Victorian Essential Learning Standards

Sample Unit

Out of this World

Level 4: Interpersonal Development, Personal Learning, Science, Communication, Design, Creativity and Technology, Information and Communications Technology, Thinking Processes

Contents

Victoria The Place To Be

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Introduction

In *Out of this World*, students learn about the Solar System. Working in groups, students collect information on the solar system and complete an in-depth study of one aspect, for example, a study of a planet or meteorites. They use a range of reference sources including the Internet and apply the information to produce an information brochure and multimedia presentation to promote tours to their destination.

This unit provides opportunities for students to demonstrate achievement against the standards in Interpersonal Development, Personal Learning, Science, Communication, Design, Creativity and Technology, Information and Communications Technology and Thinking Processes.

Learning focus

This unit addresses learning focus statements from all three strands. These include:

Physical, Personal and Social Learning

Interpersonal Development

- take on different roles in group activities

Personal Learning

- give and act upon constructive feedback from peers
- contribute to the development of criteria for evaluating their effectiveness in researching the solar system, developing a brochure and giving a presentation

Discipline-based Learning

Science

- investigate the solar system

Interdisciplinary Learning

Communication

- develop skills in organising research information logically and clearly in a brochure and multimedia presentation to the class

Design, Creativity and Technology

- develop a design brief

Information and Communications Technology

- use information and communications technology tools and techniques to research the solar system, develop a brochure and communicate their research

Thinking Processes

- make observations and pose questions about the solar system which demonstrate their growing awareness of the complexity of the world around them and frame their investigations.

Victorian Essential Learning Standards

Out of this World can be used to assess a range of Victorian Essential Learning Standards.

The table below is an example of how this unit might be used to assess some Level 4 standards.

Strand	Domains	Dimensions	Key elements of standards Students:
Physical, Personal and Social Learning	Interpersonal Development	Working in teams	…work effectively in different teams and take on a variety of roles… …work cooperatively to allocate tasks and develop timelines. …accept responsibility for their role and tasks.
	Personal Learning	Managing personal learning	…describe task progress and achievements… …develop and implement plans to complete short-term and long-term tasks within timeframes. …develop individual learning preferences…
Discipline-based Learning	Science	Science knowledge and understanding	…apply the terms *relationships*, *models* and *systems* appropriately as ways of representing complex structures. …explain how the Earth and the Moon operate as a simple system within the larger solar system.
Interdisciplinary Learning	Communication	Listening, viewing and responding	…ask clarifying questions about ideas and information they listen to and view.
		Presenting	… summarise and organise ideas and information logically and clearly in a range of presentations. …identify the features of an effective presentation and adapt elements of their own presentations to reflect them.

	Design, Creativity and Technology	Investigating and designing	…use a range of methods to research, collect data in response to design briefs. …generate and communicate alternative design ideas in response to a design brief…
	Information and Communications Technology	ICT for creating	…produce accurate and suitably formatted products to suit different purposes and audiences.
	Thinking Processes	Reasoning, processing and inquiry	…develop their own questions for investigation… …collect relevant information from a range of sources and make judgments about its worth. …distinguish between fact and opinion.

For further advice see the Assessment section (page 8).

Teaching and learning activities

This unit focuses on research and publication processes using Information and Communications Technology. Throughout the unit teachers provide class sessions on using ICT to support further knowledge, skills and behaviours in using multimedia tools. This could include:

- creating slides
- choosing different slide templates and/or designing slide templates
- copying and pasting between programs
- importing graphics and sound files
- using features such as 'insert' and 'slide show'
- creating animation
- using a drawing program
- developing a booth presentation.

Refer to Unit resources (see page 10) for materials required throughout the unit and teacher support materials.

Before commencing the activities, teachers outline the three main tasks to be undertaken by students: group investigation; brochure; and multimedia presentation.

Teachers review, if required, the responsibilities associated with group roles (reporter, timekeeper etc.) (see *Teaching and learning resource*) and explain the requirement for students to take on different roles within their groups over the course of the unit.

Teachers develop with students, criteria for evaluating their own and group contribution to the three main tasks, as well as criteria for assessing their personal learning preferences, based on a reflective journal (see *Teaching and learning resource*), documenting their response to fulfilling various group roles (see *Teaching and learning resource*).

Students form groups of 4 to 6 and remain in these groups throughout the unit. Within the group, students establish group norms and protocols (see *Teaching and learning resources*) to ensure the group has common goals and understandings.

Activity 1: Launcher

In this activity, students explore key questions about the solar system.

Students are provided with a scenario: They are travel agents trying to entice people to travel to a destination within the solar system. They present a multimedia session and brochure to inform potential travellers about the destination.

Teachers pose 4–6 key questions such as:

1. What is the solar system?
2. What are comets and which ones have visited our solar system?
3. How does solar activity, such as sun flares, affect Earth or the other planets?
4. What are meteorites and what is their relationship to our solar system?

