

## Cross Curriculum Priorities



## General Capabilities



































## YEAR 4 ACHIEVEMENT STANDARD

By the end of Year 4, students apply the observable properties of materials to explain how objects and materials can be used. They use contact and non-contact forces to describe interactions between objects. They discuss how natural and human processes cause changes to the Earth's surface. They describe relationships that assist the survival of living things and sequence key stages in the life cycle of a plant or animal. They identify when science is used to ask questions and make predictions. They describe situations where science understanding can influence their own and others' actions.

Students follow instructions to identify investigable questions about familiar contexts and predict likely outcomes from investigations. They discuss ways to conduct investigations and safely use equipment to make and record observations. They use provided tables and simple column graphs to organise their data and identify patterns in data. Students suggest explanations for observations and compare their findings with their predictions. They suggest reasons why their methods were fair or not. They complete simple reports to communicate their methods and findings.

## Content Descriptors

SCIENCE UNDERSTANDING		SCIENCE AS A HUMAN ENDEAVOUR		SCIENCE INQUIRY SKILLS	
<b>Biological Sciences</b> Living things have life cycles [ACSSU072] <ul style="list-style-type: none"> <li>making and recording observations of living things as they develop through their life cycles</li> <li>describing the stages of life cycles of different living things such as insects, birds, frogs and flowering plants</li> <li>comparing life cycles of animals and plants</li> <li>recognising that environmental factors can affect life cycles such as fire and seed germination</li> </ul>	 	<b>Nature and Development of Science</b> Science involves making predictions and describing patterns and relationships [ACSHE061] <ul style="list-style-type: none"> <li>exploring ways in which scientists gather evidence for their ideas and develop explanations</li> <li>considering how scientific practices such as sorting, classification and estimation are used by Aboriginal and Torres Strait Islander people in everyday life</li> </ul>	 	<b>Questioning and Predicting</b> With guidance, identify questions in familiar contexts that can be investigated scientifically and predict what might happen based on prior knowledge [ACSI064] <ul style="list-style-type: none"> <li>considering familiar situations in order to think about possible areas for investigation</li> <li>reflecting on familiar situations to make predictions with teacher guidance</li> <li>choosing questions to investigate from a list of possibilities</li> </ul>	 
Living things, including plants and animals, depend on each other and the environment to survive [ACSSU073] <ul style="list-style-type: none"> <li>investigating how plants provide shelter for animals</li> <li>investigating the roles of living things in a habitat, for instance producers, consumers or decomposers</li> <li>observing and describing predator-prey relationships</li> <li>predicting the effects when living things in feeding relationships are removed or die out in an area</li> <li>recognising that interactions between living things may be competitive or mutually beneficial</li> </ul>	 	<b>Use and the Influence of Science</b> Science knowledge helps people to understand the effect of their actions [ACSHE062] <ul style="list-style-type: none"> <li>investigating how a range of people, such as clothing designers, builders or engineers use science to select appropriate materials for their work</li> <li>considering methods of waste management and how they can affect the environment</li> <li>exploring how science has contributed to a discussion about an issue such as loss of habitat for living things or how human activity has changed the local environment</li> <li>considering how to minimise the effects of erosion caused by human activity</li> </ul>	 	<b>Planning and Conducting</b> Suggest ways to plan and conduct investigations to find answers to questions. [ACSI065] <ul style="list-style-type: none"> <li>exploring different ways to conduct investigations and connecting these to the types of questions asked with teacher guidance</li> <li>working in groups, with teacher guidance, to plan ways to investigate questions</li> </ul>	   
<b>Chemical Sciences</b> Natural and processed materials have a range of physical properties; These properties can influence their use [ACSSU074] <ul style="list-style-type: none"> <li>describing a range of common materials, such as metals or plastics, and their uses</li> <li>investigating a particular property across a range of materials</li> <li>selecting materials for uses based on their properties</li> <li>considering how the properties of materials affect the management of waste or can lead to pollution</li> </ul>				Safely use appropriate materials, tools or equipment to make and record observations, using formal measurements and digital technologies as appropriate [ACSI066] <ul style="list-style-type: none"> <li>discussing and recording safety rules for equipment as a whole class</li> <li>making and recording measurements using familiar formal units and appropriate abbreviations, such as seconds (s), grams (g), centimetres (cm) and millilitres (mL)</li> </ul>	  
<b>Earth and Space Sciences</b> Earth's surface changes over time as a result of natural processes and human activity [ACSSU048] <ul style="list-style-type: none"> <li>collecting evidence of change from local landforms, rocks or fossils</li> <li>exploring a local area that has changed as a result of natural processes, such as an eroded gully, sand dunes or river banks</li> <li>investigating the characteristics of soils</li> <li>considering how different human activities cause erosion of the Earth's surface</li> <li>considering the effect of events such as floods and extreme weather on the landscape, both in Australia and in the Asia region</li> </ul>	   			<b>Processing and Analysing Data and Information</b> Use a range of methods including tables and simple column graphs to represent data and to identify patterns and trends. [ACSI068] <ul style="list-style-type: none"> <li>identifying and discussing numerical and visual patterns in data collected from students' investigations and from other sources</li> <li>using provided graphic organisers to sort and represent information</li> <li>discussing with teacher guidance which graphic organisers will be most useful in sorting or organising data arising from investigations</li> </ul>	  
<b>Physical Sciences</b> Forces can be exerted by one object on another through direct contact or from a distance [ACSSU076] <ul style="list-style-type: none"> <li>observing qualitatively how speed is affected by the size of a force</li> <li>exploring how non-contact forces are similar to contact forces in terms of objects pushing and pulling another object</li> <li>comparing and contrasting the effect of friction on different surfaces, such as tyres and shoes on a range of surfaces</li> <li>investigating the effect of forces on the behaviour of an object through actions such as throwing, dropping, bouncing and rolling</li> <li>exploring the forces of attraction and repulsion between magnets</li> </ul>				Compare results with predictions, suggesting possible reasons for findings [ACSI216] <ul style="list-style-type: none"> <li>discussing how well predictions matched results from an investigation and proposing reasons for findings</li> <li>comparing, in small groups, proposed reasons for findings and explaining their reasoning</li> </ul>	  
				<b>Evaluating</b> Reflect on the investigation, including whether a test was fair or not. [ACSI069] <ul style="list-style-type: none"> <li>reflecting on investigations, identifying what went well, what was difficult or didn't work so well, and how well the investigation helped answer the question</li> <li>discussing which aspects of the investigation helped improve fairness, and any aspects that weren't fair</li> </ul>	 
				<b>Communicating</b> Represent and communicate ideas and findings in a variety of ways such as diagrams, physical representations and simple reports. [ACSI060] <ul style="list-style-type: none"> <li>communicating with other students carrying out similar investigations to share experiences and improve investigation skills</li> <li>using simple explanations and arguments, reports or graphical representations to communicate ideas to other students</li> </ul>	 

## Relevant Primary Connections Unit

- Plants in Action- Biological Sciences (re-published unit available June 2012)
- Material World and Package it Better- Chemical Sciences (re-published units available September 2012)
- Beneath Our Feet- Earth and Space Sciences (formerly known as Buried in Time)
- Smooth Moves- Physical Sciences (re-published unit available end of January 2012)

## Supplementary Resources

- 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