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

Western Australian Curriculum

Science

Year level descriptions | Pre-primary–Year 10

For familiarisation in 2025

Acknowledgement of Country

Kaya. The School Curriculum and Standards Authority (the Authority) acknowledges that our offices are on Whadjuk Noongar boodjar and that we deliver our services on the country of many traditional custodians and language groups throughout Western Australia. The Authority acknowledges the traditional custodians throughout Western Australia and their continuing connection to land, waters and community. We offer our respect to Elders past and present.

Disclaimer

Any resources such as texts, websites and so on that may be referred to in this document are provided as examples of resources that teachers can use to support their learning programs. Their inclusion does not imply that they are mandatory or that they are the only resources relevant to the course. Teachers must exercise their professional judgement as to the appropriateness of any they may wish to use.

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Contents

Overview

Year level descriptions provide an overview of the content being studied at that year level. The year level descriptions include reference to the phases of schooling to provide guidance about the sort of learning experiences that children and students are likely to engage with.

Pre-primary

In the early childhood phase of schooling, learning, development and wellbeing are connected and learning builds on the *Early Years Learning Framework* and each child's funds of knowledge. A holistic curriculum that integrates knowledge, understandings, skills, values and attitudes across learning areas connects learning to children's lives and their natural curiosity about their world.

Science provides opportunities for children to explore, make observations and develop their understanding of their world.

In Pre-primary, children learn that observations and experiences can be used to pose questions and make predictions. They participate in investigations, share their questions, predictions and ideas with others and develop scientific ideas about the natural and physical world.

Children recognise that plants and animals share the same basic needs, and these can be met by the places where they live. They observe everyday objects and the materials from which they are made. They explore daily and seasonal changes and changes in the world around them. They explore factors that affect how objects move.

Year 1

In the early childhood phase of schooling, learning, development and wellbeing are connected and learning experiences are informed by the Principles and Practices of the *Early Years Learning Framework*. A holistic curriculum that integrates knowledge, understandings, skills, values and attitudes across learning areas connects learning to children's lives and their natural curiosity about their world.

Science provides opportunities for children to use their senses to observe and gather information, describe, make comparisons, sort and classify to create an order that is meaningful.

In Year 1, children pose questions and make predictions and are introduced to ways of sorting and ordering data. They compare their observations with their predictions and communicate findings with others. Children use their science knowledge to make decisions and choices in their environment, such as how hard to push a toy car or how to look after water sources.

Children explore water as a natural resource and how it is used by people, plants and animals in various ways. Children investigate how objects can move or change shape when force is applied. They group plants and animals based on their observations of external features. Children observe physical changes to materials to establish they do not affect their composition.

Year 2

In the early childhood phase of schooling, learning, development and wellbeing are connected and learning experiences are informed by the Principles and Practices of the *Early Years Learning Framework*. A holistic curriculum that integrates knowledge, understandings, skills, values and attitudes across learning areas connects learning to children's lives and their natural curiosity about their world.

Science provides opportunities for children to use their senses to observe and gather information, describe, make comparisons, sort and classify to create an order that is meaningful.

In Year 2, children build on their experiences of the physical world by engaging in guided investigations to explore ideas and answer questions. They make and record observations using informal measurements, and sort and order data using provided tables. They compare their observations with their predictions and identify further questions. Children use scientific vocabulary to explain observed phenomena and make decisions in their environment.

Children sense sound energy and recognise that it is produced by a range of sources. They learn that Earth is a planet in the solar system that orbits a star (the sun). They build on their understanding of properties of materials to recognise how these change when materials are combined and the purposes they serve. They observe and compare the life cycles of various plants and animals.

Year 3

In the middle to late childhood phase of schooling, students develop a sense of self, their world expands, and they begin to see themselves as members of larger communities. Learning experiences emphasise and lead to an appreciation of both the commonality and diversity of human experience and concerns.

Science provides opportunities for students to explore their physical, social, cultural, and technological surroundings. As students develop the ability to work collaboratively, they work with others to plan and make decisions in constructing knowledge.

In Year 3, students pose questions and make predictions. They plan and conduct fair investigations and compare their findings with others, and to their predictions. They represent observations and data using simple tables and column graphs or other visual or physical models and communicate ideas and findings using scientific vocabulary. Students use science knowledge to propose explanations for observed phenomenon and solutions to problems.

