 Solar System

Stage 4 Earth and Space

Outcomes

Values and attitudes

SC4-1VA A Student appreciates the importance of science in their lives and the role of scientific inquiry in increasing understanding of the world around them

Working scientifically

SC4-5WS collaboratively and individually produces a plan to investigate questions and problems

WS5.1 Students identify data to be collected in an investigation by:

* 1. identifying the purpose of an investigation
  2. proposing the type of information and data that needs to be collected in a range of investigation types, including first-hand and secondary sources
  3. locating possible sources of data and information, including secondary sources, relevant to the investigation

SC4-7WS processes and analyses data from a first-hand investigation and secondary sources to identify trends, patterns and relationships, and draw conclusions

WS7.1 Students process data and information by:

1. summarising data from students' own investigations and secondary sources (ACSIS130, ACSIS145)
   1. using a range of representations to organise data, including graphs, keys, models, diagrams, tables and spreadsheets
   2. extracting information from diagrams, flowcharts, tables, databases, other texts, multimedia resources and graphs including histograms and column, sector and line graphs
   3. accessing information from a range of sources, including using digital technologies

SC4-9WS presents science ideas, findings and information to a given audience using appropriate scientific language, text types and representations

WS9 Students communicate by:

1. presenting ideas, findings and solutions to problems using scientific language and representations using digital technologies as appropriate (ACSIS133, ACSIS148)
   1. using appropriate text types in presentations, including a discussion, explanation, exposition, procedure and recount
   2. using a recognised method to acknowledge sources of data and information
   3. constructing and using a range of representations to honestly, clearly and/or succinctly present data and information including diagrams, keys, models, tables, drawings, images, flowcharts, spreadsheets and databases
   4. constructing and using the appropriate type of graph (histogram, column, sector or line graph) to express relationships clearly and succinctly, employing digital technologies as appropriate

Knowledge and understanding

ES2 Scientific knowledge changes as new evidence becomes available. Some technological developments and scientific discoveries have significantly changed people's understanding of the solar system.

1. explain that predictable phenomena on the Earth, including day and night, seasons and eclipses are caused by the relative positions of the sun, the Earth and the moon (ACSSU115)
   1. demonstrate, using examples, how ideas by people from different cultures have contributed to the current understanding of the solar system
   2. compare historical and current models of the solar system to show how models are modified or rejected as a result of new scientific evidence
   3. describe some examples of how technological advances have led to discoveries and increased scientific understanding of the solar system

Learning across the curriculum

Cross-curriculum priorities

☒Aboriginal and Torres Strait Islander histories and cultures

☐Asia and Australia's engagement with Asia

☒Sustainability

General capabilities

☒Critical and creative thinking

☐Ethical understanding

☐Information and communication technology capability

☐Intercultural understanding

☐Literacy

☐Numeracy

☐Personal and social capability

Other areas of learning

☐Civics and citizenship

☐Difference and diversity

☐Work and enterprise

Teacher notes

This task allows students to communicate scientific information to different audiences to gain an appreciation of scientific communication. The task may be used in tandem with transition programs to engage primary school audiences and develop leadership skill among Stage 4 students. The task allows students to develop creative approaches to explain, produce and present their information.

Teachers may choose to distribute the topics equally among their class, or have students access all topics in their presentation. Teachers may also choose to have student working in a group and complete peer evaluations of each team members’ contributions.

Introduction/Background

Science seeks to explain how the universe, the solar system and the world around us works and the truth is often stranger and more wondrous than fiction. As such science is something we all need to connect with from an early age. Part of science is being able to communicate your understanding of the world and universe to others in a way they can also understand.

Task

Your task is to create a picture story book about one aspect of the solar system aimed at educating primary school children in a fun, exciting and creative way.

Choose one of the following topics from which you will create your picture book.

* The phases of the moon, including lunar and solar eclipses
* How the four seasons work
* The discovery of 8 planets of the solar system
* The exploration of Mars
* How ideas by people from different cultures have contributed to our current understanding of the solar system
* How Indigenous Australians ideas about the solar system were used by their culture to, for example, gather resources.

Your picture book can be handed in as either a hard copy (printed) or electronic (PowerPoint, Word, other programs) and must include who discovered the information and when as well as appropriate images, pictures and diagrams and appropriate language for your target primary school audience.

Marking guideline/rubric

The following achievement levels are referenced in the rubric

* Elementary - Understanding and working with support
* Developing - Understanding – developing skills and knowledge
* Competent - Understanding and achieving all outcomes
* Outstanding - Perceptive and sophisticated understanding demonstrating outstanding skills and knowledge

| Criteria | Not Submitted | Elementary | Developing | Competent | Outstanding |
| --- | --- | --- | --- | --- | --- |
| **Level of detail** | Not submitted | Little or poor detail | Basic detail | Adequate level of detail and explanation, appropriate for audience | Extensive detail and substantial explanation, appropriate for audience |
| **Information accuracy** | Nothing submitted | Inaccurate information | Minimal accurate information | Information is mostly accurate | High levels of accuracy |
| **Appropriate use of pictures, images or physical objects.** | No images, pictures or physical objects used. | Inappropriate use of pictures, images or physical objects  No connection between information and pictures, objects or images | Mostly appropriate use of images, objects and pictures.  Some connection between information and pictures or images | Appropriate amount and use of images, objects and pictures  Clear connection between information and pictures or images | Correct use of images, objects and pictures  Very clear connection between information and pictures or images |
| **Ease of understanding the information and its presentation in your own words** | No information presented or irrelevant information presented. | Information is not easy to understand  Information not expressed in own words | Some of the information is easy to understand  Some of the information is expressed in own words | Most of the information is easy to understand or interpret  Most of the information is expressed in their own words | Correct and detailed information that is easy to understand  All the information is presented in your own words |
| **Accurate layout and presentation of information** | No layout or presentation | No accuracy in the layout and presentation of the information | Minimal accuracy in the layout and presentation of the information | Mostly accurate layout and presentation of the information | Accurate and detailed layout and presentation of the information |
| **Punctuation and grammar** | No Submitted. | Poor punctuation and grammar | Basic punctuation and grammar | Good punctuation and grammar | Excellent punctuation and grammar |