Electricity Use at Home

Teacher Notes

Secondary (7-10)

ACTIVITY DESCRIPTION

The Electricity Use at Home activity develops students' auditing skills and raises awareness around energy consumption at home. The exercise enables students to learn where electricity is used at home, investigate how much is used and the frequency of use over time. Students are then able to readily identify where electricity use is highest and develop recommendations for energy saving opportunities.

INSTRUCTIONS

1. Describe your home

Describe your home. Consider information about the building material, its size, number of rooms, the building's age and how many people live there. Identify if your heating and cooking is electric or gas.

2. Electricity Use at Home Survey

Read through the student worksheet for the 'Electricity Use at Home' survey. Look through the table of electric appliances and calculate how much electricity you use per item monthly, estimating first how many hours you use each item per week. Where is your electricity use the highest and/or lowest? Does anything surprise you?

3. Discussion

1. What five appliances use the most electric energy at home? Why?
2. Where do you see opportunities to save electricity? How?
3. Compare your data with someone else from your class.
   a) How did your electricity use compare to your classmate's? What was similar or different?
   b) What external factors (such as building size, material, number of inhabitants, etc.) may affect electricity consumption between your two homes?
   c) What other behavioural factors affect electric energy consumption in the home?

SUGGESTIONS FOR ASSESSMENT

Formative

1. Participation in the Electricity Use At Home survey
2. Participation in the Discussion questions above

CERES SCHOOL OF NATURE AND CLIMATE

BACKGROUND NOTES

The Electricity Use at Home activity develops students' auditing skills and raises awareness around electric energy consumption at home. 73% of Australia's electric energy comes from the burning of brown coal, a fossil fuel that releases carbon emissions into the atmosphere contributing to climate change. This exercise enables students to learn where electricity is used at home, investigate how much is used and the frequency of use over time; daily, weekly and annual consumption. Students are then able to identify where electricity use is highest and develop recommendations for electric energy saving opportunities.

ResourceSmart Schools can access Energy Auditing Kits from the ATA at a discounted rate. Speak to your facilitator to find out more.

ACCESS THIS ACTIVITY

Visit the **CERES School of Nature and Climate website** to download the activity - https://sustainability.ceres.org.au/education-resources/curriculum-activities/

Curriculum and RSS Links

KEY CONCEPTS

Energy Use, Electricity, Conversions

KEY LEARNING INTENTIONS

1. Students will be able to identify where electricity is used at home
2. Students will be able to calculate electricity use of various appliances over time
3. Students will be able to order where electricity use is highest and develop recommendations for energy saving opportunities

VICTORIAN CURRICULUM

Mathematics

7 – 8	9 – 10
Identify and investigate issues involving numerical data collected from primary and secondary sources (VCMSP268) Find percentages of quantities and express one quantity as a percentage of another, with and without digital technologies (VCMNA248)	Identify everyday questions and issues involving at least one numerical and at least one categorical variable (VCMSP324)

Science

9 – 10
Electric circuits can be designed for diverse purposes using different components; the operation of circuits can be explained by the concepts of voltage and current (VCSSU130)

CERES SCHOOL OF NATURE AND CLIMATE

SUGGESTED RESOURCESMART SCHOOLS MODULE LINKS

Undertaking the activity as described above links to the ***ResourceSmart Schools Energy Module - actions B1.2, B1.3***

Below is a list of extension activities that link to additional actions of the Energy module:

1. Develop an action plan to implement energy saving actions and systems at home based on your recommendations. Survey parents on their attitudes to energy saving at home ***(ResourceSmart Schools Energy Module – actions B1.1, B1.3, C3.4)***
2. Construct a pie or bar graph to present and compare your data. Present your findings and energy saving recommendations in a school newsletter or at assembly ***(ResourceSmart Schools Energy Module – actions B1.3, B1.4, C1.1, C1.3)***
3. Investigate energy efficient strategies for the home and then include Energy Saving Tips in your school newsletter for families. You can explore Sustainability Victoria's site on Energy Saving At Home for ideas ***(ResourceSmart Schools Energy Module – actions C1.1, C1.3, B1.3)***
4. Extend investigation to audit electricity use in the school classroom and develop a recommendation report to present to school leadership or council ***(ResourceSmart Schools Energy Module – action B1.3)***
5. Invite a local indigenous group to share their traditional perspectives on the seasons, as well as different forms of energy used to meet their needs for comfort and everyday tasks ***(ResourceSmart Schools Energy Module – actions B1.5, B1.6)***
6. Engage with students from other school(s) interstate or overseas to compare their energy use at school and home, to your own. Reflect on how different places and people adapt their behaviours, including their use of electricity, or the ways different cultures dress, in response to the weather and seasons ***(ResourceSmart Schools Energy Module – action C3.7)***

Speak to your CERES ResourceSmart Schools Facilitator about further links to the Energy module.