Students observe the characteristics of living things and use these to group them. They apply criteria to identify things as living, non-living or once-living. They identify important Earth resources and how humans and other living things use them in interconnected ways. Students recall the observable properties of solids and liquids and understand that a change of state is caused by adding or removing heat. They learn energy can be transferred and transformed.

Year 4

In the middle to late childhood phase of schooling, students develop a sense of self, their world expands, and they begin to see themselves as members of larger communities. Learning experiences emphasise and lead to an appreciation of both the commonality and diversity of human experience and concerns.

Science provides opportunities for students to explore their physical, social, cultural and technological surroundings. As students develop the ability to work collaboratively, they work with others to plan and make decisions in constructing knowledge.

In Year 4, students pose questions involving a changed variable and make predictions using their observations and science knowledge. Students plan investigations that include elements of fair tests and consider the material and equipment risks. They make and record observations and use formal measurements and familiar scaled instruments to collect and record data that they organise and represent using tables and column graphs to identify patterns. Students use science knowledge to propose explanations and solutions to problems and identify questions for further investigation.

Students appreciate that Earth's surface changes over time due to a range of processes. They represent the relationships between consumers, producers, and decomposers using food chains. Students investigate different materials and their properties and relate these to their use. They observe and investigate forces that operate from a distance, such as magnetism, and direct contact, such as friction.

Year 5

In the middle to late childhood phase of schooling, students develop a sense of self, their world expands, and they begin to see themselves as members of larger communities. Learning experiences emphasise and lead to an appreciation of both the commonality and diversity of human experience and concerns.

Science provides opportunities for students to explore their physical, social, cultural, and technological surroundings. As students develop the ability to work collaboratively, they work with others to plan and make decisions in constructing knowledge.

In Year 5, students pose testable questions that include variables to be changed and measured. They plan and conduct safe investigations and use equipment to measure and record data. Students organise and represent data to identify the relationships between variables that are measured and changed. They compare their methods and findings with those of others, and to their prediction, and report on their investigations using suitable language features. Students use science knowledge to develop considered responses to problems, at a local and global level, through investigation and research.

Students describe the structural and behavioural adaptations of living things that enable them to survive in their habitat. They model the relationship between the sun and the planets in the solar system and illustrate how Earth's rotation on its axis and revolution around the sun relate to observable cyclic phenomena. Students explore light and analyse patterns to describe its behaviour. They model the motion and arrangement of atoms and molecules (particles) to explain observable properties of matter.

Year 6

In the middle to late childhood phase of schooling, students develop a sense of self, their world expands, and they begin to see themselves as members of larger communities. Learning experiences emphasise and lead to an appreciation of both the commonality and diversity of human experience and concerns.

Science provides opportunities for students to explore their physical, social, cultural and technological surroundings. As students develop the ability to work collaboratively, they work with others to plan and make decisions in constructing knowledge.

In Year 6, students pose questions that include the variable to be changed and apply science knowledge to make reasoned predictions of the results. To test their predictions, they plan and conduct fair, repeatable investigations that include controlled variables. Students describe the observed relationships in the collected data between variables to be measured and changed, compare their results to their predications and pose further questions to investigate. Students report on their investigation and findings using appropriate language features. They use science knowledge to develop considered responses to problems, at a local and global level, through investigation and research.

In Year 6, students explore the relationship between the growth and survival of living things, changing conditions in their environment and the influence of human activities. They investigate the effects of sudden geological changes and extreme weather on the surface of Earth. Students identify the role of the components in electrical circuits and learn to describe energy flows in terms of transfer and transformation. They are introduced to ways to classify changes to substances as reversible and irreversible.

Year 7

In the early adolescence phase of schooling, students align with their peer group and begin to question established conventions, practices and values. Learning and teaching programs assist students to develop a broader and more comprehensive understanding of the contexts of their lives and the world in which they live.

Science provides opportunities for students to continue developing their understanding of important concepts and making connections between different areas of science and application to their daily life.

In Year 7, students propose questions and make predictions based on scientific knowledge. They recognise risks when planning and conducting reproducible investigations. They construct appropriate representations to organise and process data. They analyse data to describe patterns and relationships and use evidence to support conclusions. They identify possible sources of error in their methods and suggest improvements. They use appropriate language and text features for their purpose and audience when communicating their ideas and findings. They examine situations where development of scientific knowledge has benefited from collaboration and influenced the development of human activity.

