

# Shell Cove Public School

## Science and Technology Scope & Sequence



Stage One

Science ODD Year – Term 1 and 2		Stage 1		
	Outcomes + Thinking Skills	Inquiry Question	Unit Content	Assessment
1	<ul style="list-style-type: none"> <li>- <b>ST1-5LW-T</b> - Identifies how plants and animals are used for food and fibre products</li> </ul> <p>Working Scientifically</p> <ul style="list-style-type: none"> <li>- <b>ST1-1WS-S</b> - Observes, questions and collects data to communicate and compare ideas               <ul style="list-style-type: none"> <li>• Planning and Conducting Investigations</li> <li>• Processing and Analysing Data</li> </ul> </li> <li>- Systems Thinking – SysT</li> <li>- Scientific Thinking- SciT</li> </ul>	<ul style="list-style-type: none"> <li>- How do living things change as they grow?</li> <li>- How do humans use plants and animals?</li> </ul>	<p><b>Living World</b>  <b>Unit:</b> Farms and people’s connection to them (Focus - Bees and Rice)</p> <ul style="list-style-type: none"> <li>- Identifies some plants and animals that are grown and used for food production.</li> <li>- Explores the plants and animals used in customary practices of Aboriginal and Torres Strait Islander Peoples.</li> <li>- Explores the tools, equipment and techniques used to prepare food safely and hygienically for healthy eating.</li> </ul>	<ul style="list-style-type: none"> <li>- Week 3 Pre-Test</li> <li>- Week 10 Post-Test</li> </ul> <p><b>Phase/Assessment Focus:</b></p> <ul style="list-style-type: none"> <li>- Engage- Diagnostic</li> <li>- Explore/ Explain – Formative</li> <li>- Elaborate – Summative of Science Inquiry Skills</li> <li>- Evaluate - Summative of Science Understanding</li> <li>- See specific details in the unit.</li> </ul>
2	<ul style="list-style-type: none"> <li>- <b>ST1-10ES-S</b> - Recognises observable changes occurring in the sky and on the land and identifies Earth’s resources</li> </ul> <p>Working Scientifically</p> <ul style="list-style-type: none"> <li>- <b>ST1-1WS-S</b> - Observes, questions and collects data to communicate and compare ideas               <ul style="list-style-type: none"> <li>• Planning and conducting investigations</li> <li>• Processing and analysing data</li> <li>• Identifying and designing (Design and Production)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- How can we investigate the observable changes that occur in the sky and on the land?</li> </ul>	<p><b>Earth and Space</b>  <b>Primary Connections Unit:</b> Changes all around</p> <ul style="list-style-type: none"> <li>- Records the observable changes that occur in the sky and on the land.</li> <li>- Observes, asks questions about and describes changes in objects and events including seasonal changes affect living things.</li> </ul>	<ul style="list-style-type: none"> <li>- Week 1 Pre-Test</li> <li>- Week 5 Post-Test (Reports)</li> <li>- Week 10</li> </ul> <p><b>Phase/Assessment Focus:</b></p> <ul style="list-style-type: none"> <li>- Engage- Diagnostic</li> <li>- Explore/ Explain – Formative</li> <li>- Elaborate – Summative of Science Inquiry Skills</li> <li>- Evaluate - Summative of Science Understanding</li> <li>- See specific details in the unit.</li> </ul>

