

OVERVIEW

Students formulate a rationale and a hypothesis regarding how the relationship between human activities and physical resources affects land use developments. Students use ICT to create data collection forms regarding their investigation topic, process that data and then report on their findings, including a statement about the validity of their hypothesis.

DESIGN CONNECTIONS

- Design process
- Design in ICT (Information products: Poster, Charts and graphs, Slideshow)
- Design elements (Space, Balance)

SUMMARY OF STUDENT TASKS

Students:

- investigate different land use developments which are influenced by the relationship between human and physical factors
- select one aspect of land use for further investigation, for example, housing, industry, entertainment, transport, sports, retail, government services, agriculture
- formulate a rationale and a hypothesis for their investigation
- investigate the current land use, collecting first-hand data
- investigate how an Aboriginal nation used that land
- report their findings, including a statement about validity of hypothesis.

LINKS TO THE ESSENTIAL LEARNING STANDARDS

This unit provides opportunities for students to develop the following knowledge and skills identified in the relevant standards statements for Level 6.

STRAND	DOMAIN	DIMENSION	KEY ELEMENTS OF STANDARDS
Physical, Personal and Social Learning	Interpersonal Development	Working in teams	'... students work collaboratively, negotiate roles and delegate tasks to complete complex tasks in teams. Working with the strengths of a team they achieve agreed goals within set time frames.'
Discipline-based Learning	Humanities: Geography	Geographic knowledge and understanding	'They analyse development issues and formulate ... policies ... to alter development patterns at a range of scales. They use evidence based on their inquiries and geographical language and concepts.'
		Geospatial skills	'They collect and collate information gathered from fieldwork observations and

			present their findings observing geographical presentation conventions.'
	Mathematics	Measurement, chance and data	'They generate data using surveys ... and sampling procedures. They calculate summary statistics for centrality (mode, median and mean), spread (box plot ...'
		Working mathematically	'Students choose, use and develop mathematical ... procedures to investigate and solve problems in a wide range of ... contexts ...' They judge the reasonableness of their results based on the context under consideration. They select and use technology ... to manipulate and represent data ...'
Interdisciplinary Learning	Information and Communications Technology (ICT)	ICT for visualising thinking	'... students use a range of ICT tools and data types to visualise their thinking strategies when solving problems and developing new understandings. They ... apply ICT techniques to support causal reasoning and to model and describe the dynamic relationships between variable and constant data values to test hypotheses.'
		ICT for creating	'... students apply a range of techniques, equipment and procedures that minimise the cost, effort and time of processing ICT solutions and maximise the accuracy, clarity and completeness of the information.'
	Thinking Processes	Reasoning, processing and inquiry	'They generate questions that explore perspectives. They process and synthesise complex information and complete activities focusing on problem solving and decision making ...'

TEACHING ADVICE

Introduction

In this unit, students investigate how the use of a specific area of land has been influenced by the relationship between natural resources and human activities. This is expressed as a hypothesis. Students can select their own land use, for example, ecotourism, agriculture, retail, industry, housing, sports and recreation, entertainment or it can be teacher-directed. Depending on the selected land use, it may be appropriate to compare two specific land areas to support or refute the hypothesis about this relationship, for example, in urban settings, two suburbs could be compared; in rural areas, two towns could be compared. This decision may be influenced by the ability of students to gather first-hand, land-use evidence, without relying completely on secondary sources. Note: students may wish to compare two areas in different geographic regions, using a tool such as *Google Earth* to gather information. As fieldwork must be completed, appropriate actions must be taken to ensure that legal obligations are met when students are not supervised.

Students must investigate for one specific land area its indigenous history, including the original Aboriginal language group and how they used the land. When studying Aboriginal perspectives it is advisable to invite an Aboriginal person to assist with the planning and implementation of curriculum. A list of Local Aboriginal Education Consultative Groups (LAECG's) in education and training is included in Resource 1.

It is important to clarify preferred terminology to use within teaching and learning about Aboriginal perspectives:

- There can be different spellings of language groups and different terminology used to describe 'groups' of Aboriginal people. The most common term for referring to groups of Aboriginal people is 'language groups', however sometimes the terms 'clan' or 'nation' are used.
- It has become common to refer to Aboriginal people as Koorie people. The Aboriginal people from south central Victoria are members of the Kulin nation. It is important to use the correct terminology as words have specific meanings for different language groups. Some terms may be acceptable to one language group but insulting to another language group.

Students need access to computers when processing their data and presenting their findings. Access to digital photographs is also desirable – these can be captured via a digital camera, scanned or located from Internet sources, which must be properly acknowledged.

Students should be able to complete the unit within 6–8 hours.

Prior learning

ICT domain: students require proficiency in using presentation software such as word processing, PowerPoint, image editing. They need to be able to capture images either via a digital camera or through scanning images, edit the images, and apply knowledge of design elements.

Task 1: Land use developments

Key focus

Students:

- discuss a range of land uses in the local community, considering how they are shaped by natural resources and human needs and activities

- select one aspect of land use, such as housing, agriculture, transport, retail, sport, entertainment for further investigation.

Teaching and learning

This task involves students:	This task involves teachers:
<ul style="list-style-type: none"> • identifying a range of land uses within a section of their local community • discussing and recording whether the land use was influenced by the nature of the natural resource or by human activities • selecting one aspect of land use that will form the basis of their investigation. 	<ul style="list-style-type: none"> • providing resources that allow students to identify different land uses within their local community, for example, images and details provided by the local council and <i>Google Earth</i>, which can be downloaded. If appropriate, students can do some fieldwork during class time to record land use within close proximity to the school • discussing with students the interrelationship between natural resources and human activities • determining if the class will all investigate the same land use or whether students select their preferred land use. If the latter applies, consider its appropriateness for further investigation.

