Home and School

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All of us use energy at home. It is mostly gas or electricity, though some people have oil-powered boilers and older houses have coal fireplaces. Whether we use just one, or a combination of these, we are using energy. Schools use energy too; in fact, they use lots.

Both places produce lots of waste as well; what you throw out has a massive impact on the environment.

This Report will look at ways to help our environment by reducing what we use and what we waste.

AIM

After completing this Report, you should be able to identify where energy is used at home and at school and what effects that energy use has on the environment. You should also be able to explain how to help reduce the amount used. Finally, you should be able to describe how to minimise waste from home and school.

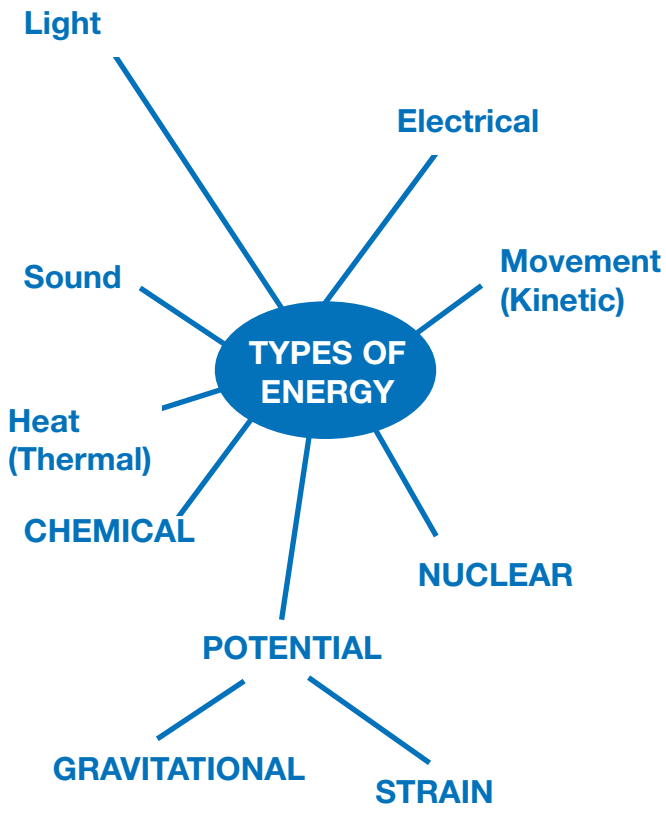
USING ENERGY AT HOME

Most people get one or two types of energy resource supplied to their home: electricity and/or gas. Electricity is made in power stations, and is simply used to get energy around. In the power stations, other types of energy are changed into electrical energy, which is the easiest form of energy to move. Gas is a very good store of chemical energy.