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 and food webs to represent energy flow in ecosystems and predict impacts of human activity. They use the particle theory to explain the motion and arrangement of atoms and molecules in the different states of matter and select appropriate techniques to separate pure substances from mixtures. They explore different types of celestial objects, investigate relationships in the Earth-sun-moon system and use models to predict and explain events. They consider the impact of forces acting on objects, represent and predict the effects of unbalanced forces on motion and determine the type of mechanical advantage provide by simple machines.

Year 8

In the early adolescence phase of schooling, students align with their peer group and begin to question established conventions, practices and values. Learning and teaching programs assist students to develop a broader and more comprehensive understanding of the contexts of their lives and the world in which they live.

Science provides opportunities for students to continue developing their understanding of important concepts and making connections between different areas of science and application to their daily life.

In Year 8, students propose questions and make predictions based on scientific knowledge. They recognise and manage risks when planning and conducting reproducible investigations. They construct appropriate representations to organise and process data. They analyse data to describe patterns and relationships and identify anomalies. They use evidence to support conclusions. They identify possible sources of error in their methods and suggest specific improvements. They select appropriate content, language and text features for their purpose and audience when communicating their ideas and findings. They examine situations where development of scientific knowledge has benefited from collaboration and influenced the development of human activity.

Students are introduced to cells and explore specialised flowering plant and vertebrate systems. They are also introduced to the structure of atoms and use representations to distinguish between elements and compounds. They classify elements as metals and non-metals based on their physical properties and distinguish between physical and chemical changes. They continue to develop a view of Earth as a dynamic system exploring the interactions between processes occurring at plate boundaries and the rock cycle and explore how these processes explain patterns of change on Earth. They use physical properties to classify rocks and minerals and examine how properties of rocks reflect their formation and influence their use. They classify different forms of energy as kinetic or potential and represent energy transfer and transformation in simple systems. They explore in more detail how heat is transferred, and electrical energy is transferred and transformed.

Year 9

In the middle adolescence phase of schooling, teaching and learning programs encourage students to develop an open and questioning view of themselves as active participants in their society and the world.

Science provides opportunities for students to build on their understanding of important concepts and continue to develop scientific ideas and models to explain phenomena and events.

In Year 9, students propose questions and hypotheses to test relationships and develop models. They plan and conduct reproducible investigations and follow risk assessments when conducting investigations. They select and construct appropriate representations to organise, process and summarise data. They analyse data to describe patterns, relationships and anomalies and use a variety of evidence to support conclusions. They describe sources of error in methods and suggest ways to improve the quality of their data. They use content, language and text features to achieve their purpose when communicating their ideas, findings and arguments to specific audiences. They explore how advances in science, technologies and engineering are interconnected and examine how scientific responses impact society.

Students explore how adaptations enable organisms to survive and respond to changes in their external environment and the impact of abiotic and biotic components on ecosystems. They use the structure and properties of atoms to determine the atomic and mass numbers for elements and the arrangement of elements on the periodic table. They use chemical formula to represent covalent and ionic compounds and chemical equations to represent chemical reactions. They explore how interactions within and between Earth's spheres affect the carbon cycle, water cycle and global climate. They begin to develop a more sophisticated view of energy transfer by exploring wave and particle models of energy transfer for light and sound.

Year 10

In the middle adolescence phase of schooling, teaching and learning programs encourage students to develop an open and questioning view of themselves as active participants in their society and the world.

Science provides opportunities for students to build on their understanding of important concepts and continue to develop scientific ideas and models to explain phenomena and events.

In Year 10, students propose questions and hypotheses to test relationships and develop models. They develop and follow risk assessments when planning and conducting reproducible investigations with appropriate sample sizes and replicable data. They select and construct appropriate representations to organise, process and summarise data. They analyse data to describe patterns, relationships and anomalies and use a variety of evidence to support conclusions. They describe the validity and reliability of methods and suggest ways to improve the quality of the data. They use content, language and text features to achieve their purpose when communicating their ideas, findings and arguments to specific audiences. They explore how advances in science, technologies and engineering are interconnected and examine how scientific responses impact society.

Students investigate processes that underpin heredity and natural selection to understand the continuity of life. They develop a more sophisticated understanding of atomic theory and explore patterns and relationships within the periodic table to explain ionic and covalent bonding. They predict the effect of changing reactant and reaction conditions and use chemical equations to predict reaction products. They explore the key events in the formation of stars, galaxies and solar systems and how space exploration has contributed to knowledge of the formation and evolution of the universe and improved life on Earth. They understand that motion and forces are related by applying physical laws and mathematical models. They apply the law of conservation of energy to analyse system efficiency.