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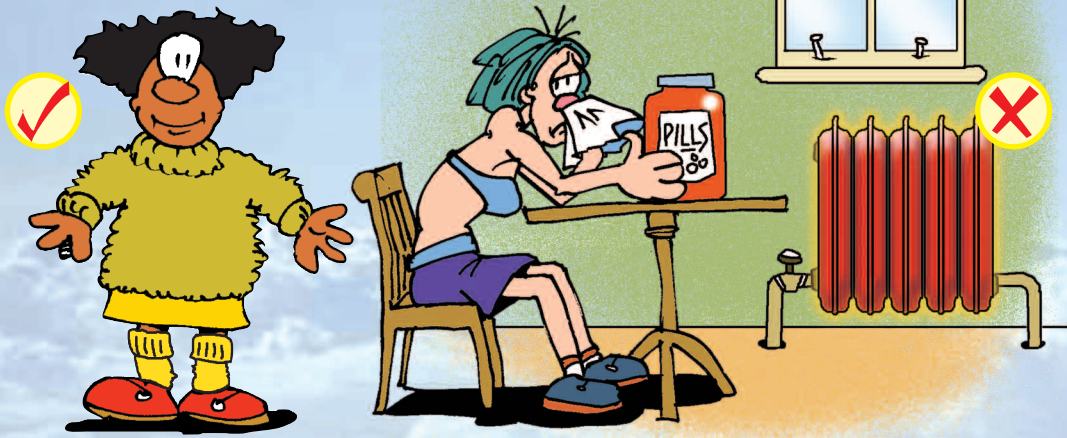


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extravagant Energy

We all waste energy around the home. As a nation we waste about £5 billion of energy each year. The great thing about saving energy is that it's mostly a way of saving money too. There are many things we can do, some of which cost nothing except a little thought and which save us money. Others cost a little more, but also save more in the long term.



No-cost savers

- **Turn the heating down**, wear a jumper and thicker socks or slippers. If we turn the main thermostat down by 1°C we can cut our heating bills by up to 10% per year. Only heat rooms you are using at the time. **If you have heating on a timer** check the clock times, turn down bedroom radiator thermostats and use a thicker duvet. A cooler house is better for you – you're less likely to catch colds and other nasties!
- **Electricals on stand-by?** Turn off the TV, video, computer, mobile phone charger, etc. when not in use. You are probably spending £1 a week on standby power.
- Choose the right size pan for whatever you're cooking, use as little water as possible and put a lid on it. Cut food up smaller and it will cook quicker.
- Turn off lights in unoccupied rooms.
- Draw the curtains at night.
- Only fill the kettle with the amount of water you are going to use now.



- Use full loads in the washing machine and the low temperature wash – 40°C or less and use off-peak electricity.
- Use a washing line instead of a tumble drier when the weather is fine.
- Have a shower instead of a bath (except if it's a power shower) and save water too – see page 16).
- Don't buy or use home air-conditioning – this uses huge amounts of electricity. Instead, open the windows, close the curtains, and if really necessary use a fan. Or investigate 'passive cooling' – see www.carbontrust.co.uk
- Move furniture away from radiators so that the heat can radiate into the room.

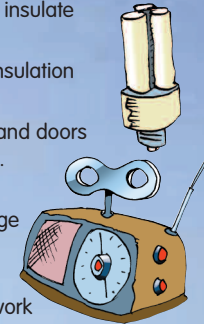
Shocking statistic

- The amount of heat lost annually through roofs and walls in the UK is enough to heat three million homes for a year.



