Science – Primary - Scope and Sequence
Semester 1

This Scope and Sequence is to be used to guide planning within the classroom. Students needs and interests are to be taken into consideration when planning and implementing content. From Kindergarten to Year 10, students with disability may engage with:

- *syllabus outcomes and content from their age-appropriate stage with adjustments to teaching, learning and/or assessment activities; or*
- *selected syllabus outcomes and content from their age-appropriate stage relevant to their learning needs; or*
- *syllabus outcomes from an earlier stage, using age-appropriate content; or*
- *selected Years 7–10 Life Skills outcomes and content from one or more syllabuses (for students in Years 7–10).*

Stage	Outcomes (ODD)	Content Focus (ODD)	Outcomes (EVEN)	Content Focus (EVEN)
		Term 1 – Living World		
Early Stage 1	**STe-3LW-ST** Explores the characteristics, needs and uses of living things	**Key Inquiry Questions** • *What do we notice about living things?* • *How can living things be used to meet our needs?* ⚓ Explore a range of foods obtained from plants and animals, for example: customary Aboriginal and Torres Strait Islander foods or foods from a range of cultures, e.g. African, American, German, Indian, Japanese.		
	Skills	**STe-1WS-S** observes, questions and collects data to communicate ideas **STe-2DP-T** develops solutions to an identified need		
Stage 1	**ST1-4LW-S** Describes observable features of living things and their environments	**Key Inquiry Questions** • *What are the external features of living things?* • *How do we improve a local environment to encourage living things to thrive?* ⚓ Recognise that people use science and technology in their daily lives, including when caring for their environment and living things. Look into how the Indigenous people looked after their environment to ensure that it was sustainable for all living things.	**ST1-5LW-T** Identifies how plants and animals are used for food and fibre products	**Key Inquiry Questions** • *How do living things change as they grow?* • *How do humans use plants and animals?* ⚓ Identify some plants and animals that are grown and used for food production. ⚓ Explore the plants and animals used in customary practices of Aboriginal and Torres Strait Islander Peoples. ⚓ Explore the tools, equipment and techniques used to prepare food safely and hygienically for healthy eating. ⚓ Investigate ways people use scientific and technological knowledge and skills to sustainably grow plants and animals to produce fibre for clothing and/or shelter.
	Skills	**ST1-1WS-S** observes, questions and collects data to communicate and compare		
Stage 2	**ST2-4LW-S** Compares features and characteristics of living and non-living things	**Key Inquiry Questions** • *How can we group living things?* • *What are the similarities and differences between the life cycles of living things?*	**ST2-5LW-T** Describes how agricultural processes are used to grow plants and raise animals for food, clothing and shelter	**Key Inquiry Questions** • *How are the environment and living things interdependent?* • *How do we create food and fibre products from animals and plants?* ⚓ Investigate and compare advancing technologies used in food and fibre production in Australian agriculture and those used in traditional agriculture, for example: automated farming using microcontrollers and sensors compared to animal-drawn equipment and autonomous vehicles to harvest crops compared to manual harvesting processes. How did the Indigenous people take care of the land in order to create food and fibre products to aide their everyday lives?
	Skills	**ST2-1WS-S** conducts investigations, and collects and represents data to communicate and compare ideas		
Stage 3	**ST3-4LW-S** Examines how the environment affects the growth, survival and adaptation of living things	**Key Inquiry Questions** • *How do physical conditions affect the survival of living things?* ⚓ Describe how changing physical conditions in the environment affect the growth and survival of living things, for example: Aboriginal Peoples' use of fire-stick farming. • *How do the structural and behavioural features of living things support survival?*	**ST3-5LW-T** explains how food and fibre are produced sustainably in managed environments for health and nutrition	**Key Inquiry Questions** • *Why is it important for food and/or fibre to be produced sustainably?* ⚓ Plan, design and produce a healthy meal, for example: a bush tucker meal, sushi or a salad. ⚓ Explain a sustainable practice used by Aboriginal and/or Torres Strait Islander communities to manage food and fibre resources.

