|  |
| --- |
| **What is fuel poverty** |
|  |  |  |
| Discuss what is meant by fuel poverty |
| **Subject(s):** Science, Design & Technology, Mathematics**Approx time:** 15 mins |  | **Key words / Topics:** * functional maths
* contextual maths
* fuel poverty
 |
|  |  |  |
| **Suggested Learning Outcomes** |  |  |
| * To understand that mathematics is used as a tool in a wide range of contexts
* To understand what is meant by fuel poverty
 |
|  |
| **Introduction** |  |  |
| In the Fuel Poverty scheme of work, students investigate the topical issue of the cost and efficient use of energy. Using functional mathematics, they will analyse and interpret published facts and figures.  |
| **Purpose** |
| In this activity, students will investigate what is meant by fuel poverty. This could be used as a starter activity in maths or design & technology, with a focus on economic reasons for the development of sustainable power sources. |

|  |  |  |
| --- | --- | --- |
| **Activity** |  | **Teacher notes** |
| Show the students slide 2 of the presentation. Ask the students to work in pairs, to discuss:* What is meant by fuel poverty?
* What are its causes?
* Why it is a problem?

Each pair should then share their conclusions with the class.These should then be compared with slide 3 of the presentation. |  | Fuel poverty is usually defined as when, in order to heat the house to an acceptable standard [21°C in the main living room, 18°C elsewhere], a household needs to spend more than 10% of its income on energy. The main cause of fuel poverty in the UK is a combination of poor energy efficiency in homes and low incomes. Other factors include the size of some properties in relation to the number of people living in them, and the cost of fuel. Fuel poverty damages people’s quality of life and imposes wider costs on the community. The most direct effects are in relation to the health of people living in cold homes. Older people, children, and those who are disabled or have a long-term illness are especially vulnerable, although these risks apply to all people. |
| **Differentiation** |  |  |
| **Basic** |  | **Extension** |
| A list of different potential direct causes of fuel poverty could be provided – some of the list would be valid (e.g. high fuel costs, low incomes etc.) and some not valid (e.g. reduced fuel costs, global warming, cavity wall insulation). Students would have to choose potential causes from the list and justify their selection. This could either be carried out in pairs or as a class activity, where selected individuals would choose one of the list items. |  | Using the internet, students could identify:* The average annual electricity & gas bills (for example, [www.ofgem.gov.uk](http://www.ofgem.gov.uk) is a useful source of information) and the average annual salary and take home pay.

How the cost of electricity and gas (for domestic use) has changed over the last 10 years. |
| **Resources** |  | **Required files**  |
| **>** Projector/Whiteboard |  |  What is fuel poverty presentation |
| **Related activities (to build a full lesson)** |  |  |
| **Starters** (Options)* VIDEO: Power House
* ACTIVITY: Keeping Warm 1
* ACTIVITY: **Fuel Poverty 1**

**Main** (Options)* ACTIVITY: Keeping Warm 2
* ACTIVITY: Fuel Poverty 2
* ACTIVITY: Heating through the Ages
* ACTIVITY: Burning Water 1 (Practical)
* ACTIVITY: Burning Water 2 (Research)
 | **Plenary*** Opportunities within activity for presentations, peer/self assessment
* Reflection on Objectives and PLTS skills used
 |
|  |  |  |

|  |
| --- |
| **The Engineering Context** A black and white logo  Description automatically generated |
| * **The story** Power House
* **How it works?** Baxi’s Ecogen Boiler
* **Who makes it work?** David Willets
 |

|  |
| --- |
| **Curriculum links and PLTS** |
| **England**Science * KS3 23d

Design & Technology * KS3 3d

Mathematics**>** KS3 1a, 1g, 3b, 4l | **Northern Ireland**Technology & Design(Objective 2) Developing pupils as Contributors to Society* Ethical awareness

(Objective 3) Developing pupils as Contributors to the Economy and the Environment* Economic awareness

Learning Outcomes* Work effectively with others
 |
| **Scotland** | **Wales** |
| **GCSE D&T**AQA D&T* 3.1.2

Edexcel D&T* 1.3

Eduqas D&T* 2.1 Core: 3

OCR D&T* 3.2
 | **GCSE Engineering**AQA Engineering* 3.1.3
 |
|  |  |

|  |
| --- |
| **Personal, learning & thinking skills (PLTS)** |
| **>** Team worker**>** Effective participator |