

Conceptual understandings

Science Reception to year 10

Version 1.0



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Terminology

The South Australian Department for Education uses the term ‘Aboriginal’ to refer to people who identify as Aboriginal, Torres Strait Islander, or both Aboriginal and Torres Strait Islander. This term is preferred by Aboriginal South Australians and the department.

Knowledge

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Living systems	Plants and animals can be grouped based on their external features.	Plants and animals depend on their surroundings to meet their basic needs.	N/A	Living things have unique life cycles and can be distinguished from non-living things based on their characteristics.	Organisms obtain food and energy in different ways and are interdependent on one another within a habitat.	The form and behaviour of living things enables their survival in specific habitats.	Physical conditions of a habitat influence the growth and survival of living things.
Earth and space systems	N/A	Daily and seasonal changes in the environment affect plants and animals.	The changing position of the Sun, Moon, planets and stars in the sky produce observable patterns on Earth.	Earth's resources, including soil, rocks and minerals, have specific properties and uses.	Water cycles and moves through the environment.	Earth's surface is undergoing constant change through natural and human induced processes.	Earth's tilt, rotation and revolution around the Sun produce observable patterns on Earth.
Forces and energy	The motion of an object is influenced by its properties.	Pushes and pulls can change the motion and shape of an object.	Sounds are caused by something vibrating and can be produced in a variety of ways.	When heat energy transfers from one object to another it can result in temperature changes.	Forces can be exerted by one object on another, influencing the motion of objects.	Light can be produced by a variety of sources, it travels in straight lines and can be reflected, refracted and absorbed.	Electric circuits use a variety of components to direct, transfer and transform energy.
Matter and materials	There are many different materials, and each material has its own distinct observable properties.	N/A	Materials can be physically changed in a variety of ways without changing their composition.	Solids and liquids have observable properties; a change of state between solid and liquid can be caused by heat transfer.	Properties of materials determine their use.	All substances are made of particles. The movement and arrangement of particles in solids, liquids and gases influences their properties.	Changes to materials can be reversible or irreversible.

	Year 7	Year 8	Year 9	Year 10
Living systems	Classifying organisms based on similarities and patterns reveals their diversity and evolutionary connections. Energy and matter transfers and transforms within ecosystems, influencing each other.	Cells are the basic unit of life, with specialised structures that determine their function. In multicellular organisms, specialised tissues and organs work together in systems that sustain life.	To survive, organisms regulate and coordinate system functions to maintain stability and respond to changing conditions. Reproductive structures and processes influence reproductive success and species survival.	DNA, organised into genes and chromosomes, encodes instructions that influence hereditary traits and inheritance patterns. The theory of evolution by natural selection can be used to explain biodiversity.
Earth and space systems	The interactions and movements of the Earth, Moon and Sun cause predictable phenomena.	Tectonic plate movements cause geological events that shape Earth's surface. Rock properties are affected by formation processes and influence their use.	Carbon cycles through Earth's interconnected spheres, influencing life and climate.	The universe has evolved over time through expansion and the formation of matter and structures. Energy flows between the Earth's interconnected spheres and influences global climate patterns.
Forces and energy	Balanced forces will result in a moving object continuing its state of motion, or an object at rest staying at rest.	Energy can be transferred and transformed between kinetic and potential forms.	Energy can be transferred and transformed, however total energy in a system is conserved. Energy transfer through different mediums can be explained using wave and particle models.	Newton's laws of motion relate an object's motion to the forces acting on it.
Matter and materials	The physical properties and behaviours of matter can be explained by particle arrangement and movement. The properties of substances in a mixture determine the methods for their separation.	Matter consists of atoms and can be classified as elements, molecules, compounds or mixtures. Energy changes occur during chemical reactions and new substances are formed.	Radioactive decay involves the nuclei of unstable atoms emitting subatomic particles and radiation to become stable. Chemical reactions rearrange atoms, conserving mass.	Atomic structure determines element properties and reactivity. Reaction rates depend on the frequency, orientation and energy of particle collisions.