## 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 ODD Year – Term 3 and 4			Stage 1	
	Outcomes + Thinking Skills	Inquiry Question	Unit Content	Assessment
3	<ul style="list-style-type: none"> <li>- <b>ST1-7MW-T</b> - Describes how the properties of materials determine their use.</li> </ul> <p>Working Scientifically</p> <ul style="list-style-type: none"> <li>- <b>ST1-1WS-S</b> - Observes, questions and collects data to communicate and compare ideas <ul style="list-style-type: none"> <li>• Questioning and Predicting</li> <li>• Planning and Conduct Investigations</li> </ul> </li> <li>- Systems Thinking – SysT</li> <li>- Design Thinking – DesT</li> </ul>	<ul style="list-style-type: none"> <li>- How do the properties of materials determine their use?</li> </ul>	<p><b>Material World</b> Primary Connections Unit: Bend it Stretch it</p> <ul style="list-style-type: none"> <li>- Identifies a range of natural materials available locally or through trade used by Aboriginal and/or Torres Strait Islander Peoples for a specific cultural purpose.</li> <li>- Designs and evaluates a product, demonstrating understanding of the suitability of materials for a purpose.</li> </ul>	<ul style="list-style-type: none"> <li>- Week 1 Pre-Test</li> <li>- Week 10</li> </ul> <p><b>Phase/Assessment Focus:</b></p> <ul style="list-style-type: none"> <li>- Engage- Diagnostic</li> <li>- Explore/ Explain – Formative</li> <li>- Elaborate – Summative of Science Inquiry Skills</li> <li>- Evaluate - Summative of Science Understanding</li> <li>- See specific details in the unit.</li> </ul>
4	<ul style="list-style-type: none"> <li>- <b>ST1-8PW-S</b> - Describe common forms of energy and explorers some characteristics of sound energy.</li> </ul> <p>Working Scientifically</p> <ul style="list-style-type: none"> <li>- <b>ST1-WS-S</b> - Observes, questions and collects data to communicate and compare ideas <ul style="list-style-type: none"> <li>• Processing and Analysing data</li> <li>• Communicating</li> </ul> </li> </ul> <p>Scientific Thinking- SciT</p>	<ul style="list-style-type: none"> <li>- What are the different forms of energy around us and how can we detect them?</li> </ul>	<p><b>Physical World</b> Primary Connections Unit: Look, Listen!</p> <ul style="list-style-type: none"> <li>- Produces and describes different sounds by blowing, scraping, striking, shaking and by observing musical instruments from different cultures.</li> <li>- Explores how the volume and pitch of a sound can be changed.</li> <li>- Identifies sound, light, heat, electricity and movement as forms of energy.</li> <li>- Explores sound, light and heat from various sources, using the senses.</li> </ul>	<ul style="list-style-type: none"> <li>- Week 1 Pre-Test</li> <li>- Week 5 Post-Test (Reports)</li> </ul> <p><b>Phase/Assessment Focus:</b></p> <ul style="list-style-type: none"> <li>- Engage- Diagnostic</li> <li>- Explore/ Explain – Formative</li> <li>- Elaborate – Summative of Science Inquiry Skills</li> <li>- Evaluate - Summative of Science Understanding</li> <li>- See specific details in the unit.</li> </ul>

## Working Scientifically

Term 3 and Term 4

Represents information using drawings and simple tables, including digital representation methods

