

SCIENCE UNIT PLAN

Planet Earth and Beyond - Levels One and Two – Three and Four

Term:	Year:	Class:	Duration:	Context / Topic:
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NATURE OF SCIENCE ACHIEVEMENT OBJECTIVES - Levels 1 and 2 <i>Students will:</i>			
Understanding about science - Appreciate that scientists ask questions about our world that lead to investigations and that open-mindedness is important because there may be more than one explanation.	Investigating in science - Extend their experiences and personal explanations of the natural world through exploration, play, asking questions, and discussing simple models.	Communicating in science - Build their language and develop their understandings of the many ways the natural world can be represented.	Participating and Contributing - Explore and act on issues and questions that link their science learning to their daily living.
Understanding about science Level 3 - Appreciate that science is a way of explaining the world and that science knowledge changes over time. - Identify ways in which scientists work together and provide evidence to support their ideas.	Investigating in science Level 3 - Build on prior experiences, working together to share and examine their own and others' knowledge. - Ask questions, find evidence, explore simple models, and carry out appropriate investigations to develop simple explanations.	Communicating in science Level 4 - Begin to use a range of scientific symbols, conventions, and vocabulary. - Engage with a range of science texts and begin to question the purposes for which these texts are constructed.	Participating and Contributing Level 4 - Use their growing science knowledge when considering issues of concern to them. - Explore various aspects of an issue and make decisions about possible actions.

PLANET EARTH AND BEYOND ACHIEVEMENT OBJECTIVES – Levels 1 and 2 <i>Students will:</i>
Earth Systems - Explore and describe natural features and resources.
Interacting Systems - Describe how natural features are changed and resources affected by natural events and human actions.
Astronomical Systems - Share ideas and observations about the Sun and the Moon and their physical effects on the heat and light available to Earth.

PLANET EARTH AND BEYOND ACHIEVEMENT OBJECTIVES – Level 3 <i>Students will:</i>
Earth Systems - Appreciate that water, air, rocks and soil, and life forms make up our planet and recognise that these are also Earth's resources.
Interacting Systems - Investigate the water cycle and its effect on climate, landforms, and life.
Astronomical Systems - Investigate the components of the solar system, developing an appreciation of the distances between them.

PLANET EARTH AND BEYOND ACHIEVEMENT OBJECTIVES – Level 4 <i>Students will:</i>
Earth Systems - Develop an understanding that water, air, rocks and soil, and life forms make up our planet and recognise that these are also Earth's resources.
Interacting Systems - Investigate the water cycle and its effect on climate, landforms, and life.
Astronomical Systems - Investigate the components of the solar system, developing an appreciation of the distance between them.

GLOBAL LEARNING INTENTIONS – Level 1 <i>We are learning to:</i> Understand what the Solar System is	GLOBAL LEARNING INTENTIONS – Level 2 <i>We are learning to:</i> Understand the differences between living on earth and in space
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NOTES ABOUT ENTRY LEVEL OF STUDENTS (Prior Knowledge/Skills Required):	CAREERS:
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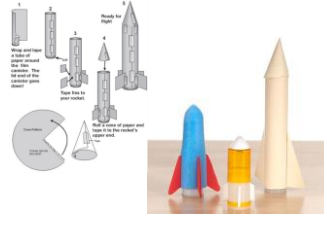

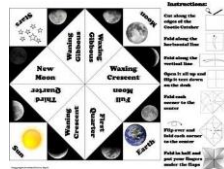
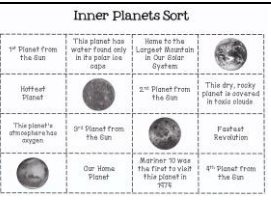

VALUES	Excellence	☺	KEY COMPETENCIES	Thinking	☺	ASSESSMENT	Pre-test (Diagnostic)	
	Innovation, enquiry and curiosity	☺		Using Language, Symbols and Texts	☺		Post-test (Summative)	
	Diversity	☺		Managing Self	☺		Sample	
	Equity	☺		Relating to Others	☺		Observation	☺
	Community and Participation	☺		Participating and Contributing	☺		Self Assessment	☺
	Ecological Sustainability						Peer Assessment	☺
	Integrity						ARB's	
	Respect	☺					Other e.g. Exemplars, asTTle, etc	
	E-LEARNING (ICT)	Computer/Word Processing			OTHER CURRICULUM LINKS		English	
Publisher/Excel/PowerPoint		☺	Mathematics and Statistics			Numeracy Gaps:		
e-mail/Fax/Phone/Scan			Science	☺		Other Gaps:		
Internet-Research		☺	Social Sciences	☺				
Digital Camera/Video			Technology	☺				
Internet – Webquests and Web 2.0			The Arts (Music/Dance/Drama/Visual)	☺				
Video Conferencing			Health and Physical Education	☺				
Inspiration and Other Programmes		☺	Learning Languages (Te Reo etc)					
Programming			EOTC					

