


Earth's place in space – Stage 3

Earth and Space Strand


Term	1	2	3	4	Weeks	1	2	3	4	5	6	7	8	9	10	11
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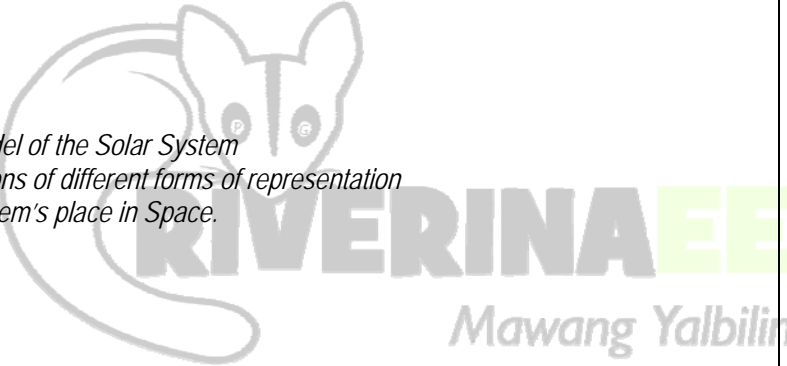
Outcome	Lesson Sequence – Overview	Resources	Word Wall
<p>ST3-10ES-S explains regular events in the solar system and geological events on the Earth's surface</p> <ul style="list-style-type: none"> discuss different theories about the movements of the Earth, Sun and Moon contribute to discussions about Earth's place in Space <p>ST3-1WS-S plans and conducts scientific investigations to answer testable questions, and collects and summarises data to communicate conclusions</p> <ul style="list-style-type: none"> identify features of scientific dialogues and debates identify the purpose and features of a science journal and word wall contribute to the beginning of a TWLH chart work in teams to create orreries to represent their 	<p>Lesson 1 <u>Model arguments – Lesson focus p11</u></p> <ul style="list-style-type: none"> To capture students' interest and find out what they think they know about the Earth as part of a system of planets orbiting a star (the Sun). To elicit students' questions about how humans have sought to explore and understand Earth's place in Space. <p>Session 1 Eratosthenes' epiphany <u>Students:</u></p> <ul style="list-style-type: none"> discuss a historical debate about whether the Earth is flat identify the way scientists use claims and evidence to test their theories. <p>Session 2 Centred on the Sun <u>Students:</u></p> <ul style="list-style-type: none"> create a 3D, moving model of the Earth, Sun and Moon start a glossary of scientific terms to do with Space. 	<p>Session 1 For the class</p> <ul style="list-style-type: none"> class science journal word wall TWLH chart 1 enlarged copy of 'But it looks flat' (Resource sheet 1) 1 enlarged copy of 'Debating our place' (Resource sheet 2) 3 pieces of A4 paper <i>Optional:</i> cards or paper strips for words for the word wall <i>Optional:</i> multimedia resources on Eratosthenes (see 'Preparation') <p>For each student</p> <ul style="list-style-type: none"> science journal 1 copy of 'But it looks flat' (Resource sheet 1) <i>Optional:</i> 1 copy of 'Debating our place' (Resource sheet 2) <p>Session 2 For the class</p> <ul style="list-style-type: none"> class science journal word wall TWLH chart team skills chart 	<p><i>anti-clockwise</i></p> <p><i>asteroid</i></p> <p><i>atmosphere</i></p> <p><i>axis</i></p> <p><i>belief</i></p> <p><i>clockwise</i></p> <p><i>comet</i></p> <p><i>constellation</i></p> <p><i>days</i></p> <p><i>diagram</i></p> <p><i>diameter</i></p> <p><i>disprove</i></p> <p><i>distance</i></p> <p><i>Earth</i></p> <p><i>East</i></p>


