

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 mapped to the NSW Curriculum.

Stage 4 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 What is Energy? Kinetic Energy Potential Energy Identifying KE or PE Units of Energy Converting between Joules (J) and Kilojoules (kJ) Converting between Kilojoules (kJ) and Megajoules (MJ) Introduction to Heat Transfer Heat Transfer Conduction Convection Radiation Electricity Electric Circuits Energy Calculations Qualitative and Quantitative Data Science Investigations Building a Solar Oven Investigating Heat Energy</p>
<p>The motion of objects can be described and predicted using the laws of physics. (ACSSU229)</p>	<p>Science Understanding What are Forces? Drawing Forces Balanced and Unbalanced Forces Contact and Non-Contact Forces Magnetism Gravity Levers Inclined Planes Wheels, Axles and Pulleys Gears Bicycle Investigation Newton's First Law Newton's Second Law Newton's Third Law Calculating Net Force Earth's Magnetic Field</p>

	<p> Electrostatic Force Friction Gear Ratio Planetary Motion Tides Science as a Human Endeavour Ancient Tools and Weapons Comparing Robots Fact or Friction Safety Systems Sports Science Science Investigations A Ramp as a Simple Machine Build a Marshmallow Blaster Build an Electroscope Friction Investigation Levers Mapping Magnetic Fields </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 Electricity Electric Circuits Current Resistance Voltage Introduction to Ohm's Law Batteries Conductors and Insulators Circuits in Series Circuits in Parallel Useful and Wasted Energy Cogeneration and Engines Science as a Human Endeavour Cars of the Future Energy Efficient Houses The Development of Flight The Power Grid and You Science Investigations Building a Solar Oven Energy Transformations Static Electricity </p>
<p>Energy conservation in a system can be explained by describing energy transfers and transformations.(ACSSU190)</p>	<p> Science Understanding Law of Conservation of Energy Introduction to Heat Transfer Heat Transfer Conduction Convection Radiation Introduction to Conductors and Insulators Conductors and Insulators Energy Transformations Displaying Energy Transformations </p>

	Energy Transformations and Food Science Investigations Bouncy Balls and Energy Efficiency Building a Solar Oven Energy in Skate Parks Energy Transformations Rube Goldberg Machine
Earth and Space	Education Perfect Lessons
<p>Sedimentary, igneous and metamorphic rocks contain minerals and are formed by processes that occur within Earth over a variety of timescales. (ACSSU153)</p>	Science Understanding Earth's Structure Earth's Processes Weathering and Erosion Introduction to Minerals Identifying Minerals Igneous Rocks Sedimentary Rocks Metamorphic Rocks The Rock Cycle Australian Landforms formed by Physical Weathering, Erosion and Sedimentation Australian Landforms formed by Volcanism and Chemical Weathering Geological Time Science as a Human Endeavour Australian Fossils Martian Geology Minerals and Rocks as Resources Mining and Mineral Exploration Volcanology Science Investigations Build a Geological Timescale Build a Stratigraphic Column Cooling Crystals Simulating Erosion
<p>Scientific knowledge changes as new evidence becomes available. Some technological developments and scientific discoveries have significantly changed people's understanding of the solar system.</p>	Science Understanding The Universe Gravity Comets Asteroids and Meteoroids Earth, Moon and Sun Day and Night Time Zones Seasons Phases Tides Lunar Eclipse Solar Eclipse Earth's Magnetic Field Planetary Motion Science as a Human Endeavour

	<p> Calendars and the Solar Year Exploring Space Indigenous Constellations Models of the Solar System Satellites Telescopes Science Investigations Making a Sundial Modelling Gravity Modelling the Earth, Moon and Sun Pinhole Camera Sunlight and Seasons </p>
<p>Scientific knowledge influences the choices people make in regard to the use and management of the Earth's resources.</p>	<p> Science Understanding Introduction to Earth's Resources Renewable and Non-Renewable Energy Fossil Fuels as a Resource Soil as a Resource Minerals and Ores as Resources Mining Nuclear Fuel as a Resource Living Things as a Resource Air as a Resource Wind as a Resource Wind Turbines Solar Energy Water Power Renewable vs. Non-Renewable Resources Science as a Human Endeavour Antarctica, a Shared Continent Changing Seasons Renewable Energy Science, Tradition and Modern Medicine Science Investigations Solar Oven Weather in a Jar </p>
<p>Science understanding influences the development of practices in areas of human activity such as industry, agriculture and marine and terrestrial resource management. (ACSHE121, ACSHE136)</p>	<p> Science Understanding Water on Earth The Water Cycle as a Closed System States of Water Water Cycle Influences on the Water Cycle Aquifers Desalination Irrigation Water Conservation Science as a Human Endeavour Water Management Science Investigations Evaporation Make Your Own Aquifer Turbine Power </p>

