



# Victorian Essential Learning Standards

## Sample Unit

### Channel Deepening

Level 6 - Interpersonal Development, The Humanities – Geography, Thinking Processes

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## Introduction

In *Channel Deepening* students learn about the points of view of various stakeholders/interest groups about the controversial issue of the deepening of shipping channels in Port Phillip Bay.

As part of a team, they research one stakeholder's point of view and prepare a presentation for a small group comprising students who have each researched a different stakeholder's view.

After considering all perspectives, they prepare a final report which explains outcomes associated with intervention in a natural system and expresses a personal view.

They also reflect on how they worked in the team and how their opinions may have changed during the unit.

Suggested duration: 10 hours

For further information see the [Teaching, learning and assessment activities](#) section.

## Assessment

This unit provides opportunities for students to demonstrate achievement of elements of Level 6 standards in Interpersonal Development, The Humanities – Geography and Thinking Processes. It will also help teachers identify ways in which the Level 6 standards support students to develop facets of employability skills.

For further information see the [VELS and Employability Skills](#) section.

Students are assessed on their ability to:

- accurately interpret map information and use this to support explanations
- work effectively in a team to collect information
- explain and evaluate possible outcomes of intervention in a natural system
- reflect on how their point of view on an issue has developed and/or changed.

For further information see the [Assessment](#) section.

Teachers may wish to modify this unit and its tasks to address other contemporary issues around intervention in a natural system or include standards from different domains or facets of different employability skills.

## Acknowledgments

The VCAA acknowledges teachers from the Catholic Regional College Melton, Doncaster Secondary College and Melbourne High School who contributed ideas or materials that helped shape this unit.

## Victorian Essential Learning Standards

*Channel Deepening* provides opportunities to assess students against elements of Level 6 standards and facets of Employability Skills as detailed below.

For further information see the [Employability Skills](#) section.

Strand	Domain	Dimension	Element of standard	Related employability skill
Physical, Personal and Social Learning	Interpersonal Development	Working in teams	... they respect and build on the ideas and opinions of team members and clearly articulate or record their reflections on the effectiveness of learning in a team.	Teamwork  <i>... works as an individual and as a member of a team.</i>
Discipline-based Learning	The Humanities – Geography	Geographic knowledge and understanding	... explain the operation of a major natural system and its interaction with human activities ... and evaluate the consequence of the interaction.	
		Geospatial skills	... accurately interpret information on different types of maps ... use map evidence to support explanations, draw inferences ...	
Interdisciplinary Learning	Thinking Processes	Reflection, evaluation and metacognition	... explain conscious changes that may occur in their own and others' thinking.	Problem Solving  <i>... reflects and reasons logically and critically about problems</i>

For further information see the [Assessment](#) section.

# Teaching, Learning and Assessment Activities

This unit focuses on the different views of stakeholders/interest groups about the channel deepening of Port Phillip Bay.

The activities include:

- Activity 1: Introduction to Port Phillip Bay
- Activity 2: Points of view on channel deepening
- Activity 3: Preparation of a presentation
- Activity 4: Presentation and reflection
- Activity 5: Final report.

## Activity 1: Introduction to Port Phillip Bay

Activities	Supporting the activities	Assessment
<p><b>Key Question: Why deepen the shipping channels in Port Phillip Bay?</b></p> <p>Introduce the unit, individual and team activities and assessment.</p>	<p>It would be useful to emphasise that students will not only be assessed on their geography knowledge and skills but also on their ability to work effectively in a team to learn about the issue and to reflect on the process that influenced their final point of view.</p>	
<p>Introduce the issue of channel deepening and explain the background to students.</p> <p>Provide students with some basic details about the project. Introduce the key perspectives.</p>	<p>For background information about the project, see the Port of Melbourne Corporation's <a href="http://www.channelproject.com">Channel deepening project website</a> (<a href="http://www.channelproject.com">www.channelproject.com</a>).</p> <p>A useful document, <i>Turbidity detailed design</i>, can be found in the Environmental Management section of the website.</p> <p>It would be useful to discuss the notion of stakeholders or interest groups at this point.</p>	
<p>Provide students with a map of the geographical characteristics of Port Phillip Bay and discuss the main features.</p> <p>Explain to students that they will produce an overlay map showing the location of the existing shipping channels and where the proposed dredging will occur and respond to questions about the map.</p>	<p>For a link to maps of the port area, see the Port of Melbourne Corporation's <a href="http://www.channelproject.com">Channel deepening project website</a> (<a href="http://www.channelproject.com">www.channelproject.com</a>).</p> <p>The student worksheet <a href="#">The Dredging of Port Phillip Bay - Map Activity</a> (See <i>Unit Resources</i> page 14) includes instructions for producing the overlay map and some questions.</p>	<p>Collect students' overlay maps and responses to questions to assess Geography – <i>Geospatial skills</i>. See <a href="#">Assessment rubric</a> (See <i>Assessment</i> page 11).</p>