Low-cost savers

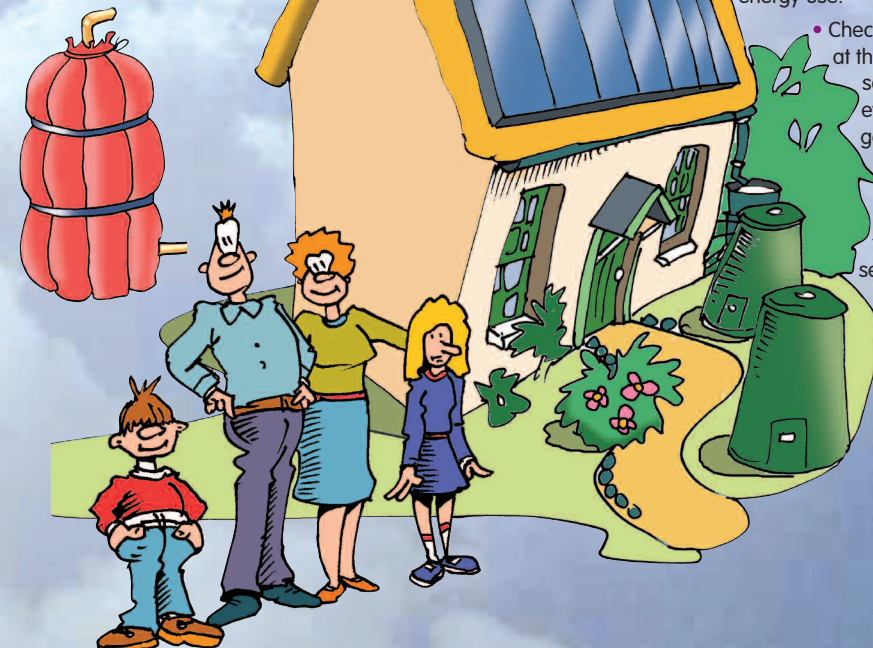
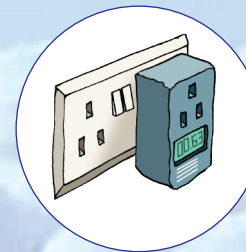
- Low energy and long life light bulbs – replace old bulbs (save £7 a year each).
- Insulation – put a thick jacket around the hot water tank (save £15 a year); insulate water pipes (save £5 a year).
- Insulate the loft with 270mm of insulation (save £70 a year).
- Draught-proof around windows and doors using DIY strips (save £10 a year).
- Buy energy-efficient electrical appliances (an A or A*-rated fridge freezer can save £45 a year compared with an old one).
- Invest in solar-powered or clockwork gadgets – radio, mobile phone charger, garden lights – see www.cat.org.uk
- Buy a plug-in powermeter so you can see how much electricity each appliance is using, or a device which monitors your household use. Visit www.cat.org.uk



Longer-term projects

Count up the cost-benefit – find out how much the work will cost, divide that by the fuel savings each year and you know the number of years it takes to break even. After that you're saving.

- Cavity wall insulation – this can cost anything from about £300 but gives a saving of between £60 and £160 a year. Grants are now available so it may pay back sooner than you think – check with your energy supplier or local authority.
- Thick carpets with underlay, woodblocks or cork tiles can save about 10% of heat compared with bare floorboards.
- Double-glazing can save about £20-30 a year.
- Replace your old boiler, fridge or washing machine with a new one and you might save more than 25% on your bills. Install a condensing boiler and you could save 10% of your energy use.
- Check out solar panels – at the moment they take some years to break even, but they are getting cheaper and more efficient and you may be able to sell electricity back to the utility company – see www.est.org.uk

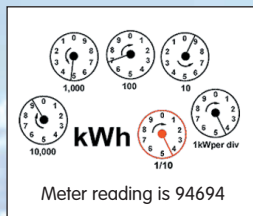
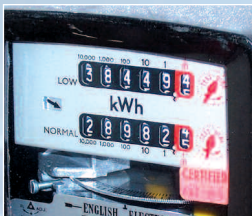


Activities

1. Read your electricity meter

Work out how much electricity you are using. Most meters have digital read outs, but some older ones have dials. A dial meter has six dials. You need to read the first 5 dials, starting on the left (the 6th dial is for testing only). If the pointer is between two numbers always read the lower number. If you're not sure if a pointer has passed a number check the next dial to see if it is approaching the 0 or has gone past it.

Each week read your meter. Take last week's reading from this week's and you'll have the number of kWhs (Kilowatt hours) used. A kWh is a 'unit' of electricity and you pay according to how many of these you use. You could keep a diary or family chart to show each week's usage.



2. Energy use

Work out how much you use each week – read the meters (electricity and gas) at the same time each week and take the lower figure from the higher one. Look at fuel bills such as gas, oil, coal and wood to find out how much you use and how much it costs. Check your electricity bills and find out how much you pay for a unit (kWh) of electricity. Then you can monitor your use and see what you're saving.

3. Home energy audit

Make a list of all the things in your home that use electricity or other energy. For each one think about how it is used and whether you could reduce the energy consumed without discomfort. Check the heating system, hot water system, lighting, appliances and insulation against the savers on pages 12 and 13.

Buy a simple plug-in powermeter which will show you how much each electrical appliance uses.

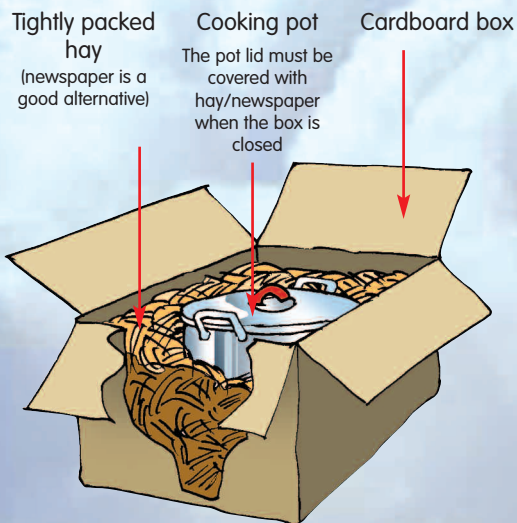
4. Enjoy the savings!

