

# The Australian Curriculum

<b>Subjects</b>	Science
<b>Year levels</b>	Year 7

## Year 7 Content Descriptions

### Science Understanding

#### Biological sciences

Classification helps organise the diverse group of organisms ([ACSSU111 - Scootle](#) )

##### Elaborations

considering the reasons for classifying such as identification and communication



grouping a variety of organisms on the basis of similarities and differences in particular features



considering how biological classifications have changed over time



classifying using hierarchical systems such as kingdom, phylum, class, order, family, genus, species




using scientific conventions for naming species



using provided keys to identify organisms surveyed in a local habitat



Interactions between organisms, including the effects of human activities can be represented by food chains and food webs ([ACSSU112 - Scootle](#) )



##### Elaborations

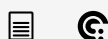
using food chains to show feeding relationships in a habitat



constructing and interpreting food webs to show relationships between organisms in an environment



classifying organisms of an environment according to their position in a food chain



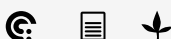
recognising the role of microorganisms within food chains and food webs



investigating the effect of human activity on local habitats, such as deforestation, agriculture or the introduction of new species




exploring how living things can cause changes to their environment and impact other living things, such as the effect of cane toads



researching specific examples of human activity, such as the use of fire by traditional Aboriginal people and the effects of palm oil production in Sumatra and Borneo



### Chemical sciences

Mixtures, including solutions, contain a combination of pure substances that can be separated using a range of techniques ([ACSSU113 - Scootle](#) )

Elaborations

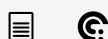
recognising the differences between pure substances and mixtures and identifying examples of each



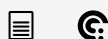
identifying the solvent and solute in solutions



investigating and using a range of physical separation techniques such as filtration, decantation, evaporation, crystallisation, chromatography and distillation




exploring and comparing separation methods used in the home



### Earth and space sciences

Predictable phenomena on Earth, including seasons and eclipses, are caused by the relative positions

of the sun, Earth and the moon ([ACSSU115 - Scootle](#) )



#### Elaborations

investigating natural phenomena such as lunar and solar eclipses, seasons and phases of the moon



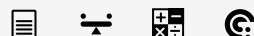
comparing times for the rotation of Earth, the sun and moon, and comparing the times for the orbits of Earth and the moon




modelling the relative movements of the Earth, sun and moon and how natural phenomena such as solar and lunar eclipses and phases of the moon occur



explaining why different regions of the Earth experience different seasonal conditions



Some of Earth's resources are renewable, including water that cycles through the [environment](#), but others are non-renewable ([ACSSU116 - Scootle](#) )

#### Elaborations

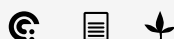
considering what is meant by the term 'renewable' in relation to the Earth's resources



considering timescales for regeneration of resources



comparing renewable and non-renewable energy sources, including how they are used in a range of situations



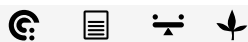
considering the water cycle in terms of changes of state of water




investigating factors that influence the water cycle in nature



exploring how human management of water impacts on the water cycle



## Physical sciences

Change to an object's motion is caused by unbalanced forces, including Earth's gravitational attraction, acting on the object ([ACSSU117 - Scootle](#) )



### Elaborations

investigating the effects of applying different forces to familiar objects



investigating common situations where forces are balanced, such as stationary objects, and unbalanced, such as falling objects



investigating a simple machine such as lever or pulley system



exploring how gravity affects objects on the surface of Earth




considering how gravity keeps planets in orbit around the sun



## Science as a Human Endeavour

### Nature and development of science

Scientific knowledge has changed peoples' understanding of the world and is refined as new evidence becomes available ([ACSHE119 - Scootle](#) )

### Elaborations

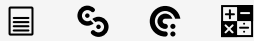
investigating how advances in telescopes and space probes have provided new evidence about space




researching different ideas used in the development of models of the solar system developed by scientists such as Copernicus, Khayyám and Galileo



researching developments in the understanding of astronomy, such as the predictions of eclipses and the calculation of the length of the solar year by Al-Battani in the tenth century



Science knowledge can develop through collaboration across the disciplines of science and the contributions of people from a range of cultures ([ACSH223 - Scootle](#) )



#### Elaborations

considering how water use and management relies on knowledge from different areas of science, and involves the application of technology



identifying the contributions of Australian scientists to the study of human impact on environments and to local environmental management projects



investigating how land management practices of Aboriginal and Torres Strait Islander peoples can help inform sustainable management of the environment




studying transnational collaborative research in the Antarctic



recognising that traditional and Western scientific knowledge can be used in combination to care for Country/Place



