Government of **Western Australia**
School Curriculum and Standards Authority

Australian Curriculum: Science

Achievement Standards (F-10)

- Achievement standards are designed to provide a holistic statement of the level of student achievement at the end of each year of schooling.
- This representation enables teachers to identify differences in the achievement standards through the phases of schooling.

Australian Curriculum: Science	**Achievement Standards (Foundation – Year 7)**							
Year	**F**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Understandings								
Chemical sciences	Students describe the properties and behaviour of familiar objects.	Students describe objects and events that they encounter in their everyday lives, and the effects of interacting with materials and objects.	They identify that certain materials and resources have different uses	Students use their understanding of the movement of the Earth, materials and the behaviour of heat to suggest explanations for everyday observations.	Students apply the observable properties of materials to explain how objects and materials can be used.	Students classify substances according to their observable properties and behaviours.	Students compare and classify different types of observable changes to materials.	Students describe techniques to separate pure substances from mixtures.
Physical sciences					They use contact and non-contact forces to describe interactions between objects.	They explain everyday phenomena associated with the transfer of light.	They analyse requirements for the transfer of electricity and describe how energy can be transformed from one form to another to generate electricity.	They represent and predict the effects of unbalanced forces, including Earth's gravity, on motion
Earth and Space sciences		They describe changes to things in their local environment …	Students describe changes to objects, materials and living things.		They discuss how natural and human processes cause changes to the Earth's surface.	They describe the key features of our solar system.	They explain how natural events cause rapid change to the Earth's surface.	They explain how the relative positions of the Earth, sun and moon affect phenomena on Earth They analyse how the sustainable use of resources depends on the way they are formed and cycle through Earth systems.
Biological sciences	They suggest how the environment affects them and other living things….	They identify a range of habitats.		They describe features common to living things.	They describe relationships that assist the survival of living things and sequence key stages in the life cycle of a plant or animal.	They analyse how the form of living things enables them to function in their environments.	They describe and predict the effect of environmental changes on individual living things.	They predict the effect of environmental changes on feeding relationships and classify and organise diverse organisms based on observable differences.
Science as a human Endeavour		….and suggest how science helps people care for environments.	and describe examples of where science is used in people's daily lives.	They describe how they can use science investigations to respond to questions and identify where people use science knowledge in their lives.	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 discuss how scientific developments have affected people's lives and how science knowledge develops from many people's contributions.	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 describe situations where scientific knowledge from different science disciplines has been used to solve a real-world problem. They explain how the solution was viewed by, and impacted on, different groups in society.
Skills								
Questioning and predicting *Planning and conducting* *Processing and analysing data and information* *Evaluating* *Communicating*	Students share observations of familiar objects and events.	Students make predictions, and investigate everyday phenomena. They follow instructions to record and sort their observations and share their observations with others.	Students pose questions about their experiences and predict outcomes of investigations. They use informal measurements to make and compare observations They follow instructions to record and represent their observations and communicate their ideas to others.	Students use their experiences to pose questions and predict the outcomes of investigations. They make formal measurements and follow procedures to collect and present observations in a way that helps to answer the investigation questions. Students suggest possible reasons for their findings They describe how safety and fairness were considered in their investigations. They use diagrams and other representations to communicate their ideas	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.	Students follow instructions to pose questions for investigation, predict what might happen when variables are changed, and plan investigation methods. They use equipment in ways that are safe and improve the accuracy of their observations. Students construct tables and graphs to organise data and identify patterns. They use patterns in their data to suggest explanations and refer to data when they report findings. They describe ways to improve the fairness of their methods and communicate their ideas, methods and findings using a range of text types.	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.	Students identify questions that can be investigated scientifically. They plan fair experimental methods, identifying variables to be changed and measured. They select equipment that improves fairness and accuracy and describe how they considered safety. Students draw on evidence to support their conclusions. They summarise data from different sources, describe trends and refer to the quality of their data when suggesting improvements to their methods. They communicate their ideas, methods and findings using scientific language and appropriate representations.

