CPS Science 2020

Science in 2020

Planning Documents

New plans should be created on the Planning Templates found on Connect and the Intranet under S for Science Whole School Plan. They have been changed due to feedback from staff and are a more concise document. As units and plans are developed and/or updated, the new science Scope and Sequence and Operational Plan should be reflected in these planning tools. Please make yourself familiar with these documents.

STEM

In Primary Schools the emphasis should be on providing examples of how real world problems can be solved using Science, Technology, Engineering and Maths.
At Currambine PS we need to continue to give our students opportunities to create, problem solve, design, evaluate, communicate, test ideas and collaborate. This will ensure we a re preparing our students for a STEM future.
This could occur in the Explore or Elaborate Phase of our Programs. In 2020 we will start to implement a new Science scope and Sequence that has an intentional focus on the explicit teaching of Inquiry Skills (SCKI model: Skill development, Content knowledge, Inquiry application (controlled inquiry) which will allow students to demonstrate their Scientific knowledge and skills through a teacher led inquiry process throughout their primary school journey.

Warm Ups

Teachers are to continue developing their warm ups.
All warm ups PP – 6 should revise the Inquiry process, in particular posing questions, vocabulary, key concepts, inquiry skills and general knowledge.

Science Competition

In 2020 each year level will decide on the task that the year level will complete in Term 3.
This allows you to integrate the question into the Biological Science Strand you will be covering.
The following are non-negotiable provisions you need to consider when planning your task in order to maintain its purpose.

1) The task must be completed at school.

2) The task must be the same for every class in your year level.

3) A Currambine PS Investigation Planner must be used.

4) A moderation discussion must occur, with a member of Admin present, during a Collaborative planning time in order to choose a winner.

5) Winners' names need to be sent to the nominated Science Curriculum Leader (TBA) by Week 9 of Term 3.

6) The task should be planned for when you write your Term 3 Program.

PLANNNING

Teachers are expected to use the planning proformas on the intranet to plan their 4 programs per year.

Teachers should follow the 5E approach to planning.

Phase	Description	What students do	What Teachers do
Engage 1 Lesson	A lesson that engages students with an activity or question. It captures their interest, provides an opportunity for them to express what they know about the concept or skill	Share ideas through individual Explanations. Role play Draw diagrams Listen to other ideas Predict what they will learn about	Set context, Demonstrations Share big books, Ask open ended questions, Facilitate discussions Listen for misconceptions Ask questions to clarify student ideas Diagnostic assessment
Explore 3 lessons	Students carry out hands-on activities to explore the concept or skill. They describe it in their own words. It allows students to acquire a common set of experiences that they can use to help each other make sense of the new concept or skill.	Complete Open investigations Play Use all their senses Collect evidence through observation and measurement Test ideas	Ask open ended and clarifying questions Provide student with equipment and experiences Challenge their misconceptions
Explain 3 lessons	The teacher provides the concepts and terms used by the students to develop explanations for the phenomenon they have experienced. The significant aspect of this phase is that explanation follows experience.	Learn and use correct terminology. Small group discussions, generate explanations, Individual writings, drawing, posters, oral reports, formal written reports or PowerPoint presentation, cartoon strip, drama presentation, letter for representing science ideas and findings	Formative assessment is for development of investigation skills and conceptual understanding. Begin using narrowing questions Facilitate Complete investigations Place emphasis on the interpretation of results Ensure any misconceptions are corrected Explicit instruction should be used
Elaborate 2 lessons	This phase provides opportunities for students to apply what they have learned to new situations and so develop a deeper understanding of the concept or greater use of the skill. It is important for students to discuss and compare their ideas with each other during this phase.	Students plan investigations or design tasks to apply, clarify, extend and consolidate new conceptual understanding and skills. A communication product may be produced to re-represent ideas consolidating and extending science understanding and literacy practices	Summative assessment Allow for creativity in their investigations Provide opportunities for different representations eg diagrams, explanations, role plays, constructing and creative writing) Further readings, individual and group writing to introduce additional concepts and clarify meanings through writing.
Evaluate 1 lesson	The final phase provides an opportunity for students to review and reflect on their own learning and new understanding and skills. It is also when students provide evidence for changes to their understanding, beliefs and skills.	Reflect on changes to explanations generated in Engage phases Complete a test, demonstration of a skill	Discussions, open questions or writing and diagrammatic responses to open questions which may use same/similar questions to those used in Engage phase Summative assessment

TEACHING

Teachers are to follow the Western Australian Curriculum and CPS Scope and Sequence to ensure that all topics are covered giving the students the best opportunity to build on their learning year to year.

