



CURRICULUM AND ASSESSMENT OUTLINE

ASSESSMENT ACTIVITY YEAR 3

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SCIENCE

Sun, Earth and Moon

Section 1: Summary

Background information

Brief Description of Assessment Activity	This program of work is on the Sun, Earth and Moon and has been based on 'Spinning in Space' (Primary Connections unit). Students investigate the relationship between the Sun, Earth and Moon. They look at their position in the solar system, their relative size, their orbit and axis. Students will discover how shadows are created and relate this to the creation of day and night. Students will record their findings and present their learning.			
Context summary	A cohort of year 3 boys and girls who have an average ability range.			
Purpose	Formative		Summative	
Description of purpose	To explore the relationship between the Sun, Earth and Moon.			
Audience Suitability	At Year Level	Extension	Students with disability	EAL/D

Summary of links to the Australian Curriculum

Content Strand	Science Understanding		Science as Human Endeavour			Science Inquiry Skills	
Sub-Strand	Biological Sciences	Chemical Sciences	Use and influence of science		Questioning and predicting		
	Earth and Space Sciences		Nature and development of science		Planning and conducting		
	Physical Sciences			Processing and analysing data and information			
				Evaluating			
						Communicating	
General capabilities	Literacy	Numeracy	ICT capability	Critical and creative thinking	Ethical behaviour	Personal and social capability	Intercultural understanding
Cross-curriculum priorities	Aboriginal and Torres Strait Islander histories and cultures		Asia and Australia's engagement with Asia			Sustainability	



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Section 2: Links to the Australian Curriculum

Science –Year 3

Content descriptions	Relevant Aspects of the Achievement Standard
<p>Science Understanding Earth and Space Sciences</p> <ul style="list-style-type: none"> Earth's rotation on its axis causes regular changes, including night and day (ACSSU048) <p>Science as Human Endeavour</p> <ul style="list-style-type: none"> Science involves making predictions and describing patterns and relationships (ACSHE050) <p>Science Inquiry Skills</p> <ul style="list-style-type: none"> With guidance, identify questions in familiar contexts that can be investigated scientifically and predict what might happen based on prior knowledge (ACSIS053) Suggest ways to plan and conduct investigations to find answers to questions Safely use appropriate materials, tools or equipment to make and record observations, using formal measurements and digital technologies as appropriate (ACSIS054) Use a range of methods including tables and simple column graphs to represent data and to identify patterns and trends Compare results with predictions, suggesting possible reasons for findings (ACSIS057) Reflect on the investigation, including whether a test was fair or not (ACSIS058) Represent and communicate ideas and findings in a variety of ways such as diagrams, physical representations and simple reports (ACSIS060) 	<p>By the end of Year 3, students use their understanding of the movement of the Earth, materials and the behaviour of heat to suggest explanations for everyday observations. They describe features common to living things. They describe how they can use science investigations to respond to questions and identify where people use science knowledge in their lives.</p> <p>Students use their experiences to pose questions and predict the outcomes of investigations. They make formal measurements and follow procedures to collect and present observations in a way that helps to answer the investigation questions. Students suggest possible reasons for their findings. They describe how safety and fairness were considered in their investigations. They use diagrams and other representations to communicate their ideas.</p>

Source: Australian Curriculum, Assessment and Reporting Authority (ACARA), Australian Curriculum v40 <www.australiancurriculum.edu.au/Home>



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Section 3: Student activity

Task Title: Sun, Earth and Moon

How the task links to program:

1. investigate the sizes and position of the Sun, Earth and Moon
2. conduct a shadow investigation
3. construct a poster to represent their knowledge and understanding of the Sun, Earth and Moon, and day and night.

The ideas explored through these series of lessons are that:

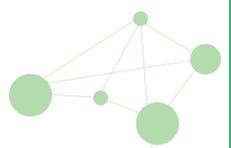
- the Sun, Earth and Moon belong to the Solar system, which includes all the planets and moons that are in orbit around the Sun.
- the Sun is the largest object in the Solar System
- the Earth is a planet in orbit around the Sun
- the Sun is always heating and lighting the Earth, but only one side of the Earth facing the Sun experiences daylight. The rest is in shadow.
- the Earth is spinning on its axis, once every 24 hours.
- the Moon is in orbit around Earth.

