

Cross Curriculum Priorities



General Capabilities



YEAR 6 ACHIEVEMENT STANDARD

By the end of Year 6, students compare and classify different types of observable changes to materials. They analyse requirements for the transfer of electricity and describe how energy can be transformed from one form to another to generate electricity. They explain how natural events cause rapid change to the Earth's surface. They describe and predict the effect of environmental changes on individual living things. Students explain how scientific knowledge is used in decision making and identify contributions to the development of science by people from a range of cultures.

Students follow procedures to develop investigable questions and design investigations into simple cause-and-effect relationships. They identify variables to be changed and measured and describe potential safety risks when planning methods. They collect, organise and interpret their data, identifying where improvements to their methods or research could improve the data. They describe and analyse relationships in data using graphic representations and construct multi-modal texts to communicate ideas, methods and findings.

Content Descriptors

SCIENCE UNDERSTANDING	SCIENCE AS A HUMAN ENDEAVOUR	SCIENCE INQUIRY SKILLS
<p>Biological Sciences</p> <p>The growth and survival of living things are effected by the physical conditions of their environment. [ACSSU094]</p> <ul style="list-style-type: none"> investigating how changing the physical conditions for plants impacts on their growth and survival such as salt water, use of fertilizers and soil types observing the growth of fungi such as yeast and bread mould in different conditions researching organisms that live in extreme environments such as Antarctica or a desert considering the effects of physical conditions causing migration and hibernation 	<p>Nature and Development of Science</p> <p>Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena [ACSHE098]</p> <ul style="list-style-type: none"> investigating how knowledge about the effects of using the Earth's resources has changed over time describing how understanding of the causes and effects of major natural events has changed as new evidence has become available investigating the use of electricity, including predicting the effects of changes to electric circuits considering how gathering evidence helps scientists to predict the effect of major geological or climatic events 	<p>Questioning and Predicting</p> <p>With guidance, pose questions to clarify practical problems or inform scientific investigation and predict what the findings of an investigation might be. [ACISIS232]</p> <ul style="list-style-type: none"> discussing in groups possible situations to investigate or identify problems that relate to students' lives applying experience from similar situations in the past to predict what may happen in a new situation sharing ideas about what may happen in an investigation and why
<p>Chemical Sciences</p> <p>Changes to materials can be reversible such as melting, freezing, evaporating, or irreversible such as rusting and burning [ACSSU095]</p> <ul style="list-style-type: none"> describing what happens when materials are mixed investigating the solubility of common materials in water investigating the change in state caused by heating and cooling of a familiar substance investigating irreversible changes such as rusting, burning and cooking exploring how reversible changes can be used to recycle materials 	<p>Important contributions to the advancement of science have been made by people from a range of cultures [ACSHE099]</p> <ul style="list-style-type: none"> investigating how people from different cultures have used sustainable sources of energy, for example water and solar power exploring institutions and locations where contemporary Australian scientists conduct research on catastrophic natural events learning how Aboriginal and Torres Strait Islander knowledge, such as the medicinal and nutritional properties of Australian plants, is being used as part of the evidence base for scientific advances investigating the development of earthquake measurements from the Chinese invention of the seismograph in the second century 	<p>Planning and Conducting</p> <p>With guidance, select appropriate investigation methods to answer questions and solve problems. [ACISIS103]</p> <ul style="list-style-type: none"> experiencing a range of ways of finding information and ideas, including internet research considering different investigation methods, including experimental testing, field work and conducting surveys
