

School Eco-Club Climate Repair Activity: Saving Water

AIM: Determine a target for Daily Water Use Per Person (Litres) in North Hertfordshire

BACKGROUND

The short films listed below can be used to help students understand the problem that excessive water use can cause for the local environment and give them an insight into the water saving activities being promoted by our local supplier, Affinity Water.

- Where Our Water Comes From (www.youtube.com/watch?v=A8XM3mppfyw, 3.5 minutes)
- Rivers Down the Drain - Herts and Middlesex Wildlife Trust (www.youtube.com/watch?v=i42JBqhULxA, 9 minutes)
- 5 Days of Water Saving (www.youtube.com/watch?v=DCYcVPyjkOI, 2.5 minutes)

ACTIVITY

1. Find out how much water your family uses

Ask students who have a water meter to collect the following information from their last two water bills (which should cover a year):

- Period Covered (days):
- Volume of Water Used (litres):

GOING INTO THE DETAIL

Your meter readings

Previous: **2,070 Actual (27/06/2018)**

Current: **2,115 Actual (15/12/2018)**

Volume used: **45m³ (45,000 litres)**

Each student can then use this data to calculate the Average Litres of Water Used Per Person Per Day in their home over a year. Collect this metric in by class / year group / school to produce different sized data samples. Students can plot or statistically analyse this data to explore:

- The mean and distribution of the data and how these vary by sample size
- Whether there is evidence of data clusters, which may be explained by different behaviour patterns.
- If there are any outlying data points (anomalous values).

2. Evaluating the effectiveness of online models for estimating water use

Ask students to collect the answers to the following questions:

- a) Number of people in the household?
- b) Number of baths taken in the household per week?
- c) Number of showers taken in the household per week?
- d) Number of times toilet flushed per day?
- e) Washing machine use (weekly)?
- f) Dishwasher use (weekly)?
- g) Use of garden hose (hours per year)

Allow the students to access the water calculator

<https://www.anglianwater.co.uk/help-and-advice/save-water/water-usage-calculator/#> and ask them to use this and the answers to the questions above to predict their household water usage.

Ask the students to compare the predicted water use from the calculator with actual use. Do the students think this calculator is good at estimating their family water use?

3. Understanding how we use water

If:

- Underlying water use for each person is calculated at 11,000 litres per year. This takes into account drinking, cooking, washing up, brushing teeth and other miscellaneous uses.
- The average bath uses 80 litres.
- The average shower, including power showers, uses 46 litres.
- The average toilet, including dual flush, uses 7.5 litres per flush.
- The average washing machine, including those with an Eco-setting uses 56 litres per wash.
- The average dishwasher, including those with an Eco-setting uses 25 litres per wash.
- The average hosepipe, with or without a gun nozzle, uses 800 litres per hour.

Ask the students to use this information, along with their family activity record, to determine the proportion of their families' water use by activity and illustrate the result in a pie chart. Compare charts for high water users with lower water users to see if you can identify the activities that make the most difference to water usage.

Affinity Water supply our water, find out about water saving devices they offer and promotional leaflets. How effective do you think these will be for reducing water use?

4) Determine a Target for Daily Water Use Per Person Per Day for North Hertfordshire

A 2008 campaign in Queensland Australia called Target140

(<https://www.governmentnews.com.au/educational-campaign-shifts-queenslanders-water-habits/>)

gave a clear message in the campaign title about what was an acceptable level of water use (from a baseline of 181 litres a day). Here in the UK Southern Water have established a Target 100 campaign. In our area customers use on average 158 litres each per day.

Use your school's data to help you determine a value for North Hertfordshire Target for daily water use per person?

EXTENSION ACTIVITIES

Working through this project would have raised awareness and hopefully provided students with ideas on how their family could reduce their water use. Follow up activities that the school could do are:

- Invite Affinity Water to give a presentation on their work and seek to persuade Affinity Water to adopt the school's proposed target.
- Identify what changes people are most likely to need to make to achieve significant water savings and devise a water saving campaign based on your results.