SPECIFIC LEARNING INTENTIONS We are learning to: (What should the students learn? What do I intend them to learn?) SUCCESS CRITERIA We know we have achieved this when we can: (How will the students know they have achieved? Specific ideas on which to base teaching and activities)	ACTIVITIES, THINKING TOOLS AND OTHER RESOURCES (What will I do to help my students achieve this? Strategies/activities linked to Key Competencies to help students achieve)
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SPECIFIC LEARNING INTENTION/S: Where is space, who goes there and how SUCCESS CRITERIA: Children can describe where space is and how to get there	Question children on prior knowledge about space and planets Introduce space models – demonstrate Rocket – single component that separates as it goes into space e.g. Moon Missions Space Shuttle – 4 components' that separate on the way into space Countdown by children – maths – 10 9 8 7 6 5 4 3 2 1 blast off!
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	<p>Child volunteer holds earth globe – lesson explains gravity and how it affects the spacecraft after it has left earth. Orbiting and where the sun is 90 minutes to orbit the earth</p>	
<p>SPECIFIC LEARNING INTENTION/S: Compare space clothing to daily living clothes</p> <p>SUCCESS CRITERIA: Children try on Astronaut Flight Suits</p>	<p>Invite children to try on Astronaut Flight Suits. Demonstrate how to put them on and why/how the Astronauts use them</p> <ul style="list-style-type: none"> - For training in - Wearing on spacecraft - Difference between flight suit and space suit 	
<p>SPECIFIC LEARNING INTENTION/S: How spacecraft launch into space. Propulsion systems</p> <p>SUCCESS CRITERIA: Children can describe how to get into space</p>	<p>Movie – Dream is Alive Stop video in places and talk about what is happening Assessment – question children</p>	
<p>SPECIFIC LEARNING INTENTION/S: How astronauts eat, live and work in Space</p> <p>SUCCESS CRITERIA: Children can explain how Gravity affects living in Space</p>	<p>Power Point Slides Movie – Astro Smiles Point out learning points – floating astronauts and food, containing food How to go to the toilet in space</p>	
<p>SPECIFIC LEARNING INTENTION/S: Children learn the difference between space food and earth food</p> <p>SUCCESS CRITERIA: Children can explain how space food is prepared for flight and the difference from earth food</p>	<p>NASA Space Food samples shown and demonstrated Explaining dehydration/thermo stabilised food Food cooked prior to being put on board spacecraft Food has to be light to save weight on spacecraft into space Lifting ability of the rockets is limited by weight restrictions</p>	
<p>SPECIFIC LEARNING INTENTION/S: We are learning to make an Astronaut bookmarks/puppet</p> <p>SUCCESS CRITERIA: Children create their own Astronaut bookmark and can use it in a book</p>	<p>EDIP – Explain, Demonstrate, Imitate, making an Astronaut bookmark Colouring in (hand eye co-ordination – staying in the lines) Cutting out –training hand and fingers for dexterity and agility using scissors Taping sticks to shape Schools optional to provide photo of children. Children trace around template and cut out their faces to glue into helmet Children use bookmark and/or develop puppet plays using their shapes</p>	
<p>SPECIFIC LEARNING INTENTION/S: We are learning to make a Planet Plate</p> <p>SUCCESS CRITERIA: Children can name the planets and in order from the sun</p>	<p>EDIP – Explain, Demonstrate, Imitate, making a planet plate/Star mobile Colouring in (hand eye co-ordination – staying in the lines) Cutting out –training hand and fingers for dexterity and agility using scissors Glue stick – children stick planets on their paper plate My Very Educated Mother Just Served Us Nachos</p>	
<p>SPECIFIC LEARNING INTENTION/S: We are learning to make a Solar System Hat</p> <p>SUCCESS CRITERIA: Children make and wear a planet head dress</p>	<p>EDIP – Explain, Demonstrate, Imitate, making a solar system hat Colouring in planets (hand eye co-ordination – staying in the lines) Cutting out –training hand and fingers for dexterity and agility using scissors Glue stick – children stick planets on strips to wear around their heads</p>	
<p>SPECIFIC LEARNING INTENTION/S: We are learning about space clothing</p> <p>SUCCESS CRITERIA: Children can identify different parts of a space suit</p>	<p>EDIP – Explain, Demonstrate, Imitate, making an Astronaut puppet Colouring in (hand eye co-ordination – staying in the lines) Cutting out –training hand and fingers for dexterity and agility using scissors Using blue tack and a pen to push holes into the parts of the puppet Attaching arms and legs with push pins</p>	
<p>SPECIFIC LEARNING INTENTION/S: We are learning about Mars Rover "Perseverance" and Helicopter "Ingenuity"</p> <p>SUCCESS CRITERIA: Children can make and fly Mars Helicopter "Ingenuity"</p>	<p>EDIP – Explain, Demonstrate, Imitate, making a Mars Helicopter Appreciate that scientists ask questions about our world that lead to investigations and that open-mindedness is important because there may be more than one explanation. Relate this to Mars exploration of finding life on other planets and why humans are doing this. Children make and fly a Mars Helicopter learning about principles of flight and thin Martian Atmosphere so extra blades on the helicopter.</p>	
<p>SPECIFIC LEARNING INTENTION/S: Build and fly a space shuttle glider</p> <p>SUCCESS CRITERIA:</p>	<p>EDIP – Explain, Demonstrate, Imitate, making a Space Shuttle Glider Colouring in (hand eye co-ordination – staying in the lines) Cutting out –training hand and fingers for dexterity and agility using scissors Understanding instructions on how to put the glider together</p>	

