

Shell Cove Public School

Science and Technology Scope & Sequence



Stage One

Science EVEN Year – Term 1 and 2			Stage 1	
	Outcomes + Thinking Skills	Inquiry Question	Unit + Content	Assessment
1	<ul style="list-style-type: none"> - ST1-4LW-S - Describes observable features of living things and their environments. <p>Working Scientifically</p> <ul style="list-style-type: none"> - ST1-1WS-S - Observes, questions and collects data to communicate and compare ideas <ul style="list-style-type: none"> • Planning and Conduct Investigations • Processing and Analysing data - Scientific Thinking – SciT - Design Thinking – DesT - Systems Thinking – Sys-T 	<ul style="list-style-type: none"> - What are the external features of living things? - How can we improve a local environment to encourage living things to thrive? 	<p>Living World Primary Connections Unit: School Safari</p> <ul style="list-style-type: none"> - Identifies and groups plants and animals using their external features. - Identifies that living things live in different places that suit their needs - Designs and produces an environment to cater for the needs of a living thing. - Records the changes in growth of a common plant or animal, using uniform informal units and appropriate technologies. 	<ul style="list-style-type: none"> - Week 3 Pre-Test - Week 10 Post-Test <p>Phase/Assessment Focus:</p> <ul style="list-style-type: none"> - Engage- Diagnostic - Explore/ Explain – Formative - Elaborate – Summative of Science Inquiry Skills - Evaluate - Summative of Science Understanding - See specific details in the unit.
2	<ul style="list-style-type: none"> - ST1-10ES-S - Recognises observable changes occurring in the sky and on the land and identifies Earth’s resources. <p>Working Scientifically</p> <ul style="list-style-type: none"> - ST1-1WS-S - Observes, questions and collects data to communicate and compare ideas <ul style="list-style-type: none"> • Planning and conducting investigations • Processing and analysing data • Identifying and designing (Design and Production) - Scientific Thinking – SciT - Systems Thinking- SysT - Design Thinking – DesT 	<ul style="list-style-type: none"> - How can we investigate the observable changes that occur in the sky and on the land? - What are Earth’s resources and how do we use and care for them? 	<p>Earth and Space Primary Connections Unit: Water Works</p> <ul style="list-style-type: none"> - Records the observable changes that occur in the sky and on the land. - Observes, asks questions about and describes changes in objects and events including how seasonal changes affect living things. - Identifies and explores the use of a variety of Earth’s resources including water and soil. - Plans and implements strategies considering conservation of resources to address sustainability and to meet personal and/or community needs, for example: - turning off dripping taps –turning off unnecessary lights - reusing/recycling campaigns 	<ul style="list-style-type: none"> - Week 1 Pre-Test - Week 5 Post-Test (Reports) - Week 10 <p>Phase/Assessment Focus:</p> <ul style="list-style-type: none"> - Engage- Diagnostic - Explore/ Explain – Formative - Elaborate – Summative of Science Inquiry Skills - Evaluate - Summative of Science Understanding - See specific details in the unit.

Working Scientifically

Term 1 and Term 2

- Records observations accurately and honestly using observational drawings, labelling, informal measurements and digital technologies
- Makes safe choices when using materials and equipment