<p>Earth and Space Sciences</p> <p>Sudden geological changes or extreme weather conditions can affect Earth's surface. [ACSSU096]</p> <ul style="list-style-type: none"> investigating major geological events such as earthquakes, volcanic eruptions and tsunamis in Australia, the Asia region and throughout the world recognising that earthquakes can cause tsunamis describing how people measure significant geological events exploring ways that scientific understanding can assist in natural disaster management to minimise both long- and short-term effects considering the effect of drought on living and non-living aspects of the environment 	<p>Use and the Influence of Science</p> <p>Scientific understandings, discoveries and inventions are used to solve problems that directly affect people's lives. [ACSHE100]</p> <ul style="list-style-type: none"> researching the scientific work involved in global disaster alerts and communication, such as cyclone, earthquake and tsunami alerts investigating how electrical energy is generated in Australia and around the world researching the use of methane generators in Indonesia considering how electricity and electrical appliances have changed the way some people live 	<p>Decide which variable should be changed and measured in fair tests and accurately observe, measure and record data, using digital technologies as appropriate [ACISIS104]</p> <ul style="list-style-type: none"> discussing in groups how investigations can be made as fair as possible using the idea of an independent variable (note: this terminology does not need to be used at this stage) as something that is being investigated by changing it and measuring the effect of this change using familiar tools such as rulers, weighing scales and watches to measure objects and events in investigations using familiar units such as grams, seconds and metres and developing the use of standard multipliers such as kilometres and millimetres
<p>Physical Sciences</p> <p>Electrical circuits provide a means of transferring and transforming electricity. [ACSSU097]</p> <ul style="list-style-type: none"> recognising the need for a complete circuit to allow the flow of electricity investigating different electrical conductors and insulators exploring the features of electrical devices such as switches and light globes 	<p>Scientific knowledge is used to inform personal and community decisions. [ACSHE220]</p> <ul style="list-style-type: none"> considering how personal and community choices influence our use of sustainable sources of energy investigating how understanding of catastrophic natural events helps in planning for their early detection and minimising their impact recognising that science can inform choices about where people live and how they manage natural disasters considering how guidelines help to ensure the safe use of electrical devices discussing the use of electricity and the conservation of sources of energy 	<p>Use equipment and materials safely, identifying potential risks. [ACISIS105]</p> <ul style="list-style-type: none"> discussing possible hazards involved in conducting investigations, and how these risks can be reduced
<p>Energy from a variety of sources can be used to generate electricity [ACSSU219]</p> <ul style="list-style-type: none"> investigating how moving air and water can turn turbines to generate electricity investigating the use of solar panels considering whether an energy source is sustainable 		<p>Processing and Analysing Data and Information</p> <p>Construct and use a range of representations, including tables and graphs, to represent and describe observations, patterns or relationships in data using digital technologies as appropriate. [ACISIS107]</p> <ul style="list-style-type: none"> identifying similarities and differences in qualitative data in order to group items or materials describing simple cause-and-effect relationships as shown by trends in quantitative data
		<p>Compare data with predictions and use as evidence in developing explanations. [ACISIS221]</p> <ul style="list-style-type: none"> sharing ideas as to whether observations match predictions, and discussing possible reasons for predictions being incorrect
		<p>Evaluating</p> <p>Suggest improvements to methods used to investigate a question or solve a problem. [ACISIS108]</p> <ul style="list-style-type: none"> working collaboratively to suggest improvements to the methods used
		<p>Communicating</p> <p>Communicate ideas, explanations and processes in a variety of ways, including multi-modal texts. [ACISIS110]</p> <ul style="list-style-type: none"> using labelled diagrams, including cross-sectional representations, to communicate ideas using a variety of communication modes, such as reports, explanations, arguments, debates and procedural accounts, to communicate science ideas understanding how models can be used to represent scientific ideas and constructing physical models to demonstrate an aspect of scientific understanding
<p>Relevant Primary Connections Unit</p> <ul style="list-style-type: none"> Marvellous Micro-organisms – Biological Sciences (re-published unit available June 2012) Change Detectives – Chemical Sciences (re-published unit available September 2012) Earthquake Explorers – Earth and Space Sciences (re-published unit available April 2012) It's Electrifying and Essential Energy – Physical Sciences (Essential Energy available end of January 2012) 		
<p>Supplementary Resources</p> <ul style="list-style-type: none"> BBC Bitesize Interactive activities Stretch Science – Pearson Education A-Z Science (books and news articles) National Digital Resources ABC Science BBC Schools Science Clips Brain Pop 		