

# Years 5 and 6 science

## Sustainable water sources

**Australian Curriculum links:** Scientific knowledge is used to solve problems and inform personal and community decisions (ACSHE083/ACSHE100)

**Sustainability cross-curriculum priority**

In this lesson, students research [alternative water sources](#) such as desalination, recycled water, stormwater, rainwater and greywater. They use this information to design a water and energy saving solution to a water supply problem.

### Equipment

For the class

- [Total water cycle management](#) poster

For each student

- building materials such as:
- Lego blocks
- icy pole sticks
- pipe cleaners
- tape
- plasticine

### Preparation

For some teacher background information about these topics go to:

- [The water cycle package: Guideline for use](#) from page 4
- [Water sources in Queensland](#)
- [Fact sheet about the Gold Coast Desalination Plant](#)
- [Desalination](#) in Western Australia

### Lesson steps

1. Display 'Total water cycle management' poster on computer or electronic whiteboard. As a class, discuss the components of the 'Total water cycle management' poster. Follow the coloured lines (pipes) to see where the different types of water go.
2. Students choose a coloured line and research (via the internet or books) a type of water:
  - desalination
  - recycled water (including purified water)

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- stormwater
  - rainwater
3. Students write a short description of their chosen type of water including the source, treatment (if any) and uses. For example, wastewater is water that we produce in the shower, bath, toilet, bathroom, washing machine, dishwasher and kitchen. It, along with any other waste, goes into our sewerage system and ends up at the wastewater treatment plant where it is treated and turned into recycled water. Treated wastewater can be used for irrigation and watering recreation reserves.
  4. Students form small groups and share their descriptions. It is better if members of the group have chosen a different type of water so group members will hear all the different descriptions (e.g. jigsaw research strategy).
 

In a **jigsaw research activity**:

    - students are divided into home groups
    - number of students in each home group matches the number of topics to be researched
    - different topics assigned to each member of the home group
    - students then form topic (expert) groups, research and discuss
    - students return to their home groups and share learnings with their original group.
  5. Students discuss:
    - Why is it important for sustainability to have sources other than drinking water?
    - What purposes are the different types of water used for?
    - Are there any other ways we can harness or capture water from alternative sources?
    - What are the benefits of sustainable water sources?
    - What are some of the problems with alternative water sources?
    - Does the process use a lot of energy? If so, how is the energy use reduced or minimised? (e.g. the use of energy recovery technologies or sustainable power sources such as wind power in desalination plants at the Gold Coast or Western Australia).
  6. Students create an innovative solution to a water supply problem using building materials. Their innovation should be water and energy-efficient. For example, a big problem with wastewater is that wet wipes are wrongly flushed and block the pipes. A solution may be a bin on the side of every new toilet that reads 'Don't flush wet wipes'.
  7. Students share their solutions and designs with the class.