	Skills	ST3-1WS-S conducts investigations, and collects, represents and summarises data to communicate conclusions ST3-2DP-T defines problems, and designs, modifies and follows algorithms to develop solutions ST3-3DP-T plans and uses materials, tools and equipment to develop solutions for a need or opportunity		

		Term 2 – Earth and Space		
Stage	**Outcomes (ODD)**	**Content Focus (ODD)**	**Outcomes (EVEN)**	**Content Focus (EVEN)**
Early Stage 1	STe-6ES-ST Identifies how daily and seasonal changes in the environment affect humans and other living things	**Key Inquiry Questions** • *How do daily and seasonal changes affect the environment?* 👋 Explore how living things respond to regular changes in their environment, for example: animals that migrate or hibernate and changes in human behaviour and clothing. What did the Indigenous people do throughout each of the seasons and how did this affect what they wore, ate and farmed?		
	Skills	STe-1WS-S observes, questions and collects data to communicate ideas STe-2DP-T develops solutions to an identified need		
Stage 1	ST1-10ES-S Recognises observable changes occurring in the sky and on the land and identifies Earth's resources	**Key Inquiry Questions** • *How can we investigate the observable changes that occur in the sky and on the land?* 👋 Identify how seasonal changes in our daily lives affect living things. Explore the Indigenous season's calendar and compare them with the seasons that are identified in our area. 👋 Collect data related to short-term weather events and long-term seasonal patterns, to inform others using appropriate communication techniques.	ST1-10ES-S Recognises observable changes occurring in the sky and on the land and identifies Earth's resources	**Key Inquiry Questions** • *What are Earth's resources and how do we use and care for them?* 👋 Identify how Aboriginal Peoples care for Earth's resources on-Country, for example: ochre, fish and seeds.
	Skills	ST1-1WS-S observes, questions and collects data to communicate and compare ST1-2DP-T describes, follows and represents algorithms to solve problems ST1-3DP-T uses materials, tools and equipment to develop solutions for a need or opportunity		
Stage 2	ST2-10ES-S Investigates regular changes caused by interactions between the Earth and the Sun and changes to the Earth's surface	**Key Inquiry Questions** • *What occurs as a result of the interactions between the Earth and the Sun?* 👋 Investigate how changes in the environment are used by Aboriginal and Torres Strait Islander Peoples to develop seasonal calendars.	ST2-10ES-S Investigates regular changes caused by interactions between the Earth and the Sun and changes to the Earth's surface	**Key Inquiry Questions** • *How do natural processes and human actions change the Earth's surface over time?*
	Skills	ST2-1WS-S conducts investigations, and collects and represents data to communicate and compare ideas ST2-3DP-T selects and uses materials, tools and equipment to develop solutions for a need or opportunity		
Stage 3	ST3-10ES-S Explains regular events in the solar system and geological events on the Earth's surface	**Key Inquiry Questions** • *How do sudden geological changes and extreme weather events affect the Earth's surface?*	ST3-10ES-S Explains regular events in the solar system and geological events on the Earth's surface	**Key Inquiry Questions** • *How does the Earth compare to other planets in the solar system?* 👋 Research and communicate how Aboriginal and/or Torres Strait Islander Peoples use observations of the night sky to inform decisions about resources and significant cultural events, for example: gathering food, ceremonies, song lines and navigation.
	Skills	ST3-1WS-S conducts investigations, and collects, represents and summarises data to communicate conclusions ST3-3DP-T plans and uses materials, tools and equipment to develop solutions for a need or opportunity		
Assessment	**Assessment for Learning:** Enables teachers to use information about students' knowledge, understanding and skills to inform their teaching. **Assessment as Learning:** Involves students in the learning process where they monitor their own progress, ask questions and practices skills. **Assessment of Learning:** Assists teachers to use evidence of student learning to assess student achievement against learning goals and standards.			
Resources	**Syllabus Documents:** https://www.educationstandards.nsw.edu.au/wps/portal/nesa/k-10/learning-areas/science **Primary Connections:** https://primaryconnections.org.au/			

