Science and technology K-6 sample scope and sequence

## Semester-based

### Stage 1

#### Semester 1, odd year – living world and digital technologies

Stage 1 of the living world strand focuses on the features of living things, their environment and how they change and reproduce. Students investigate how plants and animals are used to satisfy our needs for food and fibre. This strand develops students’ understanding of how living things and their environment play a central role in the support for and survival of humans. The digital technologies strand focuses on digital systems and their components. Students investigate how digital systems display data and use a sequence of steps and decisions (algorithms) to solve problems in a living world context.

|  |  |
| --- | --- |
| Outcomes | Focus |
| ST1-1WS-S – observes, questions and collects data to communicate and compare ideas.  ST1-2DP-T – uses materials, tools and equipment to develop solutions for a need or opportunity.  ST1-3DP-T – describes, follows and represents algorithms to solve problems  ST1-4LW-S – describes observable features of living things and their environments  ST1-5LW-T – identifies how plants and animals are used for food and fibre products  ST1-11DI-T – identifies the components of digital systems and explores how data is represented | External features of living things  Inquiry question: What are the external features of living things?  Living things live in different places  Inquiry question: How can we improve a local environment to encourage living things to thrive?  Living things change  Inquiry question: How do living things change as they grow?  Plants and animals used for food and fibre  Focus question: How do humans use plants and animals?  Digital systems and their components  Focus question: What components might make up a digital system?  Representation and analysis of data  Focus question: What is data and how can we store and represent it? |

#### Semester 2, odd year – material world and digital technologies

Stage 1 of the material world strand focuses on how materials can be changed, manipulated and combined. Students investigate how different properties of materials affect their suitability for products. They have the opportunity to develop a design solution demonstrating the suitability of materials for a purpose. Stage 1 of this strand develops students’ understanding of the properties of materials. The digital technologies strand focuses on digital systems and their components. Students investigate how digital systems display data and use a sequence of steps and decisions (algorithms) to solve problems in a material world context.

|  |  |
| --- | --- |
| Outcomes | Focus |
| ST1-1WS-S – observes, questions and collects data to communicate and compare ideas  ST1-2DP-T – uses materials, tools and equipment to develop solutions for a need or opportunity  ST1-3DP-T – describes, follows and represents algorithms to solve problems  ST1-6MW-S – identifies that materials can be changed or combined.  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 | Materials can be combined and changed  Inquiry question: What changes occur when materials are combined?  Materials are used for a specific purpose  Focus question: How do the properties of materials determine their use?  Writing and recording sequences and instructions  Focus question: How can we record instructions for others to follow and understand? |

#### Semester 1, even year – Earth and space and digital technologies

Stage 1 of the Earth and space strand focuses on the observable changes that occur in the sky and landscape. Students explore how the Earth’s resources are used and investigate their conservation. Stage 1 of this strand introduces students to regular atmospheric and astronomical events and their effect on the Earth and develops students’ understanding of sustainability. The digital technologies strand focuses on digital systems and their components. Students investigate how digital systems display data and use a sequence of steps and decisions (algorithms) to solve problems in an Earth and space context.

|  |  |
| --- | --- |
| Outcomes | Focus |
| ST1-1WS-S – observes, questions and collects data to communicate and compare ideas  ST1-2DP-T – uses materials, tools and equipment to develop solutions for a need or opportunity  ST1-3DP-T – describes, follows and represents algorithms to solve problems  ST1-10ES-S – recognises observable changes occurring in the sky and on the land and identifies Earth’s resources  ST1-11DI-T – identifies the components of digital systems and explores how data is represented | Changes in the sky and on the land  Inquiry question: How can we investigate the observable changes that occur in the sky and on the land?  Earth’s resources  Inquiry question: What are Earth’s resources and how do we use and care for them?  Digital systems and their components  Focus question: What components might make up a digital system?  Representation and analysis of data  Focus question: What is data and how can we store and represent it?  Writing and recording sequences and instructions  Focus question: How can we record instructions for others to follow and understand? |

#### Semester 2, even years – physical world and digital technologies

Stage 1 of the physical world strand focuses on the identification of light, sound and heat energy, and how they are sensed and produced. Stage 1 of this strand allows students to further develop their understanding of forces and energy and how these can be used for specific purposes in products. The digital technologies strand focuses on digital systems and their components. Students investigate how digital systems display data and use a sequence of steps and decisions (algorithms) to solve problems in a physical world context.

|  |  |
| --- | --- |
| Outcomes | Focus |
| ST1-1WS-S – observes, questions and collects data to communicate and compare ideas  ST1-2DP-T – uses materials, tools and equipment to develop solutions for a need or opportunity  ST1-3DP-T – describes, follows and represents algorithms to solve problems  ST1-8PW-S – describes common forms of energy and explores some characteristics of sound energy  ST1-9PW-ST – investigates how forces and energy are used in products  ST1-11DI-T – identifies the components of digital systems and explores how data is represented | Energy comes in different forms that can be detected  Inquiry question: What are the different forms of energy around us and how can we detect them?  Forces and energy in products  Focus question: How are forces used for a purpose?  Digital systems and their components  Focus question: What components might make up a digital system?  Writing and recording sequences and instructions  Focus question: How can we record instructions for others to follow and understand? |

[Science and Technology K-6 Syllabus (2017)](https://educationstandards.nsw.edu.au/wps/portal/nesa/k-10/learning-areas/science/science-and-technology-k-6-new-syllabus) © NSW Education Standards Authority (NESA) for and on behalf of the Crown in right of the State of New South Wales.