NSW Science

EP Curriculum Map

Stage 03

Living World

Growth and survival of living things

Content Descriptor	Lesson Names
plan and conduct a fair test to show the conditions needed for a particular plant or animal to grow and survive in its environment (ACSSU094) 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 – temperature of water in aquatic environments test predictions by gathering data and use evidence to develop explanations of events and phenomena (ACSHE081, ACSHE098) understand that scientific and technological knowledge is used to solve problems and inform personal and community decisions (ACSHE083, ACSHE100)	*The Environment* • Living and Non-Living Things • MRS GREN • Environments • Extreme Environments *Living Things and their Environments* • Non-Living Factors Affecting Plants • Migration • Hibernation • Living Factors Affecting Plants • Non-living Factors Affecting Fungi • Living Factors Affecting Fungi • Non-Living Factors Affecting Animals • Living Factors Affecting Animals • Extreme Environments: The Scorching Deserts • Extreme Environments: The Deep Dark Sea • Extreme Environments: The Freezing Poles

Adaptations of living things

Content Descriptor	Lesson Names
describe adaptations as existing structures or behaviours that enable living things to survive in their environment (ACSSU043) describe the structural and/or behavioural features of some native Australian animals and plants and why they are considered to be adaptations, for example: – shiny surfaces of leaves on desert plants – rearward facing pouch of a burrowing wombat	*Adaptations for Survival* • Introduction to Adaptations • Adaptations in Shape or Form • Adaptations Inside the Body • Adaptations in Behaviour • Nocturnal Activity • Dune Plants • Camouflage

– spines on an echidna	*Adaptations to Environments* • Environments • Rock Pool Environments • Life in a Rock Pool • Desert Environments • Life in the Desert • Polar Environments • Life at the Poles

Sustainably managing environments to source food and fibre

Content Descriptor	**Lesson Names**
explore examples of managed environments used to produce food and fibre, for example: – cattle farms – fish and oyster farms – timber plantations investigate how and why food and fibre are produced in managed environments (ACTDEK021) identify and sequence the process of converting 'on-farm' food and fibre products into a product suitable for retail sale explore plants and animals, tools and techniques used to prepare food to enable people to grow and be healthy (ACTDEK021) plan, design and produce a healthy meal, for example: – a bush tucker meal – sushi – salad explain a sustainable practice used by Aboriginal and/or Torres Strait Islander communities to manage food and fibre resources investigate how people in design and technological occupations address considerations, including sustainability, in the design of products, services and environments for current and future use (ACTDEK019)	*Further development planned*

Material World

States of matter

Content Descriptor	Lesson Names
investigate and compare the properties of solids, liquids and gases (ACSSU077)	*States of Matter* • Introduction to Matter • Solids • Liquids • Gases • Gases have Masses? • Comparing States of Water • Secretive Substances • Extreme Conditions *Changing States of Matter* • Melting • Freezing • Condensation • Sublimation • Deposition • Boiling and Evaporation • Temperature and States of Matter

Mixtures

Content Descriptor	Lesson Names
explore that when materials are combined the result is either a mixture or a new substance, for example: (ACSSU095) – salt and water – bicarbonate of soda and vinegar identify that mixtures can be separated using different techniques	*Materials and Mixtures* • Pure and Impure Substances • Mixtures • Solubility • Solvents and Solutes

Properties of materials determine their use

Content Descriptor	Lesson Names
investigate characteristics and properties of a range of materials and evaluate the impact of their use (ACTDEK023) identify and evaluate the functional and structural properties of materials, for example: (ACTDEK023)	*Further development planned*

– shade cloth for shelter – aluminium for playground seats – canvas for boat sails critique needs or opportunities for designing using sustainable materials design a sustainable product, system or environment individually and/or collaboratively considering the properties of materials select appropriate materials, components, tools, equipment and techniques and apply safe procedures to produce designed solutions	

