

Western Treatment Plant

GIS mapping task: Year 9&10

A GIS map uses data organised in layers of information. By turning layers on and off, data and information is revealed, and patterns and relationships can be analysed.

Introduction

In this task, students develop and use their GIS mapping and spatial skills. They consider the location of the Western Treatment Plant, land use around the site and how the site is managed..

Learning outcomes

- Navigate a GIS map including turning layers on and off and using a measuring tool
- Analyse a GIS map to develop explanations and draw conclusions
- Identify the catchment they live or go to school in
- Make connections between topography and the sites location
- Explain the spatial distribution of the sewerage network
- Compare the location of the Western Treatment Plant and the Eastern Treatment Plant

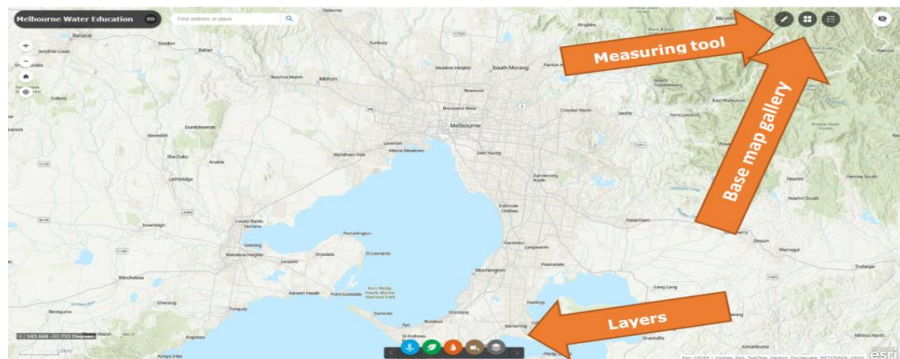
*Note: this lesson can be completed before or after your visit to the WTP

Instructions

Step 1: Navigate to an interactive [GIS map of Melbourne's waterways and catchments](#):

Step 2: Explore the map. Click layers on and off. Look at the measuring tool and different base maps

Step 3: Find the Western Treatment Plant (WTP). Show the plant and also show where Melbourne's main water storages are located. Students should note the mountainous areas east of Melbourne



Ask students:

1. Describe the location of the Western Treatment Plant.
Answer: The Western Treatment Plant is located to the south-west of the CBD and is next to Port Phillip Bay. The site is not in the mountainous areas of the city and is away from Melbourne's water catchments.

Step 4: Click on the Basemap Gallery and select 'Imagery'

2. Describe the land use around the Western Treatment Plant
Answer: The site is surrounded by open fields to the north-west, west and south-west. To the west are market gardens and to the north are residential areas
3. What other features are located around the plant?
Answer: Avalon Airport to the west, Werribee Open Range Zoo, Werribee Park, RAAF Base Williams

Step 5: Click off 'Imagery'

Step 6: Click the 'Sewers and Sewage' icon. Click 'Western Treatment Plant Carrier and Mains'.

Ask students:

4. What is this showing?

Answer: This shows a network of pipes at the WTP.

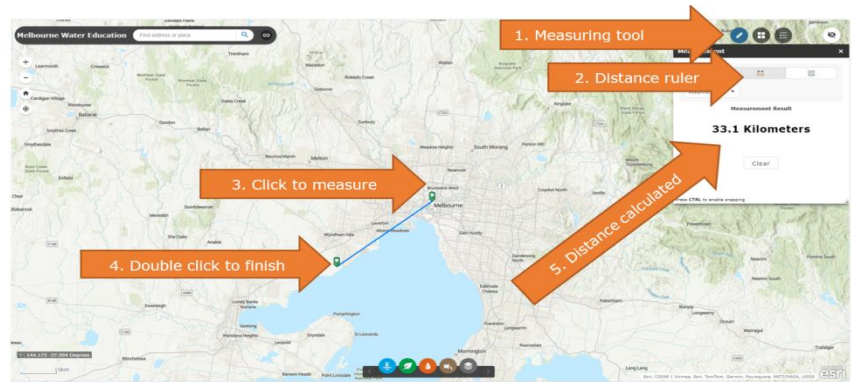
Step 7: Click the 'Sewers and Sewage' icon. Click 'Sewerage Network Main Pipelines'.

5. What do you notice about the sewerage network?

Answer: The main pipelines are networked and connected

6. Explain the spatial distribution of the sewerage network.

Answer: The main pipelines are located across the city and there is more of a network of pipes closer to the city and the south-east



Step 8: Change the base map to 'imagery' and describe the relationship between populated areas and the sewerage network.

Answer: The main pipes network is located over built up areas; the WTP is located in an area that is not built up while the Eastern Treatment Plant is surrounded by housing and located away from Port Phillip Bay.

Step 9: Zoom in to the Western Treatment Plant to get a better view. For best results, the scale should show 2 km or 3 km. Locate Pond 1 on the map.

Ask students:

7. Estimate the distance between the end of the sewerage network and pond 1. Now use the measuring tool to calculate the actual distance.

Answer: The distance is approximately 5.3km

Step 10: Turn on the layers for the Eastern Treatment Plant (ETP).

Ask students:

8. Find similarities and differences between the ETP and the WTP.

Answer: The WTP is a much larger site when compared to the ETP. The WTP has more ponds and is surrounded by more open space.

Step 11: Turn on the layer for the Water Supply Main Pipelines.

Ask students:

9. Is there a correlation between those and the sewerage network? Explain your answer.

Answer: There is little correlation between the two. The water supply main pipelines extend into the east and north-east of the city.

10. Explain how this network of pipes providing water and removing sewage are important for sustainability and human wellbeing.

Answer: Answers will vary but could include a response that outlines the importance of providing safe drinking and removal of wastewater. This is important for the environment, the economy and society.

Victorian Curriculum Geography Year 9&10 v2.0 Links

Geographical Knowledge and Understanding: VC2HG10K10, VC2HG10K11, VC2HG10K14

Geographical Skills: VC2HG10S02, VC2HG10S03, VC2HG10S04