## Activity 2: Points of view on channel deepening

Activities	Supporting the activities	Assessment
<p><b>Key Question: What is your view?</b></p> <p>Give students at least two contrasting points of view on the project to assist them in forming an initial point of view on the issue.</p>	<p>See the Port of Melbourne Corporation's <a href="http://www.channelproject.com">Channel deepening project</a> website (<a href="http://www.channelproject.com">www.channelproject.com</a>)</p> <p>For views against channel deepening, see the <a href="http://www.bluwedges.org">Blue Wedges</a> website (<a href="http://www.bluwedges.org">www.bluwedges.org</a>).</p> <p>Students could consider the following questions when reading contrasting views:</p> <ul style="list-style-type: none"> <li>• Who is providing the view?</li> <li>• What are their key arguments?</li> <li>• What evidence do they provide to support their view?</li> <li>• How effective is their argument?</li> </ul>	
<p>Ask students to write one to two paragraphs stating their point of view on the channel deepening project at this stage and explain why they hold this view.</p> <p>Explain that they will be referring to this work later in the unit to compare with their view after they have conducted their own research and listened to views of others.</p>	<p>In explaining why they hold this opinion, students should think about what it was that influenced them at this stage such as:</p> <ul style="list-style-type: none"> <li>• their own background, interests or preferences</li> <li>• strength of the arguments or examples presented</li> <li>• persuasive language techniques</li> <li>• credibility of the source.</li> </ul>	<p>Students will refer to this again in Activity 4 for their assessment on Thinking Processes when they answer the question, 'What is my position on the issue now?'</p> <p>See <a href="#">Assessment rubric</a> (See <a href="#">Assessment</a> page 11).</p>

<p>Discuss some of the different stakeholder groups.</p> <p>Explain to students that they will be part of two teams - a home team and a stakeholder team:</p> <ul style="list-style-type: none"> <li>• each member of a home team will represent a different stakeholder group</li> <li>• stakeholder teams will research the issue of channel deepening from that perspective</li> <li>• students will then present their findings to their home team who will take notes to inform their final report.</li> </ul>	<p>Suggested stakeholder groups could include:</p> <ul style="list-style-type: none"> <li>• Blue Wedges (An anti-dredging group)</li> <li>• State government</li> <li>• Port Authority</li> <li>• Environmental Protection Authority</li> <li>• Bay users/industry groups (e.g. divers, fishers).</li> </ul>	
<p>Explain to students that they will record their reflections in a journal on the effectiveness of learning in a team and that their reflections will form part of their assessment (See Activity 4).</p>	<p>A reflective journal is an assessment tool that encourages students to record their thoughts about their learning. See the <a href="#">Reflective learning journal</a> (See <i>Unit Resources</i> page 15) student worksheet.</p> <p>More information about reflective journals can be found at <a href="#">Reflective journals</a>.</p> <p>There are several activities that involve working in a team. Students could reflect on working in both the home team and stakeholder team or focus on how well they have learnt about the whole issue as a member of the home team.</p>	
<p>Organise students into home teams and ask them to decide who will represent each stakeholder group.</p>	<p>Students may need some help in strategies for negotiating tasks in both their home teams and stakeholder teams. They could comment on the effectiveness of this process in their reflective journals.</p>	

