Fisk Street Primary School Curriculum

Science

Upper Primary

2013

The Fisk Street Primary School Curriculum: Science is taken from the Australian Curriculum and consists of key ideas and developmental learning outcomes across the Early Years (R-2), Primary Years (3-5) and Middle Years (6 -7) incorporating:

- Science understanding
- Science as a human endeavour
- Science inquiry skills

These strands are designed to provide students with understanding, knowledge and skills through which they can develop a scientific view of the world. Students are challenged to explore science, its concepts, nature and uses through clearly described inquiry processes.

Science understanding comprises four sub-strands:

- Biological sciences
- Chemical sciences
- Earth and space sciences
- Physical sciences

Science as a human endeavour is described in two-year bands with two sub-strands:

- Nature and development of science
- Use and influence of science

Science inquiry skills is also described in two-year bands with five sub-strands

- Questioning and predicting
- Planning and conducting
- Processing and analysing data and information
- Evaluating
- Communicating

There are six overarching ideas that represent key aspects of a scientific view of the world and bridge knowledge and understanding across the disciplines of science.

Patterns, order and organisation	Form and function	Stability and change	Scale and measurement	Matter and energy	Systems

An achievement standard describes the quality of learning that would indicate the student is well placed to commence the learning requiredat the next level of achievement.The sequence of achievement standards across Foundation to Year 7 describes progress in the learning area.This sequence provides teachers with a framework of growth and development in the learning area.

Student work samples play a key role in communicating expectations described in the achievement standards.Each work sample includes the relevant assessment task, the student's response, and annotations identifyingthe quality of learning evident in the student's response in relation to relevant parts of the achievement standard.Together, the description of the achievement standard and the accompanying set of annotated work sampleshelp teachers to make judgments about whether students have achieved the standard.Evidence of student achievement is supported by collection of completed works, observations, podcasts, anecdotal notes,journals and portfolios.

Upper Primary Years –Science

These are the indicators for reporting to parents. Teachers need to design assessment within their science units which allow for adequate sets of annotated work samples which help to know whether students have achieved the standard. For each of the tasks below teachers are to create an assessment task and outline how they intend to make the assessment at each level.

Assessment for reporting to parents in Term 2 and 4	
Year Six	Year Seven
By the end of Year 6 students: • compare and classify different types of observable changes to materials • analyse requirements for the transfer of electricity • describe how energy can be transformed from one form to another to generate electricity • explain how natural events cause rapid change to the Earth's surface • describe and predict the effect of environmental changes on individual living things • explain how scientific knowledge is used in decision making • identify contributions to the development of science by people from a range of cultures • follow procedures to develop investigable questions • designinvestigations into simple cause-and-effect relationships • identify variables to be changed and measured • describe potential safety risks when planning methods • collect, organise and interpret their data, identifying where improvements to their methods or research could improve the data • describe and analyserelationships in data using graphic representations • construct multi-modal texts to communicate ideas, methods and findings	By the end of Year 7 students: • describe techniques to separate pure substances from mixtures • represent and predict the effects of unbalanced forces, including Earth's gravity, on motion • explain how the relative positions of the Earth, sun and moon affect phenomena on Earth • analyse how the sustainable use of resources depends on the way they are formed and cycle through Earth systems • predict the effect of environmental changes on feeding relationships • classify and organise diverse organisms based on observable differences • describe situations where scientific knowledge from different science disciplines has been used to solve a real-world problem • explain how the solution was viewed by, and impacted on, different groups in society • identify questions that can be investigated scientifically • plan fair experimental methods, identifying variables to be changed and measured • select equipment that improves fairness and accuracy • describe how they considered safety • draw on evidence to support their conclusions • summarise data from different sources, describe trends and refer to the quality of their data when suggesting improvements to their methods • communicate their ideas, methods and findings using scientific language and appropriate representations.

Weekly Overview – Term 1

Week	Lesson	Resources	Assessment
1	The growth and survival of living things are affected by the physical conditions of their environment(ACSSU094)	Ecosystems • Ecosystems • Animals of your ecosystem	Year Six • describe and predict the effect of environmental changes on individual living things • explain how scientific knowledge is used in decision making • identify contributions to the development of science by people from a range of cultures • design investigations into simple cause-and-effect relationships Year Seven • predict the effect of environmental changes on feeding relationships • classify and organise diverse organisms based on observable differences • draw on evidence to support their conclusions • summarise data from different sources, describe trends and refer to the quality of their data when suggesting improvements to their methods
2	The growth and survival of living things are affected by the physical conditions of their environment(ACSSU094)	Ecosystems • Plants of your ecosystem	
3	There are differences within and between groups of organisms; classification helps organise this diversity (ACSSU111)	Animal Groups and Food Chains • Animal groups • Herbivores, Carnivores and omnivores	
4			
5	There are differences within and between groups of organisms; classification helps organise this diversity (ACSSU111)	Adaptations • Plant adaptations • Animal adaptations	
6	Interactions between organisms can be described in terms of food chains and food webs; human activity can affect these interactions (ACSSU112)	Animal Groups and Food Chains • Food Chains 1	
7	Interactions between organisms can be described in terms of food chains and food webs; human activity can affect these interactions (ACSSU112)	Animal Groups and Food Chains • Food Chains 2	
8	Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena (ACSHE098)		
9	Scientific knowledge changes as new evidence becomes available, and some scientific discoveries have significantly changed people's understanding of the world (ACSHE119)		
10	Revision		