<p>understanding of the movements of the Earth, Sun and Moon.</p>		<ul style="list-style-type: none"> • team roles chart • 1 enlarged copy of 'Information note for families' (Resource sheet 3) • <i>Optional:</i> camera <p>For each team</p> <ul style="list-style-type: none"> • role wristbands or badges for Director, Manager and Speaker • each team member's science journal • material for making models (see 'Preparation') • 1 copy of 'Information note for families' (Resource sheet 3) 	<p><i>Eratosthenes</i> <i>evidence</i> <i>Galileo</i> <i>galaxy</i> <i>hemisphere</i> <i>hours</i> <i>Indigenous</i> <i>investigation</i></p>
<p>ST3-10ES-S explains regular events in the solar system and geological events on the Earth's surface</p> <ul style="list-style-type: none"> • identify the paths of space objects in the sky as seen on Earth • predict what position space objects will be in after an hour and compare observations to predictions <p>ST3-1WS-S plans and conducts scientific investigations to answer testable questions, and collects and summarises data to communicate conclusions</p> <ul style="list-style-type: none"> • work in collaborative learning teams to represent their 	<p>Lesson 2</p> <p>Rising and setting –Lesson focus p29</p> <ul style="list-style-type: none"> • To provide shared experiences of the observable movement of the Sun and Moon in our sky. <p>Students:</p> <ul style="list-style-type: none"> • <i>present their observation from the home 'sky viewing' task</i> • <i>use observations to describe how space objects move across the sky</i> • <i>relate the apparent movement of the Sun to the notion of a 24 hour day.</i> 	<p>For the class</p> <ul style="list-style-type: none"> • class science journal • word wall • TWLH chart • team skills chart • team roles chart • <i>Optional:</i> multimedia resources on the movement of the Moon and Sun (see 'Preparation') • <i>Optional:</i> digital camera with tripod and projector/interactive whiteboard <p>For each team</p> <ul style="list-style-type: none"> • role wristbands or badges for Director, Manager and Speaker • each team member's science journal • each team member's completed home observation task (see Lesson 1, Session 2) • 	<p><i>journal</i> <i>Jupiter</i> <i>lunar</i> <i>map</i> <i>Mars</i> <i>Mercury</i> <i>Milky Way</i> <i>model</i> <i>months</i> <i>moon</i></p>

<p>observations as flow charts</p> <ul style="list-style-type: none"> • contribute to discussions about their results and how they relate to their everyday lives. 			<p><i>movement</i></p> <p><i>minutes</i></p> <p><i>Neptune</i></p> <p><i>North</i></p> <p><i>night</i></p> <p><i>observation</i></p> <p><i>orbit</i></p> <p><i>Orion</i></p> <p><i>orrery</i></p> <p><i>position</i></p> <p><i>planet</i></p> <p><i>representation</i></p> <p><i>rising</i></p> <p><i>rotate</i></p> <p><i>Saturn</i></p> <p><i>scale</i></p> <p><i>science</i></p> <p><i>scientist</i></p>
<p>ST3-10ES-S explains regular events in the solar system and geological events on the Earth's surface</p> <p>ST3-1WS-S plans and conducts scientific investigations to answer testable questions, and collects and summarises data to communicate conclusions</p> <ul style="list-style-type: none"> • work in collaborative learning teams to follow a procedural text to generate observations to test different claims • record their observations in a table and compare them to 'real life' observations from Lesson 2 • contribute to discussion about their results and whether the evidence can support different claims • identify the features and purpose of a 	<p>Lesson 3</p> <p><u>Going in circles – Lesson focus p35</u></p> <ul style="list-style-type: none"> • To provide hands-on, shared experiences of testing theories to explain observable movement of the Sun and Moon in our sky. <p><u>Students:</u></p> <ul style="list-style-type: none"> • <i>work in teams to explore different models to explain why the Sun and Moon appear to move across the sky</i> • <i>record, discuss and interpret their findings.</i> 	<p>For the class</p> <ul style="list-style-type: none"> • class science journal • word wall • TWLH chart • team roles chart • team skills chart • 1 enlarged copy of 'Revolving role-plays' (Resource sheet 4) • 1 enlarged copy of 'Role-play observations' (Resource sheet 5) <p>For each team</p> <ul style="list-style-type: none"> • role wristbands or badges for Director, Manager and Speaker • each team member's science journal • 1 copy of 'Revolving role-plays' (Resource sheet 4) 1 copy of 'Role-play observations' (Resource sheet 5) • 1 clipboard with pen • 1 torch or lamp • 1 softball or baseball • 1 world globe or soccer ball with a map of Australia attached (see 'Preparation') 	

<p>role-play, as well as its advantages and disadvantages as a model to explain the movement of the Sun, Earth and Moon.</p>			<p>Scorpius setting sky South Southern Cross solar system space sphere star sun sunlight sunrise sunset telescope tilt universe Uranus West Venus</p>
<p>ST3-10ES-S explains regular events in the solar system and geological events on the Earth's surface</p> <ul style="list-style-type: none"> review and update their orreries, identifying observations and evidence that support their point of view identify that the Earth orbits the Sun in a year, the Moon orbits the Earth in a month and the Earth rotates on its axis in a day brainstorm space objects present in the Solar System. <p>ST3-1WS-S plans and conducts scientific investigations to answer testable questions, and collects and summarises data to communicate conclusions</p> <ul style="list-style-type: none"> read and discuss a text about Galileo 	<p>Lesson 4 <u>Galvanising Galileo – Lesson focus p42</u></p> <ul style="list-style-type: none"> To support students to represent and explain their understanding of how the Earth orbits the Sun while rotating on its axis. To introduce current scientific views about Earth's place in Space. <p>Students:</p> <ul style="list-style-type: none"> review and update their orreries, identifying how they relate to everyday timescales read and discuss Galileo's story and evidence to support the theory that the Earth orbits the Sun brainstorm objects that can be found in the Solar System. 	<p>For the class</p> <ul style="list-style-type: none"> class science journal word wall TWLH chart team skills chart team roles chart <p>For each team</p> <ul style="list-style-type: none"> role wristbands or badges for Director, Manager and Speaker each student's science journal team orreries created in Lesson 1, Session 2 1 copy of 'Perplexing planets' (Resource sheet 6) per student 	
<p>ST3-10ES-S explains regular events in the solar system and</p>	<p>Lesson 5 <u>Chasing constellations – Lesson focus p48</u></p>	<p>For the class</p> <ul style="list-style-type: none"> class science journal word wall 	