Australian Curriculum: Science	**Achievement Standards (Year 7 – 10)**			
Year	**7**	**8**	**9**	**10**
Understandings				
Chemical sciences	students describe techniques to separate pure substances from mixtures.	students compare physical and chemical changes and use the particle model to explain and predict the properties and behaviours of substances.	students explain chemical processes and natural radioactivity in terms of atoms and energy transfers and describe examples of important chemical reactions.	students analyse how the periodic table organises elements and use it to make predictions about the properties of elements. They explain how chemical reactions are used to produce particular products and how different factors influence the rate of reactions.
Physical sciences	They represent and predict the effects of unbalanced forces, including Earth's gravity, on motion.	They identify different forms of energy and describe how energy transfers and transformations cause change in simple systems.	They describe models of energy transfer and apply these to explain phenomena.	They explain the concept of energy conservation and represent energy transfer and transformation within systems. They apply relationships between force, mass and acceleration to predict changes in the motion of objects.
Earth and Space sciences	They explain how the relative positions of the Earth, sun and moon affect phenomena on Earth. They analyse how the sustainable use of resources depends on the way they are formed and cycle through Earth systems.	They compare processes of rock formation, including the time scales involved.	They explain global features and events in terms of geological processes and timescales.	Students describe and analyse interactions and cycles within and between Earth's spheres. They evaluate the evidence for scientific theories that explain the origin of the universe and the diversity of life on Earth.
Biological sciences	They predict the effect of environmental changes on feeding relationships and classify and organise diverse organisms based on observable differences.	They analyse the relationship between structure and function at cell, organ and body system levels. Students examine the different science knowledge used in occupations.	They analyse how biological systems function and respond to external changes with reference to interdependencies, energy transfers and flows of matter.	They explain the processes that underpin heredity and evolution.
Science as a human Endeavour	Students describe situations where scientific knowledge from different science disciplines has been used to solve a real-world problem. They explain how the solution was viewed by, and impacted on, different groups in society.	They explain how evidence has led to an improved understanding of a scientific idea and describe situations in which scientists collaborated to generate solutions to contemporary problems.	They describe social and technological factors that have influenced scientific developments and predict how future applications of science and technology may affect people's lives.	Students analyse how the models and theories they use have developed over time and discuss the factors that prompted their review.
Skills				
Questioning and predicting	Students identify questions that can be investigated scientifically.	Students identify and construct questions and problems that they can investigate scientifically.	Students design questions that can be investigated using a range of inquiry skills.	Students develop questions and hypotheses and independently design and improve appropriate methods of investigation, including field work and laboratory experimentation.
Planning and conducting	They plan fair experimental methods, identifying variables to be changed and measured. They select equipment that improves fairness and accuracy and describe how they considered safety.	They consider safety and ethics when planning investigations, including designing field or experimental methods. They identify variables to be changed, measured and controlled.	They design methods that include the control and accurate measurement of variables and systematic collection of data and describe how they considered ethics and safety.	They explain how they have considered reliability, safety, fairness and ethical actions in their methods and identify where digital technologies can be used to enhance the quality of data.
Processing and analysing data and information	Students draw on evidence to support their conclusions.	Students construct representations of their data to reveal and analyse patterns and trends, and use these when justifying their conclusions.	They analyse trends in data, identify relationships between variables and reveal inconsistencies in results. They analyse their methods and the quality of their data, and explain specific actions to improve the quality of their evidence.	When analysing data, selecting evidence and developing and justifying conclusions, they identify alternative explanations for findings and explain any sources of uncertainty. Students evaluate the validity and reliability of claims made in secondary sources with reference to currently held scientific views, the quality of the methodology and the evidence cited.
Evaluating	They summarise data from different sources, describe trends and refer to the quality of their data when suggesting improvements to their methods.	They explain how modifications to methods could improve the quality of their data and apply their own scientific knowledge and investigation findings to evaluate claims made by others.	They evaluate others' methods and explanations from a scientific perspective and use appropriate language and representations when communicating their findings and ideas to specific audiences.	They construct evidence-based arguments and select appropriate representations and text types to communicate science ideas for specific purposes.
Communicating	They communicate their ideas, methods and findings using scientific language and appropriate representations.	They use appropriate language and representations to communicate science ideas, methods and findings in a range of text types.		

Based on Australian Curriculum, Assessment and Reporting Authority (ACARA) materials (v5.0 May 2013)