<p>Ask students to form their stakeholder teams, devise the questions they will need to answer, and plan how they will approach their research.</p>	<p>Key questions for students to consider include:</p> <ul style="list-style-type: none"> <li>• Why is channel deepening an issue for this stakeholder?</li> <li>• What are the benefits and costs of channel deepening from our stakeholder's perspective (e.g. social, environmental and economic consequences)?</li> <li>• What arguments do they have that may persuade members of my home team to agree with my stakeholder's point of view?</li> <li>• What evidence do they have for their arguments?</li> </ul>	
<p>Allow stakeholder teams time to complete their research and return to their groups to pool and discuss their findings.</p> <p>Ask students to record their thoughts about their effectiveness in working in a team.</p>	<p>Students should consider their effectiveness in working in their stakeholder teams to:</p> <ul style="list-style-type: none"> <li>• plan their work</li> <li>• allocate tasks</li> <li>• meet timelines</li> <li>• complete the research</li> <li>• share their research.</li> </ul>	

### Activity 3: Preparation of a presentation

Activities	Supporting the activities	Assessment
<p>Provide time for students to individually prepare a presentation of the information gathered in their stakeholder teams.</p> <p>Explain to students that they are seeking to inform their home team of their stakeholder's view and to influence their opinion about the channel deepening issue with a view to persuading members of their home team to rethink their original position on the issue.</p>	<p>Questions for students to consider when planning their presentations include:</p> <ul style="list-style-type: none"> <li>• What kind of information will the group be interested in?</li> <li>• What would be the most effective way to get my information and point of view across to my team members?</li> <li>• How do I plan to influence the group?</li> <li>• What persuasive techniques might I use?</li> </ul> <p>Students should aim for presentations of around 3-5 minutes.</p>	

## Activity 4: Presentation and reflection

Activities	Supporting the activities	Assessment
<p>Explain to students that in listening to each presentation in their home team, they will need to record information to inform their final report.</p> <p>Explain what their final report will need to include (See Activity 5).</p>	<p>Students could select a thinking tool that is suitable for organising the information they collect such as:</p> <ul style="list-style-type: none"> <li>• <u>Mind map</u></li> <li>• <u>Concept map</u></li> <li>• <u>Fishbone</u></li> <li>• <u>PMI</u></li> </ul> <p>These and other examples of thinking tools can be found in the <u>Teaching and Learning Resource</u>.</p>	
<p>Explain to students that they will also be writing a response on how, if at all, their opinion has changed since the beginning of the unit and how the presentations of others influenced them.</p>	<p>Questions for students to consider include:</p> <ul style="list-style-type: none"> <li>• Who were the influential members of the group?</li> <li>• What was it about them or their presentation that was influential? (For example, expertise, tone, confidence or assertiveness, organisation of information or specific arguments.)</li> </ul>	
<p>Provide time for students to present their stakeholder information to their home teams.</p>	<p>It may be useful to organise a large area for this activity so each group has adequate space between them.</p> <p>Each home team could allocate roles such as manager and time-keeper to help keep the group on task and facilitate questions or discussion.</p> <p>See <u>Establishing Roles</u></p>	
<p>Ask students to re-read their original position on the issue (from Activity 2) and write a response to the questions:</p> <ul style="list-style-type: none"> <li>• What is my position on the issue now?</li> <li>• How has my thinking changed?</li> </ul>	<p>Questions for students to consider include:</p> <ul style="list-style-type: none"> <li>• What influenced my current opinion?</li> <li>• Is it possible that I was influenced by factors other than the information?</li> <li>• What did I learn from other students in the home team?</li> </ul>	<p>Collect student responses to assess Thinking Processes – <i>Reflection, evaluation and metacognition</i>. See <u>Assessment rubric</u> (See <i>Assessment</i> page 11).</p>