Living World	Education Perfect Lessons
<p>There are differences within and between groups of organisms; classification helps organise this diversity. (ACSSU111)</p>	<p>Science Understanding Introduction to Classification Uses of Classification Living or Non-Living? MRS GREN Types of Keys Linnaean Classification Binomial Nomenclature Species and Hybrids Animal Phyla The Six Kingdoms Vertebrates</p> <p>Science as a Human Endeavour Carl Linnaeus Identifying Species Plant Divisions The Platypus</p> <p>Science Investigations Building Dichotomous Keys Classifying Leaves Research Project Using Dichotomous Keys</p>
<p>Cells are the basic units of living things and have specialised structures and functions. (ACSSU149)</p>	<p>Science Understanding What is a Cell? Size of Cells Parts and Function of a Microscope Types of Microscopes Magnification Using a Microscope Pond Water Investigation Prokaryotic Cells Bacterial Cells Eukaryotic Cells Animal Cells Plant Cell Structure Fungal Cell Structure Cell Division in Bacteria Cell Division in Humans Specialised Animal Cells Specialised Plant Cells Levels of Organisation Animal vs. Plant Cells Diffusion Diffusion and Cell Size Prokaryotic vs. Eukaryotic</p> <p>Science as a Human Endeavour Cell Theory Stem Cells Vaccination</p> <p>Science Investigations</p>

	Jelly Cells Pond Critters Preparing and Observing Cells Using a Microscope
<p>Multicellular organisms contain systems of organs that carry out specialised functions that enable them to survive and reproduce. (ACSSU150)</p>	<p>Science Understanding Introduction to Body Systems Digestive System as a Whole Food Groups Mouth and Oesophagus Stomach and Small Intestine Large Intestine and Rectum Comparing Digestion in Other Animals Introduction to Respiration Breathing Gas Exchange Respiration in Cells Respiration Compare and Contrast Introduction to the Circulatory System Heart Blood Vessels Blood Introduction to the Excretory System Excretory Organs The Kidneys and Urine Production Kidney Disease Musculoskeletal System Bones and Joints Muscles Injuries Sexual Reproduction in Plants Pollination Seed Dispersal and Germination Asexual Reproduction in Plants Sexual Reproduction in Animals Asexual Reproduction in Animals Puberty Male Reproduction Female Reproduction Pregnancy Birth Photosynthesis Plant Systems Adapting to Extreme Climates Diffusion Diffusion and Body Systems Exercise and the Body Stress Effects on the Body Science as a Human Endeavour Maple Syrup Plant Cloning Science Investigations Cross Pollination</p>

	Flower Dissection Heart Dissection
<p>Scientific knowledge changes as new evidence becomes available, and some scientific discoveries have significantly changed people's understanding of the world. (ACSHE119, ACSHE134)</p>	<p>Science Understanding Linnaean Classification Kidney Disease Injuries Scientific Methods of Conservation Science as a Human Endeavour Antibiotics Disease Treatment and Control History of Microscopes Stem Cells Contraception Ethical Issues of Organ Transplants Infertility Organ Transplants Science Investigations First Aid and Body Systems</p>
<p>Science and technology contribute to finding solutions to conserving and managing sustainable ecosystems.</p>	<p>Science Understanding Ecology Species vs. Organism Ecosystem Biotic and Abiotic Factors Interdependent Relationships Predators, Prey & Competition Producers & Photosynthesis Consumers Food Chains Food Webs Adaptations Cane Toad as an Introduced Species Deforestation Diurnal vs. Nocturnal Ecosystem Conservation Introduced Species Oil Pollution and Industrial Waste Pesticides Scientific Methods of Conservation Species Conservation Water Pollution Science as a Human Endeavour Antarctica Australian Bushfires Global Warming Introduced and Invasive Species Invasive Species in Australia Pollution and Ecosystems Saving the Tasmanian Devil What is Pollution? Science Investigations Build a Food Web Investigation</p>