Group Work

- In groups students explore the size and position of the Sun, Earth and Moon. “Shapes and Sizes” (details of this activity are in the PC unit – Spinning in Space, Lesson 2.
- In groups students explore shadows. As a class discuss prior knowledge of shadows. Students play “Shadow Tag” to demonstrate how shadows are altered and changed. PC unit – Spinning in Space – Lesson 3 “Chasing Shadows”.
- In groups students explore the behaviour of light. Students are given 4 pieces of card with a small hole in each. As a group they line up the cards in order to see an object on the other side. PC unit – Spinning in Space – Lesson 3 “Travelling light show”.
- In groups students plan and conduct an investigation into the length and direction of shadows in one day. This activity has been adapted as a whole class activity as this is a Term 1 activity in Yr 3. Students will be lead through the writing of an investigation, answering of questions and tabling and graphing of results. The activity has been adapted to suit Yr 3 students from the PC unit Spinning in Space – Lesson 5 – pg 29.

Individual Work

- After students complete the group work activities, watch videos, are actively involved in class discussion and teacher led lessons they are provided with the opportunity to reflect on their learning and represent what they know about what causes day and night and the positions and movements of the Sun and Earth.
- Prior to this individual work they would have been taught how to create an effective poster. (Use of headings, diagrams, labels, etc).
- Students will be given an A3 piece of paper to create a poster of their learning.
- They will be given 1 hour to complete the task.





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- They have access to their Science Journals
- They will be instructed to
 - describe the shapes and sizes of the Sun, Earth and Moon
 - describe the apparent movement of the Sun across the sky from East to West
 - describe changes in shadows, and differences between day and night, and relate these changes to the spinning of the Earth.

Student Learning

Students have been exposed to the following concepts and skills through this assessment task:

- the shapes and sizes of the Sun, Earth and Moon
- the apparent movement of the Sun across the sky from East to West
- the changes in shadows, and difference between day and night and how these relate to the rotation (spinning) of the Earth
- planning, creating and reflecting on investigations
- making and recording observations.

Other Opportunities

Differentiation

How can you adapt the content, process, or product to support all students?

- provide “Word Wall” to help with vocabulary of activities and individual poster
- provide scaffold of poster to help students organise and display their knowledge
- provide focus questions to help create their posters.

How can you adapt the content, process, or product to challenge students to extend their thinking?

- research other planets: looking at position in solar system, length of day, characteristics (eg moon)
- once completed their poster, display their knowledge on computer or as a 3D model
- design a quiz/ game about their learning
- complete a web quest (eg <http://www.cap.nsw.edu.au/rm/s2/PlanetSearch/index.htm>)

Other Suggestions

- use of Video clips online to demonstrate knowledge
- use of learning federation activities
- creating models of Sun, Earth and Moon

Science as Human Endeavour

- researching solar exploration
- researching constellations, and how we use/used stars (navigation)



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Section 5: Reflection

To what extent did the task provide an opportunity for the students to demonstrate their skills and understandings from the curriculum content?	It allowed them to demonstrate a wide range of understanding. The open ended poster was a good choice as an assessment because it allowed them to demonstrate their understandings of the science concepts without restraint. Some students needed assistance in construction to ensure all their knowledge was included.
What range of achievement was able to be demonstrated by students?	A wide range. From basic understanding to comprehensive grasp of concepts.
Was any additional support required for some students to enable them to access the task?	Yes, as they are a Year 3 class they required scaffolds, and extra demonstrations about the construction of posters. As a class we brainstormed together our learnt knowledge prior to poster. They also had access to a word wall and journals.
What misconceptions were revealed from students' responses to the task?	Some struggled with apparent movement of Sun and Moon in night sky. Most seem to have grasped the main ideas. They would still need to revise axis and spinning of Earth.
How could this activity be used to inform planning of future teaching and learning?	Would be a good teaching tool to inform future teaching in this sub strand, to help plan lessons from here.
How did the activity link to other learning areas?	It linked to art, English, and maths well. Art in the creation of the poster. English in the publishing of their work. Maths in the construction of tables and collecting data.
Any other comments related the activity	It is very important to provide time and scaffolds to enable students the best chance to demonstrate their knowledge and understandings in this activity.