PP-Year 2 teachers are expected to teach 60 minutes of Science per week
Year 3 – 6 teachers are expected to teach 90 minutes of Science per week

Teaching Schedule

Odd Years – 2017, 2019, 2021

Term 1	Term 2	Term 3	Term 4
Physical Science and Inquiry	Biological Sciences	Earth and Space Sciences	Chemical Sciences and Inquiry
Primary Connections	Program of your own	Primary Connections	Program of your own

Even Years – 2018, 2020

Term 1	Term 2	Term 3	Term 4
Chemical Sciences and Inquiry	Earth and Space Sciences	Biological Sciences	Physical Sciences and Inquiry Skills
Primary Connections	Program of your own	Primary Connections	Program of your own

Integration should be used as often as possible. There are opportunities for this. Reading can be done as a rotation during guided reading routines; Design tasks can be implemented as an Elaborate task, graphing skills taught in Maths.
If assistance is needed to structure your lessons view the observational grid for Science on the Intranet.

Multi Age Classes

Each Strand of Understanding should have 2 programs created. One should have been put together by the year level and the other should be the Primary Connections unit. Following the teaching schedule will ensure students do not have to repeat activities. There are some new Primary Connections Units that could be useful in supporting this model. Please ensure that you conduct conversations at your PLC's to discuss which programs are being used in Multi Age classes.

Assessment

Ensure opportunities are provided for students so they can achieve an A grade by using the SCASA judging standards. There are assessment suggestions in the 5e schedule and all are important in making sure no misconceptions remain and the concepts are well developed.

Supportive Documents on the Intranet and Connect

It is expected that teachers plan, teach and assess according to the information provided in the following documents.

Scope and Sequence Documents
Planning proformas
Primary Connections can be found in digital form
SCSA Judging Standards and A-E Checklists
Investigation Planners
Science Lesson Observation Grid

Resources

Primary Connections

All resources are now in the Library or they can be downloaded from Scootle

Year	Biological Sciences	Chemical Sciences	Earth and Space Sciences	Physical Sciences
Pre Primary (Foundation)	Staying Alive	What's it made of?	Weather in my world	On the move
1	Schoolyard Safari	Spot the difference	Up, down and all around	Look! Listen!
2	Watch it Grow	All mixed up	Water Works	Push Pull
3	Feathers Fur or Leaves	Melting Moments	Night and Day	Heating Up
4	Plants in Action	Material World	Beneath our feet	Smooth Moves
5	Desert Survivors	What's the Matter?	Earth's Place in Space	Light Shows
6	Marvellous Micro organisms	Change detectives	Earthquake Explorers	It's Electrifying Essential Energy

Resources in Storeroom

Consumables—please be aware they may vary from this list so please come and check to ensure they are available before you need them.

Yeast	Citric Acid	Bicarbonate of Soda	Alka Seltzer Tablets
Food Colouring	Popcorn	Pasta	Coconut
Icing Mixture	Cornflour	Plain Flour	White Sugar
Filter Paper	Plastic Bottles	Cartons	Tea light Candles
Ziploc Bags	Alfoil	Glad wrap	Pegs
String	Pop sticks	Straws	Split pins
Pipe cleaners	Plastic Cups	Spoons	Paper plates
Kitty litter	Bird Seed	Metal washers	spray bottles
measuring Cups	Medicine Cups	Measuring Jugs	Large bowls
Ice-cream lids	Chinese takeaway lids		small containers
glass jars	Vinegar	Cordial	Dishwashing Liquid
Vegetable Oil	Salt	Matches	Borax
6% Hydrogen peroxide		Cocoa Powder	Epsom Salts
Bottles	Cardboard tubes	blindfolds	Honey
Corks	Cotton reels	dowels	foam washers
marbles	balloons	Fibre glass measuring tape	sieves
various balls	pipettes	Eye droppers	rocket stoppers
film canisters / fizzy	rocket bodies	pump rocket	Buckets
digital timers			

Resources—Continued

The following resources are kept in the Science Lab. Extra care of these resources is important as they are more costly to replace. Individuals can borrow for their team, however the individual will be responsible for maintaining, returning and replacing items when necessary.