Task 2: Proposing a hypothesis

Note: if all students are investigating the same land use, individual students should still be developing their hypothesis. This approach adds diversity and interest to the investigation, and hence learning.

Key focus

Students:

- formulate a hypothesis for investigation, for example, as society has become more materialistic, the percentage of land used for retail has expanded, or people under 30 years of age are more likely to use environmentally friendly practices than older people
- identify characteristics of this land use which will assist in refuting or supporting the hypothesis, for example, housing – number of storeys, frontage, type of dwelling
- select the specific geographic area(s) for which data will be collected.

Teaching and learning

This task involves students:	This task involves teachers:
<ul style="list-style-type: none"> • formulating a hypothesis to focus their investigation • identifying the characteristics of this land use for which data can be gathered • selecting the specific geographic area for which the data will be collected. 	<ul style="list-style-type: none"> • discussing with students the purpose of a hypothesis • providing students with strategies to develop a hypothesis that is sufficiently rigorous to shape their investigation • determining if the geographic area selected by students will enable them to collect sufficient data to make their investigation meaningful.

Task 3: Current land use

Key focus

Students:

- determine and justify methods of data sampling, for example, select given number of data sets and justify selection procedure. This also includes considering factors affecting the validity of data collected such as random selection, sample size
- design and create a data collection form
- collect first-hand statistical text and image data and, if appropriate, locate other data from reliable sources.

Design connections

Design in ICT (Information products: Questionnaires)

Teaching and learning

This task involves students:	This task involves teachers:
<ul style="list-style-type: none">• determining and justifying their data sampling methods to ensure validity of results• examining data collection forms such as questionnaires and surveys to identify those features that assist in accurately collecting and entering their data into a spreadsheet• viewing the relevant sections of 'Design in ICT' (Information products: Questionnaires) to acquire information on design features and designing tools• designing and producing the data collection form• collecting first-hand data, which may include interviewing, observing and collecting photographic evidence• acquiring data from secondary sources, if appropriate.	<ul style="list-style-type: none">• discussing with students sampling methods that ensure validity of results• discussing with students the design features of effective data collection forms• discussing with students the relevant sections of 'Design in ICT' (refer to 'Design connections' above)• ensuring that students have access to computers to produce a data collection form (questionnaire/survey).

Task 4: Past land use

Key focus

Students:

- investigate the Aboriginal language group that originally settled on the selected land
- examine how the activities of the Aboriginal group were influenced by the physical nature of the land
- complete a storyboard, using ICT, depicting past and current land practices for the selected land.

Teaching and learning

This task involves students:	This task involves teachers:
<ul style="list-style-type: none">• researching the Aboriginal heritage of	<ul style="list-style-type: none">• organising a visit to the classroom of

<p>the selected geographic area</p> <ul style="list-style-type: none"> acquiring maps and images that depict the land-use history of the selected geographic area completing Worksheet 1: Land use storyboard, to explain how the land use has changed over time. 	<p>an Aboriginal person. See Resource 1 for a list of Local Aboriginal Education Consultative Groups contacts</p> <ul style="list-style-type: none"> discussing with students the Aboriginal heritage of the geographic area being investigated providing students with Worksheet 1: Land use storyboard ensuring that students have access to computers to complete their storyboard. See Resources (Websites) for details on how to create a timeline using a spreadsheet (Excel) encouraging students to experiment with different ways of completing the storyboard.
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Task 5: Based on my findings

Key focus

Students:

- determine the format of presentation of collected data
- apply ICT to process the data
- create a map, using geographic presentation conventions, identifying points of data collection
- report the findings, including a statement about the validity of the hypothesis.

Design connections

- Design in ICT (Information products: Poster, Charts and graphs, PowerPoint)
- Design elements (Space, Balance)

Teaching and learning

This task involves students:	This task involves teachers:
<ul style="list-style-type: none"> processing the statistical data and formatting it in a style that suits the information viewing the relevant sections of 'Design in ICT' (Information products: Charts and graphs) to acquire information on design features and processing tips analysing the results of their data collection to form conclusions that support or refute their hypothesis examining their storyboard and determining what evidence they will use to assist in supporting or refuting their hypothesis preparing a map that shows the geographic area from which data was collected, including the data collection points. The map must be 	<ul style="list-style-type: none"> discussing with students the appropriateness of different chart styles to depict certain types of information. See Resources (Websites) for details on how to create a spreadsheet, insert pictures and prepare PowerPoint slides ensuring that students have access to computers to produce their charts and graphs, their map and their report discussing with students the relevant sections of 'Design in ICT' and 'Design elements' (refer to 'Design connections' above) facilitating a class discussion regarding the test results of their hypotheses.

presented using geographic presentation conventions

- viewing the relevant sections of 'Design in ICT' (Information products: Poster, Slideshow) to acquire information on design features and processing tips on presenting a report.

Resources

Websites

Victorian Curriculum and Assessment Authority

<http://www.vcaa.vic.edu.au/prep10/csf/support/icts/ictspd.html#ict>

- Creating a spreadsheet for a survey
- Creating a spreadsheet
- Inserting pictures
- Preparing PowerPoint slides

Microsoft

<http://www.microsoft.com/education/CreateTimeline.msp>

Advice on creating a timeline

Google Earth

<http://www.earth.google.com>

Teacher resources

Resource 1: Local Aboriginal Education Consultative Groups

Student materials

Worksheet 1: Land use storyboard