Science EVEN Year – Term 3 and 4			Stage 1	
	Outcomes + Thinking Skills	Inquiry Question	Unit Content	Assessment
3	<ul style="list-style-type: none"> - ST1-6MW-S - Identifies that materials can be changed or combined. <p>Working Scientifically</p> <ul style="list-style-type: none"> - ST1-1WS-S - Observes, questions and collects data to communicate and compare ideas <ul style="list-style-type: none"> • Questioning and Predicting • Planning and Conduct Investigations - Design Thinking – DesT - Scientific Thinking- SciT - Systems Thinking – SysT 	<ul style="list-style-type: none"> - What changes occur when materials are combined? 	<p>Material World Primary Connections Unit: All Mixed Up</p> <ul style="list-style-type: none"> - Identifies that materials can be changed or combined. - Investigates how materials can be changed by bending, twisting and stretching. - Investigates how different materials can be combined. 	<ul style="list-style-type: none"> - Week 1 - Week 10 <p>Phase/Assessment Focus:</p> <ul style="list-style-type: none"> - Engage- Diagnostic - Explore/ Explain – Formative - Elaborate – Summative of Science Inquiry Skills - Evaluate - Summative of Science Understanding - See specific details in the unit.
4	<ul style="list-style-type: none"> - ST1-9PW-ST - Investigates how forces and energy are used in products <p>Working Scientifically</p> <ul style="list-style-type: none"> - ST1-1WS-S - Observes, questions and collects data to communicate and compare ideas <ul style="list-style-type: none"> • Processing and analysing data • Communicating - Design Thinking – DesT - Systems Thinking – SysT 	<ul style="list-style-type: none"> - How are forces used for a purpose? 	<p>Physical World Primary Connections Unit: Push Pull</p> <ul style="list-style-type: none"> - Explores how technologies use forces to create movement in products. - Designs and develops a product that uses one or more forms of energy to create change. 	<ul style="list-style-type: none"> - Week 1 Pre-Test - Week 5 Post-Test (Reports) <p>Phase/Assessment Focus:</p> <ul style="list-style-type: none"> - Engage- Diagnostic - Explore/ Explain – Formative - Elaborate – Summative of Science Inquiry Skills - Evaluate - Summative of Science Understanding - See specific details in the unit.

Working Scientifically

Term 3 and Term 4

- Represents and communicates observations and ideas in a variety of ways
- Uses a range of methods to sort and collate information

All

ST1-2DP- T

ST1-3DP-T

ST1-11DI-T

Digital Technologies
Design Production and
Technology Skills and
Understanding

Technology + STEM EVEN Year			Stage 1	
	Unit Content	Key Inquiry Questions	Unit + Content	Assessment
1	<ul style="list-style-type: none"> - ST1-11DI-T - Identifies the components of digital systems and explores how data is represented <p>Design and Production</p> <ul style="list-style-type: none"> - ST1-2-DP-T - Uses materials, tools and equipment to develop solutions for a need or opportunity <ul style="list-style-type: none"> • Identifying and defining • Producing and implementing • Testing and evaluating 	<ul style="list-style-type: none"> - How can we record instructions for others to follow and understand? - Authentic link to Living World = Needs of living things – Let’s grow a garden 	<p>Unit - Stay safe online + Changes in technology</p> <ul style="list-style-type: none"> - Follows a sequence of steps and decisions (algorithms) to solve problems. - Effectively manages a variety of tools. 	<ul style="list-style-type: none"> - Week 3: Pre-test - Week 10: Post-test <p>Ongoing</p> <ul style="list-style-type: none"> - Photos or work samples - Evidence of learning against goals - Diagnostic checklist – ICT Skills) <p>Links to outside agencies</p> <ul style="list-style-type: none"> - UOW Education Students Visit whole school
2	<ul style="list-style-type: none"> - ST1-3DP-T - Describes follows represents algorithms to solve problems) <p>Design and Production</p> <ul style="list-style-type: none"> - ST1-2-DP-T - Uses materials, tools and equipment to develop solutions for a need or opportunity <ul style="list-style-type: none"> • Identifying and defining • Producing and implementing • Testing and evaluating 	<ul style="list-style-type: none"> - What components might make up a digital system? - Authentic Link to Earth and Space = Earth and Space – Earth Resources – Toilet to Tap 	<p>Unit - Digital Technologies (Pre Programming)</p> <ul style="list-style-type: none"> - Identifies a variety of uses for digital systems - recording information, storing information and saving a digital file. - Follows and represents sequences of steps and decisions (algorithms) to solve problem, including controlling a digital device remotely. - Presents a sequence of instructions using a visual programming language test . 	<ul style="list-style-type: none"> - Week 1 Pre-test - Week 5 Mid-test (Reports) - Week 10 Post-test <p>Ongoing</p> <ul style="list-style-type: none"> - Photos or worksamples - Evidence of learning against goals - Diagnostic checklist – ICT Skills) <p>Links to outside agencies</p> <ul style="list-style-type: none"> - STEM Share – Augmented Reality