Biological Sciences	Chemical Sciences	Earth and Space Sciences	Physical Sciences
Box of various aquarium pumps and cleaning equipment Portable plastic tank X—rays Easi view visualiser Eye scope magnifier Fertiliser Box of various aquarium set up equipment 6 nets for pond scooping 2 large fish tanks 1 small tank Frog Bog—teaching kit 2 worm farms Garden Buddy take home bag 2 See through compost tanks Seed raising soil Model skeleton Water Crystals Inside a Frog Model Skeleton Stamp (no ink) 1 box of Magnifying glasses 7 large magnifying glasses 10 very large magnifying glasses with stands 10 Spray bottles 10 microscopes A lot of Zoom Microscopes Slide Viewers Kit 1 watering can Lone Pine care for kit 1 magnifying glass kit (contains a variety of lenses) minibeast / lifecycle specimen kit 2 Seedling mini greenhouse nursery seedling pots	Squares of material (lycra, fur, felt, cotton and Satin) Packing Beans Bubble Wrap Timers 24 250ml glass beakers 19 pairs of safety goggles 4 oven mits 12 100˚C thermometers 20 50˚C thermometers 4 electric hot plates 2 test tube stands and 20 test tubes	12 Directional Compasses (mixed) Class set of directional compasses 1 35x telescope Small telescope and Stand 2 525 Telescopes 2 partial sets of inflatable solar systems Sample rock kits 10 inflatable globes Solar system floor mat 1 full set of inflatable planets giant magnetic solar system solar system model glow in the dark solar system model 12 small torches	Mixed box of Electrical Circuits Equipment 6 Grey Torches (no batteries) 11 Simple machines (eg a lever, pulley with teacher cards) Simple Machines Kit Grade 4 –6 5 Electricity Kits 5 different Spring Balances Tuning fork 5 Pulleys 8 triangular prisms Box of various balls 3 small parachutes DVD engineers Australia Battery tester and charger Genie Electrical Kit Random Box of circuit equipment Box of magents includes bar magnets, iron filings and wands Power of Science resource kit. 2 small jars of iron filings 1 delux magnet kit 1 class set of timers 2 tape measure kits

Primary Connection Texts that have KITS

Biological Sciences	Chemical Sciences	Earth and Space Sciences	Physical Sciences
Staying Alive Collapsible bucket Cotton Balls Plastic Cups Red & Blue Dots Eucalyptus Oil Masking Tape Pop sticks Post it Notes Stopwatch Straws Vanilla Essence Whistle	What's it made of? N/A	Weather in my world Wooden Pegs Coat hanger Masking Tape Post it Notes String Thermometer Digital Thermometer Lab thermometer	On the move N/A
Schoolyard Safari N/A	Spot the difference N/A	Up Down and All Around	Sounds Sensational Balloons Coat Hangers Cups Whistle Blue and Green Dots Masking Tape Post it notes Straws String
Watch it Grow N/A	All Mixed Up	Water Works Collapsible Bucket Container Plastic Cups Paper Cups Measuring Jug Food Colouring Skewers Spoons Syringe Toothpicks	Push Pull Resealable Bags Balloons Ping Pong Balls Tennis Balls Corks Plastic Cups Paper Cups Polystyrene Cups Elastic Bands Marbles Measuring Jug Clay String Paper clips Paper towels
Feathers Fur or Leaves N/A	Melting Moments N/A	Spinning in Space 4 Tennis Balls Cellophane Chalk Magnetic Compass Clay Post it notes Tape measure Tissue Paper Torch with Batteries Trundle Wheel	Heating Up

<u>Plants in Action</u> Resealable Bags Borlotti Beans Wooden Clothes pegs Cotton Balls Cress Seeds Plastic Cups Magnifier Paper Plates Patty Pans Spray Bottle Toothpicks Tweezers (10)	<u>Material World</u> Resealable Bags Wooden Clothes Pegs Round Containers Elastic Bands Eye Droppers Food Colouring Funnel Magnifier Measuring Cups Post it Notes Thermometer Digital Timer	<u>Beneath our feet</u> N/A	<u>Smooth Moves</u> Balloons Elastic Bands Disposable Gloves Inflatable Globe Marbles Paper Clips Post it Notes Ticker Tape
<u>Desert Survivors</u>	<u>What's the Matter</u>	<u>Earth's Place in Space</u>	<u>Light Fantastic</u> Glue Stick Masking Tape 10 Mirrors Pop sticks Post it notes Split pins Sticky tac Straws Talcum Powder Torch with Batteries
<u>Marvellous Micro organisms</u> Resealable Bags Balloons Funnel Magnifier Masking Tape Measuring Cups Measuring Spoons Paper towels Coloured Patty pans Spray Bottle Thermometer Digital Timer Yeast	<u>Change detectives</u> Balloons Bicarb Soda Foil Trays Funnels (10) Marbles Masking Tape Measuring Cups Litre Jug Measuring Spoons Paper Towels Tartaric Acid Scented Extracts Stop watch Tea light candles	<u>Earthquake Explorers</u> N/A	<u>It's Electrifying</u> Balloons AA Batteries D Batteries Battery Holders Bulbs Bulb Holders Wooden Clothes pegs Alfoil Magnifier Masking Tape Paper clips Post it notes Split Pins Torches (10) Wire Wire Stripper