	STEM: http://www.stem-nsw.com.au/
	ASTA (sample lessons): http://scienceweb.asta.edu.au/
	Science Bob Experiments: https://sciencebob.com/

Science – Primary - Scope and Sequence
Semester 2

This Scope and Sequence is to be used to guide planning within the classroom. Students needs and interests are to be taken into consideration when planning and implementing content. From Kindergarten to Year 10, students with disability may engage with:

- *syllabus outcomes and content from their age-appropriate stage with adjustments to teaching, learning and/or assessment activities; or*
- *selected syllabus outcomes and content from their age-appropriate stage relevant to their learning needs; or*
- *syllabus outcomes from an earlier stage, using age-appropriate content; or*
- *selected Years 7–10 Life Skills outcomes and content from one or more syllabuses (for students in Years 7–10).*

		Term 3 – Material World		
Stage	**Outcomes (ODD)**	**Content Focus (ODD)**	**Outcomes (EVEN)**	**Content Focus (EVEN)**
Early Stage 1	**STe-4MW-ST** Identifies that objects are made of materials that have observable properties **STe-7DI-T** Identifies digital systems and explores how instructions are used to control digital devices	**Key Inquiry Questions** • *What are some of the observable properties of materials?* • *How do the properties of materials affect their use?* • *How are digital technologies used in everyday life?* ⚐ Explore the uses of digital devices in developing and sustaining Aboriginal and Torres Strait Islander histories, cultures and languages, for example: a language app, an online video for storytelling or digital story books. • *How does following steps help to achieve a goal?*		
	Skills	**STe-1WS-S** observes, questions and collects data to communicate ideas		
Stage 1	**ST1-6MW-S** Identifies that materials can be changed or combined **ST1-11DI-T** Identifies the components of digital systems and explores how data is represented	**Key Inquiry Questions** • *What changes occur when materials are combined?* • *What is data and how can we store and represent it?* • *How can we record instruction for others to follow and understand?*	**ST1-7MW-T** Describes how the properties of materials determine their use **ST1-11DI-T** Identifies the components of digital systems and explores how data is represented	**Key Inquiry Questions** • *How do the properties of a material determine its use?* ⚐ Identify a range of natural materials available locally or through trade used by Aboriginal and/or Torres Strait Islander Peoples for a specific cultural purpose, for example: art supplies (paints/ ochres), food, materials for everyday items (rope, baskets), etc. • *What components might make up a digital system?*
	Skills	**ST1-1WS-S** observes, questions and collects data to communicate and compare **ST1-2DP-T** describes, follows and represents algorithms to solve problems **ST1-3DP-T** uses materials, tools and equipment to develop solutions for a need or opportunity		
Stage 2	**ST2-6MW-S** Describes how adding or removing heat causes a change of state **ST2-11DI-T** Describes how digital systems transmit data	**Key Inquiry Questions** • *How do materials change when heated and cooled?* • *Why do we represent data in different ways?*	**ST2-7MW-T** Investigates the suitability of natural and processed materials for a range of purposes **ST2-11DI-T** Describes how digital systems transmit data	**Key Inquiry Questions** • *How do you decide upon which material to use for a particular purpose?* • *How do digital systems share information and instructions?* • *How are algorithms used to develop digital systems?*
	Skills	**ST2-1WS-S** conducts investigations, and collects and represents data to communicate and compare ideas **ST2-2DP-T** defines problems, describes and follows algorithms to develop solutions		
Stage 3	**ST3-6MW-S** Explains the effect of heat on the properties and behaviour of materials **ST3-11DI-T** explains how digital systems represent data, connect together to form	**Key Inquiry Questions** • *How can the state of materials be changed and manipulated?* • *What is the result of combining materials?* • *How do we represent decision making in an algorithm?*	**ST3-7MW-T** explains how the properties of materials determines their use for a range of purposes **ST3-11DI-T** explains how digital systems represent data, connect together to	**Key Inquiry Questions** • *Why are the characteristics of materials important when designing and producing?* ⚐ Investigate characteristics and properties of a range of materials and evaluate the impact of their use (fire board experimentation). ⚐ Identify and evaluate the functional and structural properties of materials (materials used for rope or baskets) • *How do components of digital systems interact with each other to transmit data?* • *How do the components of digital systems connect together to form networks?*