Children can fly their space shuttle glider	Use tape to join the parts	
SPECIFIC LEARNING INTENTION/S: Learning about space craft propulsion systems SUCCESS CRITERIA: Children build and safely launch their paper rocket	Using Language, Symbols and Texts Children follow/understanding instructions Folding and cutting paper Use tape to join the parts Wear safety glasses to appreciate safety when launching rockets Aspro clear tablets inside film canisters activated with water Creating bubbling solution that expands to pop off the cap and launch paper rocket	
SPECIFIC LEARNING INTENTION/S: Learning about space craft propulsion systems SUCCESS CRITERIA: Children build and safely launch their paper rocket	Investigating in science Extend their experiences and personal explanations of the natural world through exploration, play, asking questions, and discussing simple models. Thinking, managing self, participating Using the paper cup rocket model children can colour in and cut out their rocket, then tape it to the cup. Teacher models how to insert the cup into another the let go propelling the rocket cup into the air. Have children write their name on the cups.	
SPECIFIC LEARNING INTENTION/S: Learning about phases of the moon SUCCESS CRITERIA: Children understand phases of the moon and make a moon cootie	Using Language, Symbols and Texts show the various stages of the moon – youtube. Children practice saying the moon phases. Explain what a moon cootie is and show them a finished one. EDIP – Explain, Demonstrate, Imitate, making a moon cootie	
SPECIFIC LEARNING INTENTION/S: Students are learning facts about the planets SUCCESS CRITERIA: Children can sort facts about planets through research	E-learning – internet research – children require access to IT Devices Teacher lead YouTube research about planets Planet songs Worksheets handed out for children to research on their own and cut/paste correct facts to correct planets	
SPECIFIC LEARNING INTENTION/S: To re-enforce left & right as well as create and follow algorithms. SUCCESS CRITERIA: Children programme Bee Bots to move in different directions and can describe the direction.	Digital Technologies Processes and Production Skills Follow, describe and represent a sequence of steps and decisions (algorithms) needed to solve simple problems Maths: Describe position and movement EDIP – how Bee Bots work Children working in pairs learn to programme Bee Bots	

GROUPS – CATERING FOR A RANGE OF INDIVIDUAL NEEDS AND ABILITIES
(based on diagnostic assessment prior to unit):

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FORMATIVE NOTES

New Zealand Curriculum Review – UNDERSTAND, KNOW, DO

ASSESSMENT APPROACH
(How will I assess the Success Criteria? How can learning achievement be measured? Remember to include Formative Assessment)

BEFORE THE UNIT	DURING THE UNIT	AFTER THE UNIT
Talk with classroom teacher/s to ask what the children already know about earth and space and if any lessons have been taught prior. Summative assessment	Observation assessment. Are children engaging with the lessons, asking questions, participating Formative assessment Peer assessment	Assessment survey of presentation teacher

UNIT EVALUATION
(Consider: Planning and preparation; catering to individual students' needs; challenging all students; use of class time; overall delivery; success of unit based on assessment and anecdotal observations; areas for future improvement – what would have worked better)

CHILDREN'S LEARNING	PERSONAL TEACHINGS	ASSESSMENT FOR FUTURE PLANNING
		For these students: For teaching students in the future:

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