

Saving on heating bills

Introduction

During the winter, people spend a lot of money heating their homes. However, people can make changes in their homes to reduce unwanted energy transfers and reduce their heating bill.

In this activity you will use your research skills to find out:

- where unwanted energy transfers occur in homes
- how energy is transferred from homes to their surroundings
- how these energy transfers can be reduced
- how to decide which of these methods are cost-effective.

You will be using your literacy skills to produce a leaflet for house-holders who want to know what they can do to reduce their heating bills.

Brief

You will produce a leaflet for house-holders who want to know what they can do to reduce their heating bills.

Your leaflet should:

- describe how energy is transferred by conduction and convection
- state where unwanted energy transfers take place in the home
- describe different methods of reducing unwanted energy transfers in the home, and explain how they work
- explain what is meant by payback time
- fit on one folded piece of A4 paper
- be suitable for people with no scientific knowledge.

Step 1

Make sure you understand how energy is transferred by conduction and convection. You can use your book and the first source to help you.

Step 2

Research the following topics:

- where unwanted energy transfers or 'heat loss' happens in the home – find an appropriate picture and add labels to illustrate this
- how to reduce unwanted energy transfers, by conduction, in the home
- how to reduce unwanted energy transfers, by convection, in the home
- what is meant by 'payback time'.

Step 3 (extension)

People can use different types of fuel to heat their homes. List some of the fuels commonly used in the UK, and give some advantages and disadvantages for each.

Step 4

Plan appropriate sub-headings to structure your leaflet and lay out the important information you want to include. Choose at least six different ways to reduce unwanted energy transfers in the home – make sure you have described these and have included information on their payback time.

Step 5

Make your leaflet.

Sources**Conduction and convection**

This website explains how energy is transferred by conduction and convection:

www.bbc.co.uk/bitesize/ks3/science/energy_electricity_forces/energy_transfer_storage/revision/5/

Unwanted energy transfers and saving on heating bills

These websites contain information on where unwanted energy transfers occur in the home, and compare different ways to reduce 'heat losses':

<http://www.fynefutures.org.uk/tzcb/2014/04/08/heat-loss/>

<https://www.aberdeencity.gov.uk/services/housing/home-energy-efficiency/home-energy-savings>

Payback time

This describes what is meant by the term 'payback time':

<https://www.bbc.co.uk/bitesize/guides/z3xb4qt/revision/7>

Fuels for heating homes (extension)

This website describes different heating fuels and includes information about their costs, as well as advantages and disadvantages:

www.uswitch.com/energy-saving/guides/heating-fuel/

Writing frame

You will produce a leaflet for house-holders who want to know what they can do to reduce their heating bills. Summarise your research findings on the key areas below.

How is energy transferred by conduction and convection?

Where do unwanted energy transfers take place in the home?

How can energy transfers by convection be reduced in the home?

How can energy transfers by conduction be reduced in the home?

What is meant by the term 'payback time'?

What are the advantages and disadvantages of the different fuel types used for heating? (extension)

Important points

- Make sure your leaflet fits on one folded piece of A4 paper.
- Use interesting pictures and language that people with no scientific knowledge can understand.
- Make sure you include at least six different ways to reduce unwanted energy transfers in the home.

Your work

You have now made a leaflet for house-holders who want to know what they can do to reduce their heating bills.

Look at the questions below and check whether you have met all the criteria given in the brief.

- Have you described how energy is transferred by conduction and convection?
- Have you shown where unwanted energy transfers take place in the home?
- Have you explained what is meant by 'payback time'?
- Does your leaflet describe at least six different ways to reduce unwanted energy transfers in the home, including information on their payback time?
- Does your leaflet fit on one folded piece of A4 paper?
- Is the information suitable for people with no scientific knowledge?