<p>Remind students that they are also being assessed on their reflections on working effectively in a team.</p> <p>Ask students to refer to their reflective journal and write a response to the question:</p> <p>How effectively did you learn about the issue in your home team?</p>	<p>Questions for students to consider in relation to learning in their home team include:</p> <ul style="list-style-type: none"> <li>• How well did team members, including you, inform others about each area?</li> <li>• Did others use strategies that you thought were highly successful? Explain.</li> <li>• Were there any unexpected difficulties in presenting the information to the team? Were you able to resolve these? If so how did you go about it?</li> <li>• If you had to do a similar team activity in the future, how could you improve?</li> </ul> <p>Students could also refer to their reflective journals to compare how effectively they worked in their stakeholder team to learn about the issue.</p>	<p>Collect student responses to assess Interpersonal Development – <i>Working in teams</i>. See <u>Assessment rubric</u> (See <i>Assessment</i> page 11).</p>
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## Activity 5: Final report

Activities	Supporting the activities	Assessment
<p>Explain to students that they are to write a final report and that this task is designed to test their knowledge of the interaction of natural systems and human activity.</p> <p>Their report should:</p> <ul style="list-style-type: none"> <li>• describe the channel deepening project in terms of human interaction with a natural system</li> <li>• outline the perspectives of the stakeholder groups that have been investigated (including any social, environmental and economic consequences of channel deepening envisaged by each group)</li> <li>• evaluate the claimed consequences of each group by assessing the strength of their argument and evidence given.</li> </ul> <p>Optional:</p> <ul style="list-style-type: none"> <li>• Outline policies to manage adverse consequences of channel deepening.</li> </ul>	<p>Apart from the overlay maps (from Activity 1) and notes that students have taken, it may be useful to share the research notes from each stakeholder group so that students have access to information about each stakeholder.</p>	<p>Collect students' final reports to assess Geography – <i>Geographic knowledge and understanding</i>. See <a href="#">Assessment rubric</a> (See <i>Assessment</i> page 11).</p>

## Assessment

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

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

The assessment tasks in this unit focus on collection of evidence of student learning for summative purposes. Some components could also be used to support assessment for learning and assessment as learning.

### Assessment guide

When assessing student achievement, assessment criteria can be developed from relevant standards and associated tasks or activities. The table below shows the assessment criteria related to the assessment task/s and relevant standards and the expected evidence to be used as the basis for assessment.

The table can also be used to assist teachers to make judgments about whether students are working *at* the standard (achieved the standard), progressing *towards* the standard (have not yet met expectations of the standard) or progressing *beyond* the standard (have exceeded expectations of the standard) for specific assessment criteria. It is provided as a guide only and may be adapted or modified to suit particular classrooms and/or student reporting.

See the [Assessment Resource](#) for advice on developing rubrics.

### Assessment Tasks – Channel Deepening Project

Evidence	Element of standard	Assessment criteria	Progressing towards the standard	At the standard	Progressing beyond the standard
<b>Geography – Geospatial skills</b>					
Map and response to questions (Activity 1)	... accurately interpret information on different types of maps ... use map evidence to support explanations, draw inferences.	Ability to interpret information on maps.	Includes some interpretation of geographical data incorporating spatial concepts.	Demonstrates accurate collection, collation and interpretation of information. Findings presented using geographical conventions.	Provides a critical analysis of geographical data associated with an issue.
<b>Geography – Geographic knowledge and understanding</b>					
Final report. (Activity 5)	... explain the operation of a major natural system and its interaction with human activities ... and evaluate the consequence of the interaction.	Ability to explain the interaction of natural processes with human activities.	Investigates and reports on the outcome of the interaction of natural processes and human activities.	Discusses the interaction of human activities with a major natural system together with the consequences of the interaction.	Develops policies to address criteria such as social, environmental and economic criteria.

<b>Interpersonal Development – Working in teams</b>					
Response to 'How effectively did you learn about the issue in your home team?' (Activity 4)	... they respect and build on the ideas and opinions of team members and clearly articulate or record their reflections on the effectiveness of learning in a team.	Ability to reflect on how well they built on the ideas and opinions of team members and learnt in a team.	Demonstrates limited ability to reflect on how they have built on the ideas of team members and on the effectiveness of learning in a team.	Shows thoughtful reflection about how they built on the ideas and opinions of team members and on the effectiveness of learning in a team.	Provides insightful strategies for learning in a team to improve future activities.
<b>Thinking Processes – Reflection, evaluation and metacognition</b>					
Response to 'What is my position on the issue now?' (Activity 4)	... explain conscious changes that may occur in their own and others' thinking.	Ability to articulate how others influenced their opinion.	Gives limited justification of the influence of others; e.g., 'He made a good point.'	Shows thoughtful justification for the use or rejection of information presented by others.	Provides detailed and considered justification for the use or rejection of information presented by others.