3	<ul style="list-style-type: none"> - ST1-2DP-T - Uses materials tools and equipment to develop solutions to a need or opportunity <p>Design and Production</p> <ul style="list-style-type: none"> - ST1-2-DP-T - Uses materials, tools and equipment to develop solutions for a need or opportunity <ul style="list-style-type: none"> • Identifying and defining • Producing and implementing • Testing and evaluating 	<ul style="list-style-type: none"> - How can we assist others by solving a real world problem? - Authentic Link to Material World – Make food products nut free? Kids with allergies? 	<p>Unit – Real World Problem</p> <ul style="list-style-type: none"> - Considers safety, sustainability and time constraints when producing solutions. - Segments and sequences steps for making designed solutions. - Collaborates to develop designed solutions. - Performs strategic roles within a group to solve a problem. 	<ul style="list-style-type: none"> - Week 1 Pre-test - Week 10 Post-test <p>Phase/Assessment Focus:</p> <ul style="list-style-type: none"> - Engage- Diagnostic - Explore/ Explain – Formative - Elaborate – Summative of Science Inquiry Skills - Evaluate - Summative of Science Understanding - See specific details in the unit. <p>Links to outside agencies/competitions</p> <ul style="list-style-type: none"> - Aeroplane Jelly Competition - Sculptures @ Killalea
4	<ul style="list-style-type: none"> - ST1-11DI-T - Identifies the components of digital systems and explores how data is represented <p>Design and Production</p> <ul style="list-style-type: none"> - ST1-2-DP-T - Uses materials, tools and equipment to develop solutions for a need or opportunity <ul style="list-style-type: none"> • Identifying and defining • Producing and implementing • Testing and evaluating 	<ul style="list-style-type: none"> - What is data and how can we store and represent it? - Authentic Science Link to Physical World – How can we assist the elderly – Push and Pull 	<p>Unit – Exploring Data</p> <ul style="list-style-type: none"> - Identifies how data is represented as pictures, symbols and diagrams. - Creatively explores and identifies patterns in data. 	<ul style="list-style-type: none"> - Week 1 Pre-test - Week 5 Mid-test (Reports) <p>Phase/Assessment Focus:</p> <ul style="list-style-type: none"> - Engage- Diagnostic - Explore/ Explain – Formative - Elaborate – Summative of Science Inquiry Skills - Evaluate - Summative of Science Understanding - See specific details in the unit. <p>Links to outside agencies/competitions</p> <ul style="list-style-type: none"> - UOW Science Fair
All	ICT Skills Checklist – 2 weeks on 2 weeks off	Linked with Science Units for authenticity		Diagnostic checklist (ICT)

Stage One Learning Continuum

Managing/Operating	Stage 1	
	1	2
Identify technology equipment		
Keyboard & Mouse	r	
Monitor	r	
Printer	r	
Hard Drive	r	r
Data Projector/IWB	r	r
Laptop	r	r
Digital Camera	r	r
iPad	r	r
Internal Components (RAM/CPU etc)		i
Care & use of technology equipment		
Move mouse		
Click & double click mouse		
Identify letters on the keyboard	r	
Select & move objects	r	
Use special keys - enter/space bar	r	
Manage files – name/save/open/delete	i	r
Turn computer on/off	r	
Correct posture	r	r
Access & exit software/apps	r	r
Print files	r	r
Select a printer	i	r
Understand terms		
Cursor	r	r
Software/Hardware	r	r
Internet	r	r
Menu	r	
Open/Close program or app	r	
Login & Password	r	
Tool bar/scroll bar	r	
Cell, Row, Column	i	i
Save/save as	i	r
Software Skills		
Locate software/app	r	r
Select/Open/Close	r	

Communicating– WordProcessing	Stage 1	
	1	2
Manipulate documents		
Use drop down menus	r	
Open/Close file	r	
Save file - with help	r	
Name file - with help	r	
Use "save" and "save as"	i	r
Select page orientation	i	r
Change line spacing		i
Add a page border		i
Indent text/use tab		i
Enter & modify text		
Enter text	r	
Select - highlight text	r	
Delete text (letters, words)	r	
Modify text - colour; size; font	r	
Copy text	i	r
Paste text	i	r
Select text	i	r
Change font style e.g. bold	i	r
Change font size	i	r
Change font	i	r
Change text justification	i	r
Use Undo and Redo	i	r
Use columns & tables	i	r
Use spell checker		i
Print documents		
Print completed documents (with help)	r	r
Use print preview	i	r
Add graphics		
Insert pictures	r	
Manipulate pictures - size; position; order	r	
Insert online pictures	i	r
Insert & manipulate Word Art	i	r
Insert & manipulate Shapes	i	r