	networks and transmit data		form networks and transmit data	
	Skills	**ST3-1WS-S** conducts investigations, and collects, represents and summarises data to communicate conclusions **ST3-2DP-T** defines problems, and designs, modifies and follows algorithms to develop solutions		

Term 4 – Physical World				
Stage	**Outcomes (ODD)**	**Content Focus (ODD)**	**Outcomes (EVEN)**	**Content Focus (EVEN)**
Early Stage 1	**STe-5PW-ST** Observes the way objects move and relates changes in motion to push and pull forces	**Key Inquiry Questions** • *What causes objects to move in different ways?*		
	Skills	**STe-1WS-S** observes, questions and collects data to communicate ideas **STe-2DP-T** develops solutions to an identified need		
Stage 1	**ST1-8PW-S** Describes common forms of energy and explores some characteristics of sound energy	**Key Inquiry Questions** • *What are the different forms of energy around us and how can we detect them?* ↳ Produce and describe different sounds, for example: by blowing, scraping, striking, shaking or by observing musical instruments from different cultures.	**ST1-9PW-ST** Investigates how forces and energy are used in products	**Key Inquiry Questions** • *How are forces used for a purpose?*
	Skills	**ST1-1WS-S** observes, questions and collects data to communicate and compare **ST1-2DP-T** describes, follows and represents algorithms to solve problems **ST1-3DP-T** uses materials, tools and equipment to develop solutions for a need or opportunity		
Stage 2	**ST2-8PW-ST** Describes the characteristics and effects of common forms of energy, such as light and heat	**Key Inquiry Questions** • *How do light, heat and electrical energy make things happen?* ↳ Explore ways that heat can be transferred due to conduction. Using the different woods on the fire boards, experiment with the heat created when trying to start a fire. • *How can objects affect other objects with or without touching them?*	**ST2-9PW-ST** Describes how contact and non-contact forces affect an objects motion	**Key Inquiry Questions** • *How can objects affect other objects with or without touching them?* • *How can we use forces and energy in a product or system?*
	Skills	**ST2-1WS-S** conducts investigations, and collects and represents data to communicate and compare ideas **ST2-2DP-T** defines problems, describes and follows algorithms to develop solutions		
Stage 3	**ST3-8PW-ST** Explains how energy is transformed from one form to another	**Key Inquiry Questions** • *How can we make a force stronger or weaker?* • *What types of energy transformations can be observed?*	**ST3-9PW-ST** Investigates the effects of increasing or decreasing the strength of a specific contact or non-contact force	**Key Inquiry Questions** • *How can electricity be used in a product or system* • *How can we make a force stronger or weaker?*
	Skills	**ST3-1WS-S** conducts investigations, and collects, represents and summarises data to communicate conclusions **ST3-2DP-T** defines problems, and designs, modifies and follows algorithms to develop solutions		
Assessment	**Assessment for Learning:** Enables teachers to use information about students' knowledge, understanding and skills to inform their teaching. **Assessment as Learning:** Involves students in the learning process where they monitor their own progress, ask questions and practices skills. **Assessment of Learning:** Assists teachers to use evidence of student learning to assess student achievement against learning goals and standards.			
Resources	Syllabus Documents: https://www.educationstandards.nsw.edu.au/wps/portal/nesa/k-10/learning-areas/science Primary Connections: https://primaryconnections.org.au/ STEM: http://www.stem-nsw.com.au/ ASTA (sample lessons): http://scienceweb.asta.edu.au/ Science Bob Experiments: https://sciencebob.com/			