



Energy Consumption for Showering

Project / Experiment (approximately 60 minutes + homework)

Task Description / Instructions for Teachers

The shower card shows that showering has a significant climate impact. The climate impact of a shower depends on the water temperature, the amount of water used (which in turn depends on the type of shower used and the duration of the shower), and the method of heating the water.

In this project, the students get to:

- determine the amount of energy used to heat the water they use for showering during one week, and:
- explore whether it is better to reduce each shower's duration by five minutes or to decrease the water temperature by five degrees, to save energy.

Let the students begin by formulating a hypothesis. Then let them plan and execute an experiment to investigate the questions. Let them perform the necessary measurements and calculations, and conclude by writing a short report that describes the methodology and results.

After completing the project, let the students compare and discuss the methods and results in small groups or in the whole class. Do the results differ? If so, how? What sources of error can be identified?

Bonus task: Extend the exercise by also estimating the cost of showering one week.

Suggested Solution

The idea is that this should be a free task, where students get to plan and carry out the project. One way to solve the task is to measure how much water is flushed during one minute, estimate the weekly shower duration, measure the temperature of the shower water, and estimate the starting temperature of the water to calculate the amount of energy required. The students also need to take into consideration how the water is heated.

Tip: Look at how we have calculated the emissions associated with showering (explained on our website at: https://climatecallgame.com/calculations/housing/front_housing1/)

Expected Learning Outcomes

After completing the project, the students will have gained:

- a deeper understanding of the climate impact of showering, considering variables like water temperature, duration, and heating methods;
- practice in how to develop and test hypotheses regarding energy-saving strategies;
- experience in conducting experiments, recording data, analyzing results and interpreting experimental findings.