Creating -Animations	Stage 1	
	1	2
Introduce simple animation – Power Point		
Use Power Point to animate an item	i	r
Create slide	i	r
Insert shapes	i	r
Group shapes		i
Import images		i
Manipulate images	i	r
Create a background	i	r
Import background		i
Insert clip art	i	r
Ordering objects and perspective		i
Adding duplicate slides		i
Moving objects consistent distance		i
Use animation tools	i	r
Apply transitions		i
Use loops & timing		i
Save as ppt/pptx/wmv		i
Animation - Dolnk		
Become familiar with interface	i	r
Draw images	i	r
Import images		i
Save in gallery	i	r
Create background		i
Create a composition		i
Save/export	i	r
Animation - Pivot		
Investigate interface	i	r
Manipulate figures	i	r
Create figures/objects	i	r
Create movement – using onion skin technique	i	r
Saving as .piv	i	r
Animation – online programs		
Creates an animation using abcya	r	

Ethics/Cybersafety	Stage 1	
	1	2
Shows appropriate ethical conduct		
Follows school computer policy	r	
Use "safe" habits when using technology to ensure personal safety and security of private information	r	
Discuss & establish "safe" habits when using technology to ensure personal safety and security of private information	i	r
Uses computer based technologies appropriately	i	r
Uses computer netiquette		i
Awareness of copyright laws & obligations		i
Well being		
Correct posture	r	r
Holding mouse	r	
Careful use of equipment	r	
Eye distance from screen,	i	r
Taking a break	i	r
Examines the use of computers in society		
Can identify where computers are being used	i	r
Can identify how computers affect their way of life	i	r

Creating - iPads	Stage 1	
	1	2
Use an iPad		
On/Off; Use slide wake	r	
Slide to change screens	r	
Opening apps	r	
Operating apps	r	
Closing apps	r	
Looking after iPad	r	

i – skill is introduced ■ r – skill is reinforced ■ skill is used independently ■

Creating - Coding	Stage 1	
What is Coding?	1	2
Introduction to coding – what is it?		
Simple examples of coding		i
SYMBOL BASED CODING		
Understanding symbol commands	1	2
Recognising Fwd, bwd, turn left, turn right		
Create Coding – Symbol based	1	2
Planning		
Program robot to move - fwd./bwd, left/right		
Developing a sequence		
Running a sequence		
Modify coding - Problem solving		
Symbol Based Applications	1	2
<ul style="list-style-type: none"> • iPad apps (BeeBot/CodeAPillar/LightBox/ALEX/Kodable) 		
<ul style="list-style-type: none"> • online software 		
<ul style="list-style-type: none"> • BeeBots 		
<ul style="list-style-type: none"> • Code-A-Pillar 		
<ul style="list-style-type: none"> • Ozobots 	i	r
BLOCK BASED CODING	1	2
Planning (may be hands on for juniors)		
Developing a sequence		
Using code blocks		
Adding an “if” variation	i	r
Adding “if/else”		i
Include a repeat block	i	r
Include a repeat “times” block	i	r
Functions	r	r
Parameters	r	r
Create actions – simple	r	
Create actions – moderate		i
Block Based Applications	1	2
<ul style="list-style-type: none"> • iPad apps (Tynker; Daisy; Hopscotch) 		
<ul style="list-style-type: none"> • web based (Scratch; Hour of Code/code.org) 		

Creating -Multimedia	Stage 1	
<i>(using software/iPad/Wacom/online programs)</i>		
Use Peripherals	1	2
Use an iPad	r	
Use a Wacom tablet	r	
Use digital camera (still/movie)	r	
Use a microphone	r	
Use a digital camera	1	2
Learns basic functions		i
Uses to create digital image		i
Uploads image to computer		i

i – skill is introduced ■ r – skill is reinforced ■ skill is used independently ■