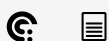
#### Use and influence of science

Solutions to contemporary issues that are found using science and [technology](#), may impact on other areas of society and may involve ethical considerations ([ACSH120 - Scootle](#) )

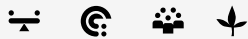


#### Elaborations

relating regulations about wearing seatbelts or safety helmets to knowledge of forces and motion



considering issues relating to the use and management of water within a community



considering decisions made in relation to the recycling of greywater and blackwater




considering how human activity in the community can have positive and negative effects on the sustainability of ecosystems



investigating ways to control the spread of the cane toad



People use science understanding and skills in their occupations and these have influenced the development of practices in areas of human activity ([ACSHE121 - Scootle](#) )



#### Elaborations

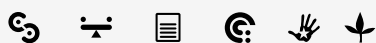
investigating everyday applications of physical separation techniques such as filtering, sorting waste materials, reducing pollution, extracting products from plants, separating blood products and cleaning up oil spills



investigating how advances in science and technology have been applied to the treatment of water in industrial and household systems



investigating how Aboriginal and Torres Strait Islander knowledge is being used to inform scientific decisions, for example care of waterways



researching the different scientific responses to the rabbit plagues in Australian agricultural areas



recognising that water management plays a role in areas such as farming, land management and gardening


investigating how separation techniques are used in the food and wine industries

considering how seasonal changes affect people in a variety of activities such as farming

considering how sports scientists apply knowledge of forces to improve performance

## Science Inquiry Skills

### Questioning and predicting

Identify questions and problems that can be investigated scientifically and make predictions based on scientific knowledge ([AC SIS124 - Scootle](#) )



#### Elaborations

working collaboratively to identify a problem to investigate




recognising that the solution of some questions and problems requires consideration of social, cultural, economic or moral aspects rather than or as well as scientific investigation



using information and knowledge from previous investigations to predict the expected results from an investigation



### 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 ([AC SIS125 - Scootle](#) )



#### Elaborations

working collaboratively to decide how to approach an investigation



learning and applying specific skills and rules relating to the safe use of scientific equipment



identifying whether the use of their own observations and experiments or the use of other research materials is appropriate for their investigation





developing strategies and techniques for effective research using secondary sources, including use of the internet



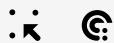
Measure and control variables, select equipment appropriate to the task and collect data with accuracy (AC SIS126 - Scootle [↗](#))



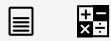
Elaborations

recognising the differences between controlled, dependent and independent variables

using a digital camera to record observations and compare images using information technologies



using specialised equipment to increase the accuracy of measurement within an investigation



**Processing and analysing data and information**

Construct and use a range of representations, including graphs, keys and models to represent and analyse patterns or relationships in data using digital technologies as appropriate (AC SIS129 - Scootle [↗](#))

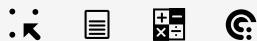


Elaborations

understanding different types of graphical and physical representation and considering their advantages and disadvantages



using spreadsheets to aid the presentation and simple analysis of data



describing the trends shown in collected data



Summarise data, from students' own investigations and secondary sources, and use scientific understanding to identify relationships and draw conclusions based on evidence (AC SIS130 - Scootle [↗](#))



## Elaborations

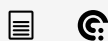
using diagrammatic representations to convey abstract ideas and to simplify complex situations



comparing and contrasting data from a number of sources in order to create a summary of collected data




identifying data which provides evidence to support or negate the hypothesis under investigation



referring to relevant evidence when presenting conclusions drawn from an investigation



## Evaluating

Reflect on scientific investigations including evaluating the quality of the data collected, and identifying improvements ([AC SIS131 - Scootle](#) )

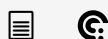


## Elaborations

discussing investigation methods with others to share ideas about the quality of the inquiry process




identifying and considering indicators of the quality of the data when analysing results



suggesting improvements to inquiry methods based on experience



Use scientific knowledge and findings from investigations to evaluate claims based on evidence ([AC SIS132 - Scootle](#) )




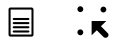
## Elaborations

using the evidence provided by scientific investigations to evaluate the claims or conclusions of their peers



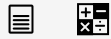
## Communicating

Communicate ideas, findings and **evidence** based solutions to problems using **scientific language**, and representations, using **digital technologies** as appropriate ([AC SIS133 - Scootle](#) )



### Elaborations

presenting the outcomes of research using effective forms of representation of data or ideas and scientific language that is appropriate for the target audience



using digital technologies to access information and to communicate and collaborate with others on and off site