<p>geological events on the Earth's surface</p> <ul style="list-style-type: none"> • identify different constellations and the nature of stars • read and discuss a factual text about Scorpius and Orion • discuss how Indigenous Australians recognised constellations and used them for various purposes, including navigation and calendars. <p>ST3-1WS-S plans and conducts scientific investigations to answer testable questions, and collects and summarises data to communicate conclusions</p> <ul style="list-style-type: none"> • work in teams to create models to explain the observations of the story • discuss the results of their investigations and how the appearance of constellations at different times of the year supports the model of the Earth orbiting the Sun 	<ul style="list-style-type: none"> • To introduce current scientific views about how the observation of constellations provides evidence about Earth's place in Space. <p>Students:</p> <ul style="list-style-type: none"> • <i>discuss constellations in the sky</i> • <i>read a text about how different constellations are not always visible in the sky</i> • <i>use models to explore how to explain this observation.</i> 	<ul style="list-style-type: none"> • TWLH chart • team roles chart • team skills chart • 1 enlarged copy of 'Star-crossed story' (Resource sheet 7) <p>For each team</p> <ul style="list-style-type: none"> • role wristbands or badges for Director, Manager and Speaker • each team member's science journal • 1 copy of 'Star-crossed story' (Resource sheet 7) • scissors • 2 pieces of string (15cm in length) • tape 	<p><i>years</i></p>
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<p>ST3-10ES-S explains regular events in the solar system and geological events on the Earth's surface</p> <ul style="list-style-type: none"> research information on objects in the Solar System <p>ST3-1WS-S plans and conducts scientific investigations to answer testable questions, and collects and summarises data to communicate conclusions</p> <ul style="list-style-type: none"> compare findings and discuss discrepancies in collected data interpret data to create scaled models of the Solar System discuss how different models serve different purposes in science. 	<h2>Lesson 6</h2> <h3><u>Solar system scientists – Lesson focus p56</u></h3> <ul style="list-style-type: none"> To support students to investigate characteristics of objects in the Solar System and create an accurate model of the Solar System <p>Session 1 Dealing with data <u>Students:</u></p> <ul style="list-style-type: none"> <i>investigate characteristics of objects in the Solar System, in particular their size and distance from the Sun.</i> <p>Session 2 Size matters <u>Students:</u></p> <ul style="list-style-type: none"> <i>create a 3D scaled model of the Solar System</i> <i>discuss the pros and cons of different forms of representation</i> <i>visualise the Solar System's place in Space.</i> 	<p>Session 1 For the class</p> <ul style="list-style-type: none"> class science journal word wall TWLH chart team roles chart team skills chart 1 enlarged copy of 'Solar System information organiser' (Resource sheet 8) <p>For each team</p> <ul style="list-style-type: none"> role wristbands or badges for Director, Manager and Speaker each team member's science journal 6 copies of 'Solar System information organiser' (Resource sheet 8) <p>Session 2 For the class</p> <ul style="list-style-type: none"> class science journal word wall TWLH chart enlarged copy of 'Scaled planets' (Resource sheet 9) 100m piece of rope or yarn 1 measuring tape objects to represent Solar System objects (see 'Preparation') 8 A4 pieces of paper <p>For each team</p>	
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<p>ST3-10ES-S explains regular events in the solar system and geological events on the Earth's surface</p> <ul style="list-style-type: none"> • identify that the Earth is part of a Solar System orbiting the Sun while it rotates on its axis <p>ST3-1WS-S plans and conducts scientific investigations to answer testable questions, and collects and summarises data to communicate conclusions</p> <ul style="list-style-type: none"> • support claims about how to explain everyday observations with evidence in a dramatic dialogue • contribute to discussions and express their opinions about their learning journey. 	<p>Lesson 7 <u>Sunning it up – Lesson focus p66</u></p> <ul style="list-style-type: none"> • To provide opportunities for students to represent what they know about the Earth as part of a system of planets orbiting a star (the Sun) and to reflect on their learning during the unit. <p><u>Students:</u></p> <ul style="list-style-type: none"> • <i>create a dramatic dialogue between two imaginary characters about Earth's place in Space</i> • <i>reflect on their learning during the unit.</i> 	<p>For the class</p> <ul style="list-style-type: none"> • class science journal • word wall • TWLH chart <p>For each student science journal</p>	