	Collecting Invertebrates in Quadrats Extracting Leaf Pigments Growing Plants Under Different Conditions Measuring Abiotic Factors in Water
Chemical World	Education Perfect Lessons
<p>The properties of the different states of matter can be explained in terms of the motion and arrangement of particles. (ACSSU151)</p>	<p>Science Understanding What is Matter? States of Matter Particles Solids Liquids Gases Particle Model of Matter Changing States Melting and Freezing Boiling, Evaporation and Condensation Sublimation and Deposition Temperature and Changing State Density Mass and Volume Pressure Energy in Matter Newtonian and Non-Newtonian Fluids</p> <p>Science as a Human Endeavour Heatpumps and Refrigerators States of Matter in Space The Water Cycle and Weather When Water Freezes</p> <p>Science Investigations Building a Density Tower Building a Steam Engine Making Ice Cream Observing Atmospheric Pressure</p>
<p>Scientific knowledge and developments in technology have changed our understanding of the structure and properties of matter.</p>	<p>Science Understanding Introduction to Elements, Compounds and Mixtures Atoms Elements Metals, Non-Metals and Metalloids Compounds Molecules Chemical Formulas Chemical Bonding The Periodic Table</p> <p>Science as a Human Endeavour Carbon Chemistry Discovering Elements Marie Curie and Radioactivity Materials Science</p> <p>Science Investigations Comparing Properties</p>

	Flame Test Indirect Observations Making Models
<p>Mixtures, including solutions, contain a combination of pure substances that can be separated using a range of techniques. (ACSSU113)</p>	<p>Science Understanding Introduction to Mixtures Pure and Impure Substances Solute and Solvent Concentrations Suspensions Colloids Emulsions Introduction to Separation Filtration Centrifuging Evaporation Distillation Adsorption Chromatography Crystallisation Magnetic and Electrostatic Separation Separating Mixtures</p> <p>Science as a Human Endeavour Blood as a Mixture Indigenous Art using Mixtures Recycling Sewage Separation in Food Separation in Industries Water Treatment</p> <p>Science Investigations Candy Crystals Chromatography: Separating Colours Filtration Making a Solar Still Separating a Basic Mixture Temperature and Dissolving</p>
<p>In a chemical change, new substances are formed, which may have specific properties related to their uses in everyday life.</p>	<p>Science Understanding Physical Properties Physical Changes Chemical Reactions Writing Chemical Reactions Chemical Properties Using Substances Based on their Properties Writing Symbol Equations</p> <p>Science as a Human Endeavour Alchemy Recycling Synthetic Materials Working in Chemistry</p> <p>Science Investigations Making Recycled Paper Observing Chemical Reactions</p>

	Observing Reactions with Fire Rusting in Different Environments
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>	<p>Physical World The Development of Flight Comparing Robots</p> <p>Earth and Space Martian Geology Calendars and the Solar Year Exploring Space Models of the Solar System Satellites Telescopes Science, Tradition and Modern Medicine</p> <p>Living World Antibiotics Cell Theory History of Microscopes Plant Cloning Carl Linnaeus Identifying Species Global Warming</p> <p>Chemical World States of Matter in Space When Water Freezes Carbon Chemistry Discovering Elements Marie Curie and Radioactivity Materials Science Alchemy</p>
<p>Advances in scientific understanding often rely on technological advances and are often linked to scientific discoveries (ACSHE192)</p>	<p>Physical World The Development of Flight Safety Systems</p> <p>Earth and Space Martian Geology Mining and Mineral Exploration Volcanology Antarctica, a Shared Continent Changing Seasons Renewable Energy Science, Tradition and Modern Medicine Indigenous Constellations Water Management</p> <p>Living World Cell Theory History of Microscopes Infertility</p>

