

SCIENCE - Year 5 Level Description

The *Science Inquiry Skills* and *Science as a Human Endeavour* strands are described across a two-year band. In their planning, schools and teachers refer to the expectations outlined in the Achievement Standard and also to the content of the *Science Understanding* strand for the relevant year level to ensure that these two strands are addressed over the two-year period. The three strands of the curriculum are interrelated and their content is taught in an integrated way. The order and detail in which the content descriptions are organised into teaching/learning programs are decisions to be made by the teacher.

Over Years 3 to 6, students develop their understanding of a range of [systems](#) operating at different time and geographic scales. In Year 5, students are introduced to cause and effect [relationships](#) that relate to form and function through an exploration of [adaptations](#) of living things. They explore [observable](#) phenomena associated with light and begin to appreciate that phenomena have sets of [characteristic](#) behaviours. They broaden their [classification](#) of [matter](#) to include gases and begin to see how [matter](#) structures the world around them. Students consider Earth as a component within a solar [system](#) and use [models](#) for investigating [systems](#) at astronomical scales. Students begin to identify stable and dynamic aspects of [systems](#), and learn how to look for [patterns](#) and [relationships](#) between components of [systems](#). They develop explanations for the [patterns](#) they observe.

Content Description – knowledge, skills & understanding

Science & Understanding	Science as a Human Endeavour	Science Inquiry
<p>Biological Sciences</p> <p>Living things have structural features and adaptations that help them to survive in their environment</p>	<p>Nature and development of Science Important contributions to the advancement of science have been made by people from a range of cultures</p> <p>Use and influence of Science Scientific knowledge is used to inform personal and community decisions</p>	<p>Questioning and predicting With guidance, pose questions to clarify practical problems or inform a scientific investigation, and predict what the findings of an investigation might be</p> <p>Planning and conducting With guidance, select appropriate investigation methods to answer questions or solve problems</p> <p>Evaluating Suggest improvements to the methods used to investigate a question or solve a problem</p> <p>Communicating Communicate ideas, explanations and processes in a variety of ways, including multi-modal texts</p>
Achievement Standard		

By the end of Year 5 students pose questions relating to [investigations](#), predict what might happen when things are changed, and assist in the planning of methods to test these predictions. When carrying out [investigations](#) they use equipment in a way that improves the accuracy of their measurements and observations. They describe [patterns](#) in their results, [report](#) on their findings and [reflect on](#) the methods that they have used.

Students describe how developments in science have improved our understanding of the world and have enabled people to make decisions based on scientific knowledge.

SCIENCE - Year 6 Level Description

The *Science Inquiry Skills* and *Science as a Human Endeavour* strands are described across a two-year band. In their planning, schools and teachers refer to the expectations outlined in the Achievement Standard and also to the content of the *Science Understanding* strand for the relevant year level to ensure that these two strands are addressed over the two-year period. The three strands of the curriculum are interrelated and their content is taught in an integrated way. The order and detail in which the content descriptions are organised into teaching/learning programs are decisions to be made by the teacher.

Over Years 3 to 6, students develop their understanding of a range of [systems](#) operating at different time and geographic scales. In Year 6, students explore how changes can be classified in different ways. They learn about transfer and transformations of electricity, and continue to develop an understanding of energy flows through [systems](#). They link their experiences of electric circuits as a [system](#) at one scale, to generation of electricity from a variety of sources at another scale and begin to see links between these [systems](#). They develop a view of Earth as a dynamic [system](#), in which changes in one aspect of the [system](#) impact on other aspects; similarly they see that the growth and survival of living things are dependent on [matter](#) and energy flows within a larger [system](#). Students begin to see the role of [variables](#) in measuring changes and learn how look for [patterns](#) and [relationships](#) between [variables](#). They develop explanations for the [patterns](#) they observe, drawing on [evidence](#).