If students have prior experience of models, for example, transforming and transferring energy, key questions could include:

5. What is a model and how is the solar system a model?

Using a jigsaw approach (see *Teaching and learning resource*), each group member is allocated a different number. Students join with members of other groups assigned the same number and research the key question for their allocated number. For the research task, teachers provide resources to facilitate the completion of a fact sheet. Students return to their original groups and report their findings.

In a journal (see *Teaching and learning resource*), students reflect on their own knowledge of the solar system in relation to the jigsaw activity. They identify information they know and information that they are unsure about. They record a learning goal for the unit.

Teachers provide opportunities throughout the unit for students to further reflect on how their understanding and knowledge of the solar system has developed or changed and how they have worked in a group. As an alternative to a journal, in pairs, students could interview each other about what they have learnt at different stages. At the end of the unit, students write a short report or use a K-W-L-H (see *Teaching and learning resource*) approach to record their learning.

Activity 2: Group research

This activity may involve several sessions for students to conduct and develop their research. They develop an action plan and rubric for self and peer assessment of the research task, establish group norms and protocols and establish criteria for assessing personal learning preferences.

Teachers discuss with students the research component. In groups, students select an aspect of our solar system to investigate. For example, a planet, major moon, meteorite or comet. Each group will use the information from their research to develop a brochure and multimedia presentation. The brochure will include images and references. Teachers develop with students a rubric for self and peer assessment of the research component.

Using a K-W-L-H approach, each group brainstorms key ideas for their research and develops a research action plan (see *Teaching and learning resource*) including:

- how they will conduct their research
- research questions or headings
- the roles each person will play
- resources required
- timeline to complete tasks.

Each group reports to the class. As a class, students consider each action plan and contribute ideas for the research questions and how the research is developed. Students are encouraged to question the research including suggestions for further research and any information that is not clear and the validity of their sources.

Each group refines their action plan based on feedback.

In groups, students collect and organise their information, including:

- saving images that may be for their brochure and multimedia presentations
- documenting all information including filenames and sources.

Each group shares their research with another group who provides feedback. In pairs, students discuss their own contribution and learning before completing their reflection journals.

Activity 3: What's a brochure?

In this activity each group analyses different brochures and prepares a design brief (see *Teaching and learning resource*) for a brochure based on their research in Activity 2. The purpose of the brochure is to entice people to take a space voyage to experience a destination within the solar system.

Before developing the design brief, using a sunshine wheel (see *Teaching and learning resource*), students brainstorm in groups, elements of a brochure (students may need to be reminded that they should be taking on a different role in the group doing this activity).

Using examples of different brochures, students analyse the samples using a SWOT analysis (see *Teaching and learning resource*), for example:

- purpose – what do the brochure publishers hope to achieve and how?
- use of visual communication – in what ways is the purpose served by pictures, illustrations, and layout?
- language – how does the language suit the purpose?
- format – how many surfaces does the brochure have? How does it fold?

Each group reports to the class on their findings. Teachers discuss with students the findings and criteria for assessing the brochure.

Teachers discuss with students:

- the differences between informing and promoting and ways in which these purposes can work together
- what sort of publication software and equipment they intend to use
- use of headings, paragraphs, tables, images, bullet points.

Each group develops a design brief which includes statements about:

- important features of their selected aspect of the solar system
- useful facts
- the kind of audience they want to appeal to
- how they intend to appeal to the target audience.

Activity 4: Publishing the brochure

This activity may involve more than one session. Students prepare a mock-up of the brochure, using for example, an A4 paper 'tri-fold' showing layout, location of graphics, headings and informative/promotional text. They create their brochure using publishing software.

Each group presents their mock-up to another group who provide feedback and suggestions on the effectiveness of their brochure in terms of the design brief. Each group revises their design brief, rethinking their brochure design and publishing platform if necessary.

Each group creates a brochure electronically. Students add graphics, for example, from clip art, scanning their own drawings, using drawing programs to design their own graphics or modifying existing graphics to better suit their needs.

Activity 5: Developing the presentation

In this activity, each group uses presentation software to develop an oral presentation (4–6 slides) or a multimedia booth presentation (see page 10). The purpose of the presentation is for students to demonstrate their knowledge and understanding about the solar system and ICT.

With students, teachers discuss and develop a rubric (see *Assessment resource*) for assessing the content and use of ICT in the presentations.

Preparing the presentation

Teachers discuss with students:

- the dual purposes of promotion and information
- the language that would suit the purpose, audience and content
- the kinds of graphics that may be necessary or appealing for the presentation.

Each group plans their presentation, for example, using a storyboard, to indicate headings, images, text, any relevant sounds and major points of information throughout. Each member is designated a role in both developing and delivering the presentation.

