**Teacher Guide**

**Title:** How can the Western Treatment Plant help Melbourne to thrive and adapt to an uncertain future

**Description:**

In this series of lessons, students use an inquiry approach to

1. Explore how the Western Treatment Plant processes sewage
2. Investigate how this water could be used to mitigate the impacts of population growth and climate change

Working in groups allows students to learn from each other and justify their thinking, but this module could be adapted for individual or pair work

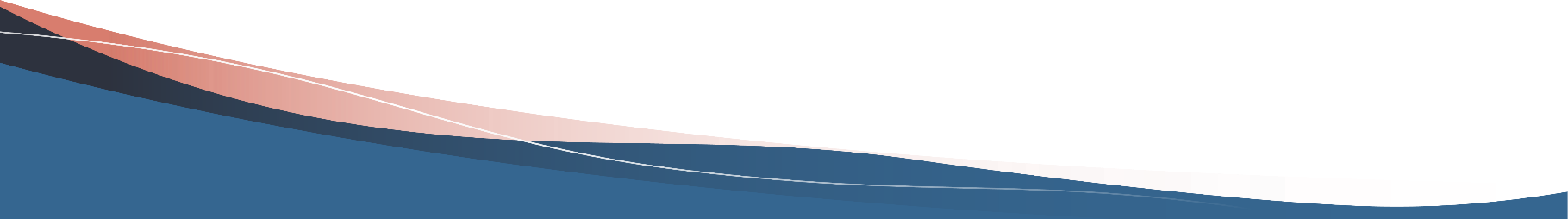
In Melbourne, demand for water is growing due to population growth and climate change. Melbourne will need to find additional water sources to secure our supply, including recycled water. At the end of the unit, students will design a campaign to address the ‘yuck’ factor of recycled effluent and encourage Melbournians to embrace the potential of the Western Treatment Plant.

**Learning Outcomes**

* Describe how water is a renewable natural resource that is finite
* Identify the different factors that contribute to water variability and the impacts of water scarcity
* Explain the different methods to overcoming water scarcity, by reducing demand and increasing the supply of water
* Understand that Melbourne's water resources will be impacted by climate change
* Know that the liveability of Melbourne depends on a safe and secure supply of water and treatment of wastewater

## **Lesson outline**

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| **Lesson** | **Outline** |
| Lesson 1: Introduction: the issues and challenges | See, Think, Wonder  Claim, Evidence, Question  Water restrictions  SEEP table |
| Lesson 2: The Western Treatment Plant | KFL Chart  Find out about the WTP, take the Virtual tour  Find out what Melbournians think - collect primary data.  Benefits of recycled water - SEE chart |
| Lesson 3: Case Study: Toowoomba | Which cities already use recycled water?  Mapping activity |
| Lesson 4: Socratic Seminar | Consolidate learning / arguments + Rubric |
| Lesson 5: Conclusion | Rubric: Social Media campaign to promote benefits of recycled water.  Presentation and feedback in the form of  ‘I like, I wonder’  Reflection & Completed KFL chart |



## **Lesson 1: Introduction**

**Length: Approximately 2 x 60 minute lessons**

Students begin the unit by examining sources from a past drought; the Millennium drought. They are presented with four sources on Victoria’s predicted climate and population growth. Students complete a SEEP table and consider the potential impacts of water shortages.

## **Lesson 2: The Western Treatment Plant**

**Length: Approximately 2 x 60 minute lessons**

Students are introduced to the inquiry question; ‘How can the Western Treatment Plant help Melbourne to thrive and adapt to an uncertain future? Using the WTP Virtual Tour students find the information they need to respond to the inquiry question. In groups, students design a survey of friends and family to find out what they know and feel about recycled water.

## **Lesson 3: Case Study: Toowoomba**

**Length: Approximately 2 x 60 minute lessons**

Students explore the controversies surrounding recycled water by considering the dilemma facing Toowoomba in 2006. They evaluate the use of referendums and research the use of potable recycled water from around the world at a selected location.

## **Lesson 4: Socratic Seminar**

**Length: Approximately 1 x 60 minute lesson**

## Students make connections between topics and articulate their conclusions during the Socratic Seminar.

## **Lesson 4: Conclusion**

**Length: Approximately 2 x 60 minute lessons**

Students use the conclusions they developed during the Socratic Seminar; and apply their understanding to the inquiry question by designing a social media campaign that encourages Melbournians to embrace the potential of the Western Treatment Plant and recycled water.

## **Victorian Curriculum v2.0**

Geographical Knowledge and Understanding VC2HG8K01, VC2HG8K02, VC2HG8K03, VC2HG8K04, VC2HG8K05, VC2HG8K06

Geographical Concepts and Skills VC2HG8S01, VC2HG8S02, VC2HG8S03, VC2HG8S04

VC2HG8S05, VC2HG8S06, VC2HG8S07

Science: VC2S8U09, VC2S8H02, VC2S8H03

Critical and Creative Thinking: VC2CC8Q02, VC2CC8R01, VC2CC8R02, VC2CC8R04, VC2CC8M03

Personal and Social Capability: VC2CP8O01, VC2CP8O04, VC2CP8O05

Ethical Capability: VC2CE8U02, VC2CE8D01