Content Description – knowledge, skills & understanding

Science & Understanding	Science as a Human Endeavour	Science Inquiry
<p>Biological Sciences The growth and survival of living things are affected by the physical conditions of their environment</p>	<p>Nature and development of science Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena</p> <p>Important contributions to the advancement of science have been made by people from a range of cultures</p>	<p>Questioning and predicting <i>With guidance, pose questions to clarify practical problems or inform a scientific investigation, and predict what the findings of an investigation might be</i></p> <p>Planning and conducting <i>With guidance, select appropriate investigation methods to answer questions or solve problems</i></p> <p>Processing and analysing data and information <i>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</i></p> <p>Evaluating <i>Suggest improvements to the methods used to investigate a question or solve a problem</i></p> <p>Communicating <i>Communicate ideas, explanations and processes in a variety of ways, including multi-modal texts</i></p>
	<p>Use and influence of science Scientific understandings, discoveries and inventions are used to solve problems that directly affect peoples' lives</p> <p>Scientific knowledge is used to inform personal and community decisions</p>	

Achievement Standard

By the end of Year 6 students plan [investigations](#) to answer questions relating to simple cause-and-effect [relationships](#). When carrying out [investigations](#), they collect relevant [data](#) and apply the concept of a [fair test](#). They [reflect on](#) the processes that they have used and demonstrate an awareness of science inquiry methods in their work. They represent [data](#) and knowledge using introductory [scientific language](#) and graphical representations.

Students suggest explanations for [observable](#) changes and they predict the effect of environmental changes on living things. They compare different types of change in [materials](#). They identify requirements for the transfer of electricity and describe one way that electricity can be generated. They describe how developments in science have affected peoples’ lives and identify examples where scientific knowledge is used in decision making.

SCIENCE - Year 7 Level Description

The *Science Inquiry Skills* and *Science as a Human Endeavour* strands are described across a two-year band. In their planning, schools and teachers refer to the expectations outlined in the Achievement Standards and also to the content of the *Science Understanding* strand for the relevant year level to ensure that these two strands are addressed over the two-year period. The three strands of the curriculum are interrelated and their content is taught in an integrated way. The order and detail in which the content descriptions are organised into teaching/learning programs are decisions to be made by the teacher.

Over Years 7 to 10, students develop their understanding of microscopic and atomic structures; how [systems](#) at a range of scales are shaped by flows of energy and [matter](#) and interactions due to [forces](#), and develop the ability to quantify changes and relative amounts. In Year 7, students explore the diversity of life on Earth and continue to develop their understanding of the role of [classification](#) in ordering and organising information. They use and develop [models](#) such as food chains, food webs and the water cycle to represent and [analyse](#) the flow of energy and [matter](#) through ecosystems and explore the impact of changing components within these [systems](#). They consider the interaction between multiple [forces](#) when explaining changes in an object's motion. They explore the notion of renewable and non-renewable resources and consider how this [classification](#) depends on the timescale considered. They investigate [relationships](#) in the Earth, sun, moon [system](#) and use [models](#) to predict and explain events. Students make accurate measurements and control [variables](#) to [analyse relationships](#) between [system](#) components and explore and explain these [relationships](#) through increasingly complex representations.

Content Description – knowledge, skills & understanding

Science & Understanding

Science as a Human Endeavour

Science Inquiry

<p>Biological Sciences</p> <p>There are differences within and between groups of organisms; classification helps organise this diversity</p> <p>Interactions between organisms can be described in terms of food chains and food webs; human activity can affect these interactions</p>	<p>Use and influence of science</p> <p>Science and technology contribute to finding solutions to a range of contemporary issues; these solutions may impact on other areas of society and involve ethical considerations</p> <p>Science understanding influences the development of practices in areas of human activity such as industry, agriculture and marine and terrestrial resource management</p> <p>People use understanding and skills from across the disciplines of science in their occupations</p>	<p>Questioning and predicting</p> <p>Identify questions and problems that can be investigated scientifically and make predictions based on scientific knowledge</p> <p>Planning and conducting</p> <p>Collaboratively and individually plan and conduct a range of investigation types, including fieldwork and experiments, ensuring safety and ethical guidelines are followed</p> <p>Processing and analysing data and information</p> <p>Construct and use a range of representations, including graphs, keys and models to represent and analyse patterns or relationships, including using digital technologies as appropriate</p> <p>Summarise data, from students’ own investigations and secondary sources, and use scientific understanding to identify relationships and draw conclusions</p> <p>Evaluating</p> <p>Reflect on the method used to investigate a question or solve a problem, including evaluating the quality of the data collected, and identify improvements to the method</p> <p>Communicating</p> <p><i>Communicate ideas, findings and solutions to problems using scientific language and representations using digital technologies as appropriate</i></p>
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Achievement Standard

By the end of Year 7, students pose questions and apply scientific concepts to everyday problems and make general predictions based on their experiences. They plan procedures for [investigations](#) that take into account the need for [fair testing](#) and use equipment that improves fairness and accuracy. They communicate their observations and [data](#) clearly, summarise their [data](#) where appropriate, and suggest improvements to their methods.

