



WORLD'S
LARGEST
LESSON

"Mankind is the main factor in global climate change. To protect our world for future generations, as teachers, we must provide practical opportunities for children to make a difference. We must encourage them to unite as global citizens."

Lindsey Hassan
Teacher, Wingrove Primary School, UK

An Energy Project for the Global Goals

Subjects

Maths, Geography

Learning Outcome

- To analyse and reduce energy and paper use in your school, and maybe to compare with others around the world that you are connected to (if possible)
- To present and interpret data in tables and charts
- To use data as evidence in report writing

Preparation

- This is a six month project. You will need to prepare your students to undertake a regular data collection activity. The purpose of the data collection will be to collect information about school energy consumption.
- Set up a ten minute preparatory presentation with your class to make students aware of the project and prepare them to collect data over six months.
- Ideally, this project and lesson will make use of international links that your school has. It would be great to have several schools from around the world all collecting the data ready to share. If your school only has one link school or none at all then you could do it as a class or school exercise comparing data over the first three months with data over the second three months.

Total Time:

60
mins

Age Range:

8-11
year olds



World's Largest Lesson is a collaborative education project to support the announcement of the United Nations Global Goals for Sustainable Development. The project is living proof of the importance of Global Goal 17 "Partnerships for the Goals" and would not have been possible without the help of all of our partners working with us and with each other.

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Preparation continued

- If you are collaborating with other schools, the project could be led by a group of students in each school who would be assigned Eco-Warrior roles and could communicate with each other via monitored email exchanges. However this is not essential.
- From the start of the project, each school will monitor their energy usage and paper waste. This will be done through electricity meter readings taken fortnightly by the students. Gas usage can also be monitored – methods for this will vary depending on the countries involved. Paper waste will be collected in bags and weighed weekly. Data will be collected over 6 months.
- During this time, the students will be sharing ideas on how we can reduce waste. They will be discussing this with other schools internationally and sharing initiatives by email, sending posters, writing letters, taking photographs of good and bad practice, etc. If your school does not have international links then this can just be a class project.
- The students could also monitor and compare water usage depending on the countries involved and the equipment available.
- The results from the monitoring will be recorded in tables. These will be collated and shared with all schools involved in the project.

Project Introduction Learning activity

5
mins

Introduce the students to the project, explain there are two main aspects: (i) data collection and analysis about energy use at school; (ii) thinking about ways to reduce energy use.

Learning Activity

10
mins

Show students how to collect energy data (you may need to prepare a bag of waste and scales, or similar, beforehand, to demonstrate) and agree with students who will undertake activities and explain international collaboration (if you are going to do this).

Every 2 Weeks for 6 Months

Set aside a short time in class every two weeks. Remind students of the project and check on progress of data collection; introduce one possible idea for reducing energy use - e.g. focusing on electricity - inviting students to make suggestions, prompting if they struggle, and encourage action steps.

After six months, with six months of data collected, you can follow this lesson plan to analyse, present, and develop understanding of the data:

Project Conclusion Lesson Plan

5
mins

Present the students with the findings of the data collection for your school and others (if any) involved in the project. If there are several schools involved, can the students predict which school the data belongs to? Ask students to justify their ideas.

Differentiation and Alternatives

If there is more than one school involved, additional information could be provided for each school, such as some basic, general weather information and length of school day. This would help inform students' ideas.

Learning Activity

10
mins

Interpret the information presented in tables.

Begin with electricity. Display two sets of results but don't say which school (or if just your school, which time period - first six months, or second six months) they are from. What does the information tell us? Which of the schools, or which time period, has the highest usage? Is there anything surprising about the data?

Repeat a similar question and answer session using two examples of data collected for gas usage.

Then repeat again with two examples of data showing paper waste.

Divide students into groups. Each group has responsibility for one of the countries or time periods involved in the project. Tell the students which country they are and give students the data.

Ask them to calculate how much energy has been used in total over the data collection time period.

Differentiation and Alternatives

Alternatively, you could give students a set of data for each of the variables collected – electricity, gas and paper – and ask them whether they see any similarities or trends between them. Can they explain why?

Students could calculate the total amounts for one or all three sets of data collected, depending on ability.

Learning Activity

30
mins

Present the data in charts

Teach the students how to present the data as a graph (this could be line graphs or bar charts depending on the abilities of the students).

Each group should have 3 sets of results for their country or time period (electricity, gas and paper waste). Each group shares out the results tables so that each student can present one set of data as a graph. This could be done on squared paper or a computer depending on the resources available in the school.

Differentiation and Alternatives

For younger or lower ability students, they could complete part-prepared graphs rather than completing a whole one from scratch.

For older or higher ability students, they could complete two different graphs using the same data and compare them.

Learning Activity

20
mins

Each group will present their graphs to the other students to allow comparison (remembering previous discussions about reducing energy use) and discussion about energy consumption and waste reduction of the school(s) involved.

Students should explain general trends, any anomalies, or points that stand out on their graph. Try and help students to understand the reasons for different amounts of energy consumption and waste reduction in different parts of the world.

Differentiation and Alternatives

If the technology is available there is an opportunity here to use video conferencing or Skype and students present their findings to their international partners where other schools are involved.

Learning Activity

5
mins

Ask students to come up with a sentence that explains one thing they have learnt about energy use, in their school and/or schools in the different countries studied.

Differentiation and Alternatives

Use the Global Energy Statistical Yearbook (<https://yearbook.enerdata.net/energy-consumption-data.html>) to compare more data on energy used around the world.

Follow up activities

- Students will write reports for the head teacher (and/or partner schools) explaining what they have found out and detailing ideas about how they can reduce energy use and waste. The report should mention which Global Goals are connected to energy and how their actions to reduce energy use in school and locally can have a wider impact globally.
- This could be part of an ongoing project where schools continue to work together to address environmental issues at school, which can then be followed through at home and in their communities.
- For further ideas and for younger children, go on an exciting adventure with Simon the Hippo and friends as they learn about the world's changing climate, the role of carbon dioxide and methane, and the good eco-habits we can all develop. Visit <http://gumroad.com/l/gMOcH>. Please note this film and resources are free to use. The donation is suggested only and not required.

Take Action for the Global Goals

As an educator you have the power to channel students' positive energies and help them believe that they are not helpless, that change is possible, and that they can drive it.

The Design for Change "I Can" School Challenge invites children to take action, make change for themselves and share it with children across the world.

Visit www.dfcworld.com to get started.

To download a Design for Change lesson pack or a simple advice pack for young people to take action themselves visit www.globalgoals.org/worldslargestlesson

DESIGN for
CHANGE

Date	Electricity meter reading	Gas meter reading	Weight of waste paper