	Organ Transplants Plant Divisions The Platypus Antarctica Chemical World Carbon Chemistry Discovering Elements Marie Curie and Radioactivity Materials Science Alchemy Indigenous Art using Mixtures
Use and influence of science	Education Perfect Lessons
<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>	Physical World Cars of the Future Energy Efficient Houses The Development of Flight Safety Systems Earth and Space Water Management Living World Antibiotics Stem Cells Vaccination Contraception Ethical Issues of Organ Transplants Infertility Plant Cloning Introduced and Invasive Species Invasive Species in Australia Pollution and Ecosystems Saving the Tasmanian Devil What is Pollution? Chemical World Heatpumps and Refrigerators Carbon Chemistry Marie Curie and Radioactivity Materials Science Recycling Synthetic Materials Blood as a Mixture Recycling Sewage Water Treatment
<p>Values and needs of contemporary society can influence the focus of scientific research (ACSHE230)</p>	Physical World The Power Grid and You Ancient Tools and Weapons Comparing Robots Fact or Friction Sports Science Earth and Space

	<p>Australian Fossils Minerals and Rocks as Resources Mining and Mineral Exploration Volcanology Water Management Changing Seasons Science, Tradition and Modern Medicine</p> <p>Living World Antibiotics Disease Treatment and Control Stem Cells Maple Syrup Plant Cloning Organ Transplants Saving the Tasmanian Devil</p> <p>Chemical World The Water Cycle and Weather Carbon Chemistry Materials Science Synthetic Materials Working in Chemistry Separation in Food Separation in Industries Recycling Sewage Water Treatment</p>
Science Inquiry Skills	
Questioning and predicting	Education Perfect Lessons
<p>Formulate questions or hypotheses that can be investigated scientifically (AC SIS198)</p>	<p>Science Investigations Building a Solar Oven Investigating Heat Energy A Ramp as a Simple Machine Build a Marshmallow Blaster Friction Investigation Bouncy Balls and Energy Efficiency Energy in Skate Parks Rube Goldberg Machine Cooling Crystals Solar Oven Research Project Growing Plants Under Different Conditions Measuring Abiotic Factors in Water Building a Density Tower Observing Atmospheric Pressure</p> <p>Science Inquiry Skills Lessons Hypothesising and Predicting</p>
Planning and conducting	Education Perfect Lessons

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 ([AC SIS199](#))

Science Investigations

[Building a Solar Oven](#)
[Investigating Heat Energy](#)
[A Ramp as a Simple Machine](#)
[Build a Marshmallow Blaster](#)
[Build an Electroscope](#)
[Friction Investigation](#)
[Levers](#)
[Mapping Magnetic Fields](#)
[Energy Transformations](#)
[Static Electricity](#)
[Bouncy Balls and Energy Efficiency](#)
[Energy in Skate Parks](#)
[Rube Goldberg Machine](#)
[Build a Geological Timescale](#)
[Cooling Crystals](#)
[Simulating Erosion](#)
[Making a Sundial](#)
[Modelling Gravity](#)
[Modelling the Earth, Moon and Sun](#)
[Pinhole Camera](#)
[Sunlight and Seasons](#)
[Solar Oven](#)
[Weather in a Jar](#)
[Evaporation](#)
[Make Your Own Aquifer](#)
[Turbine Power](#)
[Building Dichotomous Keys](#)
[Classifying Leaves](#)
[Research Project](#)
[Jelly Cells](#)
[Pond Critters](#)
[Preparing and Observing Cells](#)
[Using a Microscope](#)
[Cross Pollination](#)
[Flower Dissection](#)
[Heart Dissection](#)
[First Aid and Body Systems](#)
[Build a Food Web Investigation](#)
[Collecting Invertebrates in Quadrats](#)
[Extracting Leaf Pigments](#)
[Growing Plants Under Different Conditions](#)
[Measuring Abiotic Factors in Water](#)
[Building a Density Tower](#)
[Building a Steam Engine](#)
[Making Ice Cream](#)
[Observing Atmospheric Pressure](#)
[Comparing Properties](#)

Science Inquiry Skills Lessons

[Control Variables and Control Groups](#)
[Fair Tests](#)
[Repeatability and Reliability](#)
[Sample Size](#)