Students predict the effect of single changes on [systems](#) involving living things and suggest ways to [classify](#) organisms based on [observable](#) differences. They distinguish between pure substances and mixtures and plan appropriate methods to separate mixtures. They explain why some resources are not renewable and describe changes to water during the water cycle. They describe how unbalanced [forces](#) change the motion of objects and how changes in the position of objects in space cause other [observable](#) effects. They identify where science knowledge is used to propose solutions to problems and describe examples of where people use science in their work. They describe how [evidence](#) has led to an improved understanding of a scientific idea.

SCIENCE - Year 8 Level Description

The *Science Inquiry Skills* and *Science as a Human Endeavour* strands are described across a two-year band. In their planning, schools and teachers refer to the expectations outlined in the Achievement Standard and also to the content of the *Science Understanding* strand for the relevant year level to ensure that these two strands are addressed over the two-year period. The three strands of the curriculum are interrelated and their content is taught in an integrated way. The *Science as a Human Endeavour* strand can provide relevant contexts in which science can be taught. The order and detail in which the content descriptions are organised into teaching/learning programs are decisions to be made by the teacher.

Over Years 7 to 10, students develop their understanding of microscopic and atomic structures; how [systems](#) at a range of scales are shaped by flows of energy and [matter](#) and interactions due to [forces](#), and develop the ability to quantify changes and relative amounts. In Year 8, students are introduced to cells as microscopic structures that explain macroscopic [properties](#) of living [systems](#). They link form and function at a cellular level and explore the organisation of body [systems](#) in terms of flows of [matter](#) between interdependent organs. Similarly, they explore changes in [matter](#) at a particle level, and distinguish between chemical and physical change. They begin to [classify](#) different forms of energy, and describe the role of energy in causing change in [systems](#), including the role of heat and kinetic energy in the rock cycle. Students use experimentation to isolate [relationships](#) between components in [systems](#) and explain these [relationships](#) through increasingly complex representations. They make predictions and propose explanations, drawing on [evidence](#) to support their views.

Content Description – knowledge, skills & understanding

Science & Understanding	Science as a Human Endeavour	Science Inquiry
<p>Biological Sciences Multi-cellular organisms contain systems of organs that carry out specialised functions that enable them to survive and reproduce</p>	<p>Nature and development of Science Scientific knowledge changes as new evidence becomes available, and some scientific discoveries have significantly changed people’s understanding of the world</p> <p>Use and influence of Science Science and technology contribute to finding solutions to a range of contemporary issues;</p>	<p>Questioning and predicting Identify questions and problems that can be investigated scientifically and make predictions based on scientific knowledge</p> <p>Planning and conducting Collaboratively and individually plan and conduct a range of investigation types, including fieldwork and experiments, ensuring safety and ethical guidelines are followed</p> <p>Processing and analysing data and</p>

	<p>these solutions may impact on other areas of society and involve ethical considerations</p> <p>Science understandings influence the development of practices in areas of human activity such as industry, agriculture and marine and terrestrial resource management</p> <p>People use understanding and skills from across the disciplines of science in their occupations</p>	<p>information <i>Construct and use a range of representations, including graphs, keys and models to represent and analyse patterns or relationships, including using digital technologies as appropriate</i></p> <p>Evaluating Reflect on the method used to investigate a question or solve a problem, including evaluating the quality of the data collected, and identify improvements to the method</p> <p>Communicating Communicate ideas, findings and solutions to problems using scientific language and representations using digital technologies as appropriate</p>
<p>Achievement Standard</p> <p>By the end of Year 8 students investigate questions to reach conclusions consistent with scientific knowledge. They describe how science inquiry contributes to an understanding of the world. Students measure and control variables, present data and findings that support their conclusions, and describe how improvements to methods could improve the quality of their results.</p> <p>Students describe the structure and function of two different types of cells and describe the functioning of a major system in a multi-cellular organism. They compare physical and chemical changes and describe differences between substances using the particle theory. They describe examples of how different forms of energy cause change in simple systems. They describe a situation where scientific knowledge has been used to solve a real-world problem and demonstrate an awareness of how the application of science can affect people in different ways.</p>		