

Educational resources

Year 7-8: Geography

Urbanisation, water scarcity and waste water treatment - regional and global perspectives our region



Lesson overview, to be utilised in conjunction with **Urbanisation, water scarcity and waste water treatment - regional and global perspectives** PowerPoint presentation

Curriculum links

Geography / Levels 7 and 8 / Geographical Concepts and Skills / Place, space and interconnection - (VCGGC101)

Content description

- Identify, analyse and explain interconnections within places and between places and identify and explain changes resulting from these interconnections.

Elaborations

- Describing how water is an available resource when it is groundwater, soil moisture (green water), and surface water in dams, rivers and lakes (blue water), and a potential resource when it exists as salt water, ice, water vapour or waste water, and using the concept of the water cycle to show the connections between the different forms.
- Examining how urbanisation can affect environmental quality and analysing the effects of erosion and sedimentation produced by human activities on landscape quality.

Geography / Levels 7 and 8 / Geographical Concepts and Skills / Place, space and interconnection - (VCGGC099)

Content description

- Explain processes that influence the characteristics of places.

Elaborations

- Discussing urbanisation as a shift in where, how and why people live where they do.

Geography / Levels 7 and 8 / Geographical Knowledge / Water in the world - (VCGGK108)

Content description

- Nature of water scarcity and the role of humans in creating and overcoming it, including studies drawn from Australia and West Asia and/or North Africa.

Elaborations

- Investigating the causes of water scarcity. For example, an absolute shortage of water (physical), inadequate development of water resources (economics), or the way water is used.
- Comparing the effectiveness in reducing water scarcity of methods that increase the supply of water (such as recycling waste water, stormwater harvesting and re-use, desalination and inter-regional transfer of water) with methods that reduce the demand for water (such as pricing, changing the use of water and water restrictions).



Content description

- The quantity and variability of Australia's water resources compared with those in other continents and how water balance can be used to explain these differences.

Elaborations

- Investigating the main causes of rainfall and applying their geographical knowledge to explain the seasonal rainfall patterns in their own place and in a place with either significantly higher or lower rainfall.
- Interpreting the spatial distribution of rainfall in Australia and comparing it with that of other continents.
- Using the concept of the water balance (the relationship between rainfall, evaporation and runoff) to explain the differences between Australia and other continents in water resources.

Learning intentions

- To examine the global impacts of water scarcity.
- To examine how Wannon Water treats wastewater and utilises recycled water in the region.
- To research global water innovations that have been designed to reduce water scarcity impacts.

Success criteria

- I can understand the causes of water scarcity.
- I can compare the rainfall in our region to rainfall in other continents.
- I can understand how Wannon Water recycles wastewater.
- I can explore global water innovations and explain the key features and benefits of various innovations.

Lesson overview

Using the supporting PowerPoint presentation: **Water catchment, treatment and supply in our region**, explore the content and discussion points as outlined below.

Slides 1 - 5:

Wannon Water information and introduction.

Slides 6 - 7:

Unpack the **Learning intentions** and **Success criteria**.

Slides 8 - 9:

Lesson introduction - Water scarcity - what is it? Class discussion, led by teacher. Exploring a solution.

Slide 10:

Discuss - How is recycled wastewater used in the Wannon Water region?

Slide 11:

Discuss - When you flush the toilet, have a shower or wash your car, do you know where this wastewater goes?

Slides 12 - 20:

A detailed overview of how wastewater is treated and used in our region.

Slide 21:

Class discussion, led by teacher - Could the effluent be recycled for other uses?

Slides 22 - 23:

Investigate - Wannon Water region rainfall vs global rainfall stats. Some areas of our world have much lower rainfall than our region. Explore the data and discuss.



Slides 24 - 25:

Introduce the Research task. Explain that innovators around the world are coming up with solutions to ensure water security into the future. Students will research one global water innovation, as outlined on Slide 25.

Students select from activity menu, research a water innovation and outline the key features and benefits. Share research activities as a class.

Slide 26:

Water innovation research example provided - review and discuss with students.

Slide 27:

Global water security innovations: website links for research/ideas provided.

Slide 28:

Students present their water scarcity innovation research tasks and reflect.

Slide 29:

For consideration, extension opportunities are provided.

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