Weekly Overview – Term 2 – Chemical Science

Week	Lesson	Resources	Assessment
1	Changes to materials can be reversible, such as melting, freezing, evaporating; or irreversible, such as burning and rusting (ACSSU095)	Changes • Reversible & irreversible changes	Year Six • compare and classify different types of observable changes to materials • explain how scientific knowledge is used in decision making • identify contributions to the development of science by people from a range of cultures • follow procedures to develop investigable questions • design investigations into simple cause-and-effect relationships • identify variables to be changed and measured • describe potential safety risks when planning methods Year Seven • describe techniques to separate pure substances from mixtures • describe situations where scientific knowledge from different science disciplines has been used to solve a real-world problem • explain how the solution was viewed by, and impacted on, different groups in society • identify questions that can be investigated scientifically • plan fair experimental methods, identifying variables to be changed and measured • select equipment that improves fairness and accuracy • describe how they considered safety
2	Changes to materials can be reversible, such as melting, freezing, evaporating; or irreversible, such as burning and rusting (ACSSU095)	Changes • Making changes	
3	Changes to materials can be reversible, such as melting, freezing, evaporating; or irreversible, such as burning and rusting (ACSSU095)	Changes • Dissolving materials	
4	Mixtures, including solutions, contain a combination of pure substances that can be separated using a range of techniques (ACSSU113)	Changes • Design brief	
5	NAPLAN		
6	Mixtures, including solutions, contain a combination of pure substances that can be separated using a range of techniques (ACSSU113)	Changes • Design brief	
7	Mixtures, including solutions, contain a combination of pure substances that can be separated using a range of techniques (ACSSU113)	Dissolving and separating • Liquid layers	
8	Scientific understandings, discoveries and inventions are used to solve problems that directly affect peoples' lives (ACSHE100)	Dissolving and separating • Kitchen science	
9	Scientific knowledge is used to inform personal and community decisions (ACSHE220)	Dissolving and separating • Separating mixtures	
10	Revision		

Weekly Overview – Term 3 – Earth & Space Science

Week	Lesson	Resources	Assessment
1	Sudden geological changes or extreme weather conditions can affect Earth's surface (ACSSU096	Investigating Weather • The water cycle • Weather chart	Year Six • explain how natural events cause rapid change to the Earth's surface • describe and predict the effect of environmental changes on individual living things • design investigations into simple cause-and-effect relationships • identify variables to be changed and measured • collect, organise and interpret their data, identifying where improvements to their methods or research could improve the data • construct multi-modal texts to communicate ideas, methods and findings Year Seven • represent and predict the effects of unbalanced forces, including Earth's gravity, on motion • explain how the relative positions of the Earth, sun and moon affect phenomena on Earth • analyse how the sustainable use of resources depends on the way they are formed and cycle through Earth systems • draw on evidence to support their conclusions • summarise data from different sources, describe trends and refer to the quality of their data when suggesting improvements to their methods • communicate their ideas, methods and findings using scientific language and appropriate representations.
2	Sudden geological changes or extreme weather conditions can affect Earth's surface (ACSSU096	Investigating Weather • Wild winds	
3	Predictable phenomena on Earth, including seasons and eclipses, are caused by the relative positions of the sun, Earth and the moon (ACSSU115)	Sun Earth and Moon • Sun earth and moon • Sunrises and sunsets	
4	Predictable phenomena on Earth, including seasons and eclipses, are caused by the relative positions of the sun, Earth and the moon (ACSSU115)	Sun Earth and Moon • Seasons • The moon	
5	Some of Earth's resources are renewable, but others are non-renewable (ACSSU116)	Conservation • Our resources • Can we fix it	
6	Water is an important resource that cycles through the environment(ACSSU222)	Liquids • Properties of water	
7	Water is an important resource that cycles through the environment(ACSSU222)	Liquids • Water properties display	
8	Identify questions and problems that can be investigated scientifically and make predictions based on scientific knowledge (ACSIS124)		
9	Construct and use a range of representations, including graphs, keys and models to represent and analyse patterns or relationships, including using digital technologies as appropriate (ACSIS129) Summarise data, from students' own investigations and secondary sources, and use scientific understanding to identify relationships and draw conclusions(ACSIS130)	Liquids • Movement of molecules • Test for water pressure	
10	Revision		