Technology + STEM ODD Year		Stage 1		
	Outcomes + Thinking Skills	Inquiry Question	Unit + Content	Assessment
1	<ul style="list-style-type: none"> <li>- <b>ST1-11DI-T</b> - Identifies the components of digital systems and explores how data is represented</li> </ul> <p><b>Design and Production</b></p> <ul style="list-style-type: none"> <li>- <b>ST1-2-DP-T</b> - Uses materials, tools and equipment to develop solutions for a need or opportunity</li> </ul> <ul style="list-style-type: none"> <li>• Identifying and defining</li> <li>• Producing and implementing</li> <li>• Testing and evaluating</li> </ul>	<ul style="list-style-type: none"> <li>- What components might make up a digital system?</li> <li>- Authentic links to Living World = Food and Fibre - Droughts</li> </ul>	<p><b>Unit – Digital Technologies - Hardware and Software</b></p> <ul style="list-style-type: none"> <li>- Explores how people safely use information systems to meet information, communication and recreation needs.</li> <li>- Communicates, collaborates and shares information safely, using digital systems, including email and online collaboration tools.</li> <li>- Investigates ways people use scientific and technological knowledge and skills to sustainably grow plants and animals to produce fibre for clothing.</li> </ul>	<ul style="list-style-type: none"> <li>- Week 3: Pre-test</li> <li>- Week 10: Post-test</li> </ul> <p><b>Ongoing</b></p> <ul style="list-style-type: none"> <li>- Photos or work samples</li> <li>- Evidence of learning against goals</li> <li>- Diagnostic checklist – ICT Skills)</li> </ul> <p>Links to outside agencies</p> <ul style="list-style-type: none"> <li>- UOW Education Students Visit whole school</li> </ul>
2	<ul style="list-style-type: none"> <li>- <b>ST1-3DP-T</b> - Describes follows represents algorithms to solve problems)</li> </ul> <p><b>Design and Production</b></p> <ul style="list-style-type: none"> <li>- <b>ST1-2-DP-T</b> - Uses materials, tools and equipment to develop solutions for a need or opportunity</li> </ul> <ul style="list-style-type: none"> <li>• Identifying and defining</li> <li>• Producing and implementing</li> <li>• Testing and evaluating</li> </ul>	<ul style="list-style-type: none"> <li>- How can we record instructions for others to follow and understand?</li> <li>- Authentic links to Earth and Space = Changes sky and land</li> </ul>	<p><b>Unit – Design and Production – Intro to Algorithms</b></p> <ul style="list-style-type: none"> <li>- Segments, describes and represents a sequence of steps and decisions (algorithms) needed to solve problems.</li> <li>- Performs strategic roles in a group to solve a problem.</li> </ul>	<ul style="list-style-type: none"> <li>- Week 1 Pre-test</li> <li>- Week 5 Mid-test (Reports)</li> <li>- Week 10 Post-test</li> </ul> <p><b>Ongoing</b></p> <ul style="list-style-type: none"> <li>- Photos or worksamples</li> <li>- Evidence of learning against goals</li> <li>- Diagnostic checklist – ICT Skills)</li> </ul> <p>Links to outside agencies</p> <ul style="list-style-type: none"> <li>- STEM Share – Augmented Reality</li> </ul>

<p>3</p>	<ul style="list-style-type: none"> <li>- <b>ST1-2DP- T</b> - Uses materials tools and equipment to develop solutions to a need or opportunity</li> </ul> <p><b>Design and Production</b></p> <ul style="list-style-type: none"> <li>- <b>ST1-2-DP-T</b> - Uses materials, tools and equipment to develop solutions for a need or opportunity</li> </ul> <ul style="list-style-type: none"> <li>• Identifying and defining</li> <li>• Producing and implementing</li> <li>• Testing and evaluating</li> </ul>	<ul style="list-style-type: none"> <li>- How can we assist others by solving a real world problem?</li> <li>- Authentic links to Material World = How different properties determine their use – School Playground</li> </ul>	<p><b>Unit – Design and Production – Construction and Real World Problem</b></p> <ul style="list-style-type: none"> <li>- Manipulates a range of materials for a purpose.</li> <li>- Collects, sorts, organises and presents data to communicate information.</li> <li>- Evaluates the success of design ideas, processes and solutions according to a scale of personal preference.</li> </ul>	<ul style="list-style-type: none"> <li>- Week 1 Pre-test</li> <li>- Week 10 Post-test</li> </ul> <p><b>Phase/Assessment Focus:</b></p> <ul style="list-style-type: none"> <li>- Engage- Diagnostic</li> <li>- Explore/ Explain – Formative</li> <li>- Elaborate – Summative of Science Inquiry Skills</li> <li>- Evaluate - Summative of Science Understanding</li> <li>- See specific details in the unit.</li> </ul> <p>Links to outside agencies/competitions</p> <ul style="list-style-type: none"> <li>- Film Making competition Illawarra Schools</li> <li>- Aeroplane Jelly Competition</li> <li>- Sculptures @ Killalea</li> </ul>
<p>4</p>	<ul style="list-style-type: none"> <li>- <b>ST1-11DI-T</b> - Identifies the components of digital systems and explores how data is represented</li> </ul> <p><b>Design and Production</b></p> <ul style="list-style-type: none"> <li>- <b>ST1-2-DP-T</b> - Uses materials, tools and equipment to develop solutions for a need or opportunity</li> </ul> <ul style="list-style-type: none"> <li>• Identifying and defining</li> <li>• Producing and implementing</li> <li>• Testing and evaluating</li> </ul>	<ul style="list-style-type: none"> <li>- What is data and how can we represent it?</li> <li>- Authentic links to Physical World = Forms of energy – How can we assist the deaf?</li> </ul>	<p><b>Unit - Digital Technologies (Data is all around)</b></p> <ul style="list-style-type: none"> <li>- Identifies how data is represented as pictures, symbols and diagrams.</li> <li>- Collects, explores and sorts data and uses digital systems to present the data creatively.</li> <li>- Explores and identifies patterns in data.</li> </ul>	<ul style="list-style-type: none"> <li>- Week 1 Pre-test</li> <li>- Week 5 Mid-test (Reports)</li> </ul> <p><b>Phase/Assessment Focus:</b></p> <ul style="list-style-type: none"> <li>- Engage- Diagnostic</li> <li>- Explore/ Explain – Formative</li> <li>- Elaborate – Summative of Science Inquiry Skills</li> <li>- Evaluate - Summative of Science Understanding</li> <li>- See specific details in the unit.</li> </ul> <p>Links to outside agencies/competitions</p> <ul style="list-style-type: none"> <li>- UOW Science Fair</li> </ul>