	Validity Variables Safety Equipment
<p>Select and use appropriate equipment, including digital technologies, to collect and record data systematically and accurately (ACSIS200)</p>	<p>Science Investigations Building a Solar Oven Investigating Heat Energy A Ramp as a Simple Machine Build a Marshmallow Blaster Friction Investigation Levers Static Electricity Bouncy Balls and Energy Efficiency Energy in Skate Parks Cooling Crystals Pinhole Camera Sunlight and Seasons Solar Oven Evaporation Pond Critters Preparing and Observing Cells Using a Microscope Flower Dissection Collecting Invertebrates in Quadrats Growing Plants Under Different Conditions Measuring Abiotic Factors in Water Observing Atmospheric Pressure</p> <p>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</p>
<p>Processing and analysing data and information</p>	<p>Education Perfect Lessons</p>
<p>Analyse patterns and trends in data, including describing relationships between variables and identifying inconsistencies (ACSIS203)</p>	<p>Science Investigations Building a Solar Oven Investigating Heat Energy A Ramp as a Simple Machine Build a Marshmallow Blaster Friction Investigation Levers Mapping Magnetic Fields Energy Transformations</p>

	<p> Bouncy Balls and Energy Efficiency Energy in Skate Parks Build a Geological Timescale Cooling Crystals Modelling Gravity Sunlight and Seasons Solar Oven Evaporation Building Dichotomous Keys Classifying Leaves Using Dichotomous Keys Cross Pollination Heart Dissection Build a Food Web Investigation Collecting Invertebrates in Quadrats Extracting Leaf Pigments Growing Plants Under Different Conditions 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>
<p>Use knowledge of scientific concepts to draw conclusions that are consistent with evidence (ACSIS204)</p>	<p> Science Investigations Building a Solar Oven Investigating Heat Energy Build a Marshmallow Blaster Bouncy Balls and Energy Efficiency Energy in Skate Parks Build a Geological Timescale Build a Stratigraphic Column Simulating Erosion Solar Oven Using Dichotomous Keys Jelly Cells Build a Food Web Investigation Collecting Invertebrates in Quadrats Growing Plants Under Different Conditions Measuring Abiotic Factors in Water Observing Atmospheric Pressure </p>

	<p>Science Inquiry Skills Lessons</p> <p>Food Webs</p> <p>Interpreting Diagrams</p> <p>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</p> <p>Building a Solar Oven</p> <p>Investigating Heat Energy</p> <p>A Ramp as a Simple Machine</p> <p>Build a Marshmallow Blaster</p> <p>Build an Electroscope</p> <p>Friction Investigation</p> <p>Levers</p> <p>Mapping Magnetic Fields</p> <p>Energy Transformations</p> <p>Bouncy Balls and Energy Efficiency</p> <p>Energy in Skate Parks</p> <p>Rube Goldberg Machine</p> <p>Cooling Crystals</p> <p>Making a Sundial</p> <p>Modelling Gravity</p> <p>Modelling the Earth, Moon and Sun</p> <p>Pinhole Camera</p> <p>Sunlight and Seasons</p> <p>Solar Oven</p> <p>Weather in a Jar</p> <p>Evaporation</p> <p>Make Your Own Aquifer</p> <p>Turbine Power</p> <p>Building Dichotomous Keys</p> <p>Classifying Leaves</p> <p>Jelly Cells</p> <p>Preparing and Observing Cells</p> <p>Cross Pollination</p> <p>Flower Dissection</p> <p>Collecting Invertebrates in Quadrats</p> <p>Growing Plants Under Different Conditions</p> <p>Measuring Abiotic Factors in Water</p> <p>Building a Density Tower</p> <p>Building a Steam Engine</p> <p>Making Ice Cream</p> <p>Observing Atmospheric Pressure</p> <p>Comparing Properties</p> <p>Science Inquiry Skills Lessons</p> <p>Evaluating in Science</p>
<p>Critically analyse the validity of information in primary and secondary sources, and evaluate the approaches used to solve problems (ACSIS206)</p>	<p>Science Investigations</p> <p>Investigating Heat Energy</p> <p>Build a Marshmallow Blaster</p> <p>Cooling Crystals</p>

	Simulating Erosion Modelling Gravity Modelling the Earth, Moon and Sun Pinhole Camera Sunlight and Seasons Evaporation Make Your Own Aquifer Pond Critters Preparing and Observing Cells Collecting Invertebrates in Quadrats Extracting Leaf Pigments Building a Density Tower
Communicating	Education Perfect Lessons
<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>	<p>Science Investigations Static Electricity Rube Goldberg Machine Pinhole Camera Classifying Leaves Research Project Jelly Cells First Aid and Body Systems Science Inquiry Skills Lessons Graphs in Science Observations and Inferences Scientific Method</p>