Once you've done your audit, work out how you can save energy over the next few months and make sure everyone in the household knows and agrees. You could try having one person responsible each week for checking up and switching off, and keeping everyone on track – the youngest members of the household often enjoy this! Then compare the next fuel and electric bills with the last ones you had or compare with the same time the year before to account for the seasons. Work out what you've saved as a family and decide together how you will spend it – perhaps a day out somewhere? Or you could invest it in more energy-saving and see how much more you can save!

5. Make a haybox cooker

Hayboxes are insulated boxes for slow cooking. They are good for soup, stews, brown rice or anything else that needs slow cooking. You will need a cardboard box, insulating material and a pot with a well-fitting lid for the food, such as a casserole. You may like to experiment with different kinds of insulating material. Originally hay was used, but polystyrene and crumpled newspaper are fine. If possible make the box to fit a particular pot, as the less air round the sides of the box the better. But allow an inch or two for insulating material between the pot and the box, all round, underneath and above.

To use a haybox you need to bring the contents of the pot to the boil on an ordinary stove or in a microwave first. Then put the pot in the haybox and close the lid of the haybox quickly. Experiment with cooking times as this



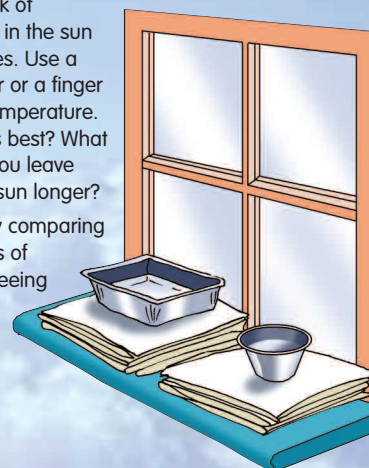
Haybox cooker

will vary from box to box. Try not to remove the box too often. Each time you do remove it you should bring it to the boil again on a stove before putting it back in the box. Approximate cooking times are: stews 3-5 hours, lentils 1-3 hours, milk puddings 1 hour.

6. Experiment - make a solar water heater

Experiment with making a small solar water heater. Use an aluminium pie-plate or ready-meal container. If possible compare two – one which is wide and shallow and one which is smaller and deeper, to see which works best. Make sure they are empty, clean and dry. Then paint the inside of each with non-water-soluble black paint. When the paint is dry add about 2 tablespoons of water to each one. Place the heaters on top of a stack of newspapers in the sun for 10 minutes. Use a thermometer or a finger to test the temperature. Which works best? What happens if you leave them in the sun longer?

You could try comparing other colours of heaters by seeing which can help to melt an ice-cube quickest.



How much energy do I use? (Amounts used shown in Kilowatts)

Energy saving light bulb	.0007-0.015 kW
Fluorescent light tube	.04-0.1 kW
Tungsten light bulb	.06 kW
Hi-fi	.06 kW
TV	.08 kW
TV (big screen)	up to 0.5 kW
TV on stand-by	up to 0.02 kW
Hairdryer	.1 kW
Electric kettle	2-2.5 kW
Electric cooker	12-15 kW



You can check the power rating of your own appliances by looking at the backplates to see the number of kW. If the power rating is shown in W (Watts), just divide by 1000 to get the kW.



The GREEN MAN Explains

Most energy in the UK comes from burning fossil fuels – coal, oil and gas. There are only finite amounts of these in the world; they are non-renewable. As fossil fuels are finite, this is not a sustainable way to live – we won't leave enough fossil fuel resources for our children and grandchildren. And fossil fuels are needed to make many important things such as plastics, medicines and chemicals.

Burning fossil fuels creates carbon-dioxide (CO₂) emissions, (see page 5). We need to reduce the amount of energy we use in order to reduce the amount of fossil fuels used up and the amount of CO₂ which goes into the atmosphere.

Nuclear power does not produce CO₂ emissions and so contributes less to global warming than burning fossil fuels, but it does require uranium which is a finite resource, and also uses energy in the mining and processing. Other hazardous environmental effects and potential security problems also have to be considered.

Green energy is generated by sun, wind or water power and does not use fossil fuels. It is also carbon-neutral (except for any carbon used to make the actual equipment) and does not release CO₂ into the atmosphere, so it does not contribute to greenhouse gases, global warming or climate change. Most of the main utility companies sell green energy, but it sometimes costs more than conventional energy, and it is difficult to know for sure how much difference you are making, so check at www.greenelectricity.org. Or you could switch to a green electricity supplier, such as Good Energy or Ecotricity. Alternatively you could create your own green energy by installing solar panels – visit www.cat.org.uk

Shocking statistic

- If every household installed three energy-saving light bulbs, the energy saved in a year would supply all street lighting in the UK.