# Stage One Learning Continuum

Managing/Operating	Stage 1	
	1	2
<b>Identify technology equipment</b>		
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
<b>Care &amp; use of technology equipment</b>	1	2
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
<b>Understand terms</b>	1	2
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
<b>Software Skills</b>	1	2
Locate software/app	r	r
Select/Open/Close	r	

Communicating– WordProcessing	Stage 1	
	1	2
<b>Manipulate documents</b>		
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
<b>Enter &amp; modify text</b>	1	2
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
<b>Print documents</b>	1	2
Print completed documents (with help)	r	r
Use print preview	i	r
<b>Add graphics</b>	1	2
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
<b>Introduce simple animation – Power Point</b>		
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
<b>Animation - Dolnk</b>	1	2
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
<b>Animation - Pivot</b>	1	2
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
<b>Animation – online programs</b>	1	2
Creates an animation using <a href="#">abcya</a>	r	

Ethics/Cybersafety	Stage 1	
	1	2
<b>Shows appropriate ethical conduct</b>		
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
<b>Well being</b>	1	2
Correct posture	r	r
Holding mouse	r	
Careful use of equipment	r	
Eye distance from screen,	i	r
Taking a break	i	r
<b>Examines the use of computers in society</b>	1	2
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
<b>Use an iPad</b>		
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	
<b>What is Coding?</b>	1	2
Introduction to coding – what is it?		
Simple examples of coding		i
<b>SYMBOL BASED CODING</b>		
<b>Understanding symbol commands</b>	1	2
Recognising Fwd, bwd, turn left, turn right		
<b>Create Coding – Symbol based</b>	1	2
Planning		
Program robot to move - fwd./bwd, left/right		
Developing a sequence		
Running a sequence		
Modify coding - Problem solving		
<b>Symbol Based Applications</b>	1	2
<ul style="list-style-type: none"> <li>• iPad apps (BeeBot/CodeAPillar/LightBox/ALEX/Kodable)</li> </ul>		
<ul style="list-style-type: none"> <li>• online software</li> </ul>		
<ul style="list-style-type: none"> <li>• BeeBots</li> </ul>		
<ul style="list-style-type: none"> <li>• Code-A-Pillar</li> </ul>		
<ul style="list-style-type: none"> <li>• Ozobots</li> </ul>	i	r
<b>BLOCK BASED CODING</b>	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
<b>Block Based Applications</b>	1	2
<ul style="list-style-type: none"> <li>• iPad apps (Tynker; Daisy; Hopscotch)</li> </ul>		
<ul style="list-style-type: none"> <li>• web based (Scratch; Hour of Code/code.org)</li> </ul>		

Creating -Multimedia	Stage 1	
<i>(using software/iPad/Wacom/online programs)</i>		
<b>Use Peripherals</b>	1	2
Use an iPad	r	
Use a Wacom tablet	r	
Use digital camera (still/movie)	r	
Use a microphone	r	
<b>Use a digital camera</b>	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 ■