Physical World

Describing and exploring specific forces

Content Descriptor	Lesson Names
explore and describe some common contact or non-contact forces, for example: – applied force (eg pushing, kicking) – friction and air resistance – tension and elastic force – gravity – magnetism – buoyancy perform a scientific investigation to explore the effects of changing the strength of a single contact or non-contact force, for example: – how a stronger or weaker applied force, such as a push or kick, results in objects travelling longer or shorter distances – how increasing or decreasing the strength of the force of air resistance by changing the shape of an object results in increases or decreases in speed	*Further development planned*

Transfer and transformation of energy

Content Descriptor	Lesson Names
identify different types of energy transformations, for example: (ACSSU097) – gravitational energy to energy of movement – heat energy to light energy investigate how electrical energy can be transferred and transformed in electrical circuits and can	*Further development planned*

be generated from a range of sources (ACSSU097)	

Forces and energy in products and systems

Content Descriptor	Lesson Names
describe examples where light, sound, heat and electrical energy transform from one type of energy to another, for example: – a toaster transforms electrical energy into heat energy – a microphone transforms sound energy into electrical energy – a solar panel transforms light energy into electrical energy investigate how electrical energy can control movement, sound, or light in a product or system (ACTDEK020) design, test and evaluate a product or system that involves an energy transformation to meet an identified need using electrical energy	*Further development planned*

Earth and Space

Earth's place in our solar system

Content Descriptor	Lesson Names
identify that Earth is part of a system of planets orbiting around a star (the Sun) (ACSSU078) investigate the role of light energy in how we observe the Sun, Moon and planets compare the key features of the planets of our solar system, for example: – time it takes for the planets to revolve around the Sun – size of the planets – distance of the planets from the Sun 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 – navigation	• Planet Earth • Introduction to the Solar System • The Sun • Years • Days • The Inner Planets • The Outer Planets • Sizes in Space • Distances in Space

examine and discuss current developments in astronomy, space and planetary science, particularly related to making observations and gathering data	

Changes to Earth's surface

Content Descriptor	Lesson Names
investigate the effects of sudden geological changes and extreme weather events on the Earth's surface, for example: (ACSSU096) – earthquakes, volcanic eruptions, tsunamis – cyclones, storms, drought and floods investigate ways that advances in science and technology have assisted people to plan for and manage natural disasters to minimise their effect, for example: – design and construction of buildings and roads – detection systems for tsunamis – digital flood and fire warning systems	*Introduction to Earth* • Layers of the Earth • The Atmosphere • The Geosphere *Drought* • Weather in the Outback • Effects of Drought • Coping with Drought *Cyclones and Floods* • Tropical Cyclones • The Effects of Cyclones • Cyclone Winston 2016 • The Queensland Floods of 2011 • Bots to the Rescue! *Earthquakes* • Earthquakes • Earthquake Hazards • Measuring Earthquakes • Tsunamis • Relief Bots *Volcanoes* • Volcanic Eruptions • Living with Volcanoes • aster Recovery Robots • reme Natural Events

Digital Technologies

Using and Interpreting Data

Content Descriptor	Lesson Names
identify how whole numbers are used to represent all data (binary) in digital systems (ACTDIK015) ComT SysT collect, store and interpret different types of data, for example: ComT SysT – using sensors to collect data use software to interpret and visualise data	*Further development planned*

Digital Systems and Networks

Content Descriptor	Lesson Names
investigate internal and external components of digital systems that perform functions explore how the main components of digital systems connect together to form networks that transmit data (ACTDIK014) describe how data can be transmitted between two digital components, for example: – wired networks – wireless networks identify and explain how existing information systems meet the needs of present and future communities, for example: – school databases explore current ethical, social and technical protocols when communicating using information systems (ACTDIP022)	*Further development planned*

Designing Digital Solutions

Content Descriptor	Lesson Names
design a user interface for a digital system, for example: (ACTDIP018) – developing a storyboard for a game design, modify and follow algorithms involving branching and iteration define problems, and plan and implement digital solutions, using an appropriate visual programming language involving branching and iteration, and requiring user input	*Further development planned*