

Engineering challenge: Our island is going renewable – challenge 1

Introduction

The inhabitants of an island are considering stopping using fossil fuels to generate electricity. Before going ahead with this step they need to do some research and planning and have asked you to help them with this process. Over the coming week you and your team will be involved in a number of challenges, which will culminate in an exhibition where you display the results of the learning you have been doing in sciences, technologies and geography.

Your exhibition stand should help the islanders understand some of the issues they will need to consider if they are going to stop using fossil fuels to generate electricity.

Success criteria will be negotiated at the beginning of the week's challenges.

Challenge

An important part of any energy plan for a community would include consideration of energy consumption and ways to reduce this. Advise one of the following user groups about the use of energy to support their lifestyle/business:

- an elderly couple who are retired and live in a small cottage
- a family consisting of a mother, father and two teenage children, living in a three bedroom detached house. The father works at the local school, the mother works at the slate mine and the children attend the local school
- a family consisting of a mother and father and a baby aged 6 months, the mother is a full-time mum, and the father works in the timber mill
- the local post office/community shop
- the head teacher of the island school, which has 250 pupils

What you will need to consider

Choose a user group and create a client profile for them. Consider the use of energy by the client you have chosen to advise

You might want to consider how to chunk up the challenge. Some ideas are listed below to help you:

- List the electrical equipment that your client might have in their home/business/community establishment.
- Think about a typical day they might have, the items they use that need electricity to work and the estimated length of time of usage.

Questions to help your thinking:

- Which community/business services does your client consume?
- How could your client and the other islanders reduce their consumption?

Presenting your findings

Create materials to form part of your exhibition stand to show your client some of the ways they could reduce their energy usage. The advice included could be presented in a range of ways, for example, a report or leaflet with advice and suggestions including data, for example, lists, tables, graphs on the amount of energy used by different devices and analysis of cost savings.

Reflection

- Which skills did you use when working on this challenge?
- What knowledge did you need?
- Where might the learning from this challenge be useful?
- In what ways can you relate the learning from this challenge to your own energy usage?