Observations and Inferences Scientific Method