Weekly Overview – Term 4 – Physical Science

Week	Lesson	Resources	Assessment
1	Energy from a variety of sources can be used to generate electricity (ACSSU219)	Energy and its Uses • The energy we use • Home energy survey	Year Six • compare and classify different types of observable changes to materials • analyse requirements for the transfer of electricity • describe how energy can be transformed from one form to another to generate electricity • describe potential safety risks when planning methods Year Seven • represent and predict the effects of unbalanced forces, including Earth's gravity, on motion • plan fair experimental methods, identifying variables to be changed and measured • select equipment that improves fairness and accuracy • describe how they considered safety • draw on evidence to support their conclusions • communicate their ideas, methods and findings using scientific language and appropriate representations.
2	Energy from a variety of sources can be used to generate electricity (ACSSU219)	Energy and its Uses • Cost of electrical appliances • Energy saving	
3	Electrical circuits provide a means of transferring and transforming electricity (ACSSU097)	Circuits and conductors • Simple circuits • Conductor or Insulator	
4	Electrical circuits provide a means of transferring and transforming electricity (ACSSU097)	Circuits and conductors • Switches • Bright lights	
5	Assessment for Reports		
6	Change to an object's motion is caused by unbalanced forces acting on the object (ACSSU117)	Simple machines • Levers • Wheel and axle	
7	Change to an object's motion is caused by unbalanced forces acting on the object (ACSSU117)	Simple machines • Household machines a report	
8	Earth's gravity pulls objects towards the centre of the Earth (ACSSU118)		
9	Revision		
10	Pack up week		

Science Understanding		
	YEAR SIX	YEAR SEVEN
TERM ONE Biological sciences	Topic: Living things/needs/features/growth/change/offspring	
	The growth and survival of living things are affected by the physical conditions of their environment(ACSSU094)	There are differences within and between groups of organisms; classification helps organise this diversity (ACSSU111) Interactions between organisms can be described in terms of food chains and food webs; human activity can affect these interactions (ACSSU112)
TERM TWO Chemical sciences	Topic: Materials - properties/change/combining/mixing	
	Changes to materials can be reversible, such as melting, freezing, evaporating; or irreversible, such as burning and rusting (ACSSU095)	Mixtures, including solutions, contain a combination of pure substances that can be separated using a range of techniques (ACSSU113)
TERM THREE Earth and space sciences	Topic: Change – seasons/environment/weather/sky/landscape/water	
	Sudden geological changes or extreme weather conditions can affect Earth's surface (ACSSU096	Predictable phenomena on Earth, including seasons and eclipses, are caused by the relative positions of the sun, Earth and the moon (ACSSU115) Some of Earth's resources are renewable, but others are non-renewable (ACSSU116) Water is an important resource that cycles through the environment(ACSSU222)
TERM FOUR Physical sciences	Topic: Movement – size/shape/light/sound/push & pull/change/motion	
	Electrical circuits provide a means of transferring and transforming electricity (ACSSU097) Energy from a variety of sources can be used to generate electricity (ACSSU219)	Change to an object's motion is caused by unbalanced forces acting on the object (ACSSU117) Earth's gravity pulls objects towards the centre of the Earth (ACSSU118)

Science as a Human Endeavour		
	YEAR SIX	YEAR SEVEN
Nature & development of science		
	Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena (ACSHE098) Important contributions to the advancement of science have been made by people from a range of cultures (ACSHE099)	Scientific knowledge changes as new evidence becomes available, and some scientific discoveries have significantly changed people's understanding of the world (ACSHE119) Science knowledge can develop through collaboration and connecting ideas across the disciplines of science (ACSHE223)
Use and influence of science		
	Scientific understandings, discoveries and inventions are used to solve problems that directly affect peoples' lives (ACSHE100) Scientific knowledge is used to inform personal and community decisions (ACSHE220)	Science and technology contribute to finding solutions to a range of contemporary issues; these solutions may impact on other areas of society and involve ethical considerations (ACSHE120) Science understanding influences the development of practices in areas of human activity such as industry, agriculture and marine and terrestrial resource management (ACSHE121) People use understanding and skills from across the disciplines of science in their occupations (ACSHE224)

Science Inquiry Skills		
	YEAR SIX	YEAR SEVEN
Questioning and predicting		
	Identify questions and problems that can be investigated scientifically and make predictions based on scientific knowledge (ACSIS124)	
Planning and conducting		
	Collaboratively and individually plan and conduct a range of investigation types, including fieldwork and experiments, ensuring safety and ethical guidelines are followed (ACSIS125) In fair tests, measure and control variables, and select equipment to collect data with accuracy appropriate to the task (ACSIS126)	
Processing and analysing data and information		
	Construct and use a range of representations, including graphs, keys and models to represent and analysepatterns or relationships, including using digital technologies as appropriate (ACSIS129) Summarise data, from students' own investigations and secondary sources, and use scientific understanding to identify relationships and draw conclusions(ACSIS130)	
Evaluating		
	Reflect on the method used to investigate a question or solve a problem, including evaluating the quality of the data collected, and identify improvements to the method (ACSIS131) Use scientific knowledge and findings from investigations to evaluate claims (ACSIS132)	
Communicating		
	Communicate ideas, findings and solutions to problems using scientific language and representations using digital technologies as appropriate (ACSIS133)	

CHECKLIST Class: _____ Year : _____

ASSESSMENT CRITERIA

E = Experiencing difficulty
D = Developing
C = Competent
H = Highly competent

Child's Name																	
Outcome:																	
Describe task:																	
Outcome:																	
Describe task:																	
Outcome:																	
Describe task:																	