Groups present their plan for discussion and review with the teacher and then create their presentation. They practise presentations for time and effectiveness and obtain feedback from 'critical friends'.

Activity 6: Presenting and evaluating

In this activity, each group, makes their presentation and distributes copies of their brochure.

Each group is assigned another group to assess. They make notes on presentations and brochures and evaluate the other group according to criteria outlined in the rubric developed previously. They discuss and negotiate the assessment outcome with the presenting group on the final evaluation. Students complete reflections in their journal. Teachers discuss with students the different roles they undertook within groups and how effectively the groups worked together.

Assessment

The Victorian Essential Learning Standards supports a combination of assessment practices:

- Assessment of learning (summative)
- Assessment for learning (formative)
- Assessment as learning (ongoing)

Further information on these can be found at:
http://www.sofweb.vic.edu.au/blueprint/fs1/assessment.asp

When assessing student achievement, assessment criteria can be developed from relevant standards and associated tasks or activities. The table below shows a range of assessment criteria, tools and strategies applicable to this unit. Teachers could choose to use some or all of these or use the unit to assess other standards.

Standards	Assessment criteria (Examples)	Evidence
Interpersonal Development *Working in teams*	Ability to: • take on different roles and responsibilities within a group • contribute ideas to class and group discussion	Teacher observations and records of student contributions to class discussion and working in different roles in teams
Personal learning *Managing personal learning*	• identify and reflect on personal learning preferences	Journals for reflecting on different roles undertaken in group work

Standards	Assessment criteria (Examples)	Evidence
Science *Science knowledge and understanding*	• work on set tasks with a time frame • research scientific information • report on research in a clear and sequential way	Research on solar system for a fact sheet, brochure and presentation Teacher observations and records on processes used in research (Activity 2)
Communication *Listening , viewing and responding*	• ask questions in order to clarify information	Teacher observations and records on skills and processes (Activities 4 and 5)
Communication *Presenting*	• use ICT to design a personalised brochure • present ideas sequentially and logically	Published brochure for elements used to persuade (language, content, graphics) (Activity 4) Multimedia presentation (Activities 4 and 6)
Design, Creativity and Technology *Investigating and designing*	• generate ideas that contribute to a design brief	Teacher observation and records of design brief (Activity 3)
Design, Creativity and Technology *Analysing and evaluating*	• modify ideas in response to peer feedback	Reflective journals (Activity 2)
Information and Communications Technology *ICT for communicating*	• use relevant images to enhance multimedia presentation • develop an effective layout of information for the intended audience for the multimedia presentation • accurately proof read and format text	Selection of software, use of graphics and layout (Activity 4)
Thinking Processes *Reasoning, processing and inquiry*	• develop their own questions for investigation • check information for accuracy • distinguish between fact and opinion	Teacher observations and records on research processes and discussion within groups (Activities 1, 2 and 3)

See the *Assessment resource* for advice on developing rubrics.

Unit resources

Websites

At the time of publication the URLs (website addresses) cited were checked for accuracy and appropriateness of content. However, due to the transient nature of material placed on the Internet, their continuing accuracy cannot be verified. Teachers are strongly advised to prepare their own indexes of sites that are suitable and applicable to this unit of work, and to check these addresses prior to allowing student access.

curriculum@work, Sample Science Program and Teacher's Online Primary Science will provide valuable sample programs or information resources for the teacher.

The websites below are included in as recommended starting points. They include information and images suitable for use by students at this level.
http://www.enchantedlearning.com/subjects/astronomy/solarsystem/index.shtml
http://starchild.gsfc.nasa.gov/docs/StarChild/solar_system_level1/solar_system.html
http://www.frontiernet.net/~kidpower/solarsystem.html
http://www.geocities.com/thesciencefiles/scispace.html
http://bart.northnet.com.au/~amcgann/website/Page_2.htm
http://www.exploratorium.edu/ronh/weight/index.html
http://www.seds.org/nineplanets/nineplanets/

Booth presentations

Booth presentations are short interactive multimedia productions of the kind used in museums and galleries that inform about a particular topic using a limited number of actions that open different categories of information. They are commonly presented as information posts using a computer monitor and include print text, graphics and sound.

PowerPoint toolbar features such as 'Insert' and 'Slide show' provide means of importing graphic and sound files into PowerPoint and creating category links and options using 'action buttons'. PowerPoint can be applied to provide the small programs that enable users to select information from different categories as in booth presentations. For assistance in using these features, search 'action buttons' and 'insert' in the PowerPoint Help index.

Teacher materials

Teaching and learning resource
This document provides information about teaching and learning strategies referred to in the unit. It is available at http://vels.vcaa.vic.edu.au/support/teaching.html

Assessment resource
This document provides information about assessment strategies referred to in the unit. It is available at http://vels.vcaa.vic.edu.au/support/assessment_resource.html