# Unit Resources

## Websites

At the time of publication these websites cited were checked for accuracy and appropriateness of content. However, teachers are advised to prepare their own lists of sites applicable to this unit, and to check these sites prior to students accessing them.

Port of Melbourne Corporation Channel deepening project ([www.channelproject.com](http://www.channelproject.com))

Port of Melbourne ([www.portofmelbourne.com](http://www.portofmelbourne.com))

Blue Wedge website ([www.bluwedges.org](http://www.bluwedges.org))

Port Phillip Bay Environmental study - Melbourne Water

([www.melbournewater.com.au/content/library/publications/reports/rivers\\_and\\_creeks\\_reports/Port\\_Phillip\\_Bay\\_Environmental\\_Study.pdf](http://www.melbournewater.com.au/content/library/publications/reports/rivers_and_creeks_reports/Port_Phillip_Bay_Environmental_Study.pdf))

## Teacher resources

Teaching and Learning Resource

Assessment Resource

Department of Education and Early Childhood Development's Principles of Learning and Teaching (PoLT) ([www.education.vic.gov.au/studentlearning/teachingprinciples/default.htm](http://www.education.vic.gov.au/studentlearning/teachingprinciples/default.htm))

Department of Education and Early Childhood Development's Assessment Advice ([www.education.vic.gov.au/studentlearning/assessment/default.htm](http://www.education.vic.gov.au/studentlearning/assessment/default.htm))

## Student resources

The Dredging of Port Phillip Bay - Map Activity (See page 14)

The Dredging of Port Phillip Bay - Reflective Learning Journal (See page 15)

**Resource:** Base map  
Tracing paper  
Melways/atlas

1. Using the base map of Port Phillip Bay, include the following on your map:
  - Port Phillip Heads
  - Mornington Peninsula: Sorrento, Rye, Rosebud, Dromana, Mornington
  - Frankston, Mordialloc, Brighton, Melbourne Central Business District
  - Bellarine Peninsula: Queenscliff
  - Geelong, Williamstown
  - Yarra River
  - Water depth of Port Phillip Bay (use different shades of blue)
2. Include the following on a tracing overlay:
  - Navigation channels
  - Dredging areas
  - Port of Melbourne and South East DMG (dredging material ground)
3. Remember to use appropriate symbols, colours, etc for your key. Do not forget BOLTSS (Border, Orientation, Legend, Title, Scale and Source).
4. Look carefully at your map to answer the following questions:
  - Why is this area known as a bay?
  - Is there a spatial association between water depth and navigation channels? Explain.
  - Describe the location of the dredging areas. Why have these particular areas been chosen for dredging?
  - Describe the location of the DMGs. Give reasons for their location.



## Geography - Level 6 standards assessed:

- *Physical, Personal and Social learning – Interpersonal Development*
- *Interdisciplinary Learning – Thinking Processes*
- *Discipline Based Learning – Geography*
  - *Explain the operation of a natural system and its interaction with human activities and evaluate the consequences of the interaction*
  - *Accurately interpret different types of maps, use map evidence to support explanations, draw inferences and predict associated outcomes*

## REFLECTIVE LEARNING JOURNAL

Your reflective learning journal will be used to record what you completed each lesson and your thoughts on how you can improve. It will also reflect your thoughts on the effectiveness of learning in a team.

Your reflective journal will be one assessment tool used in this unit on dredging in Port Phillip Bay.

## BEFORE LEARNING

*What do I know about the issue?*

*What do I need to know?*

***What is my opinion on this issue?***

**Own opinion (after class discussion):**

### **Presentation to home team**

- How do I plan to influence the group?
- What kind of information will the group be interested in?
- What would be the most effective way to get my information and point of view across to my team members?

**What is my opinion on the issue now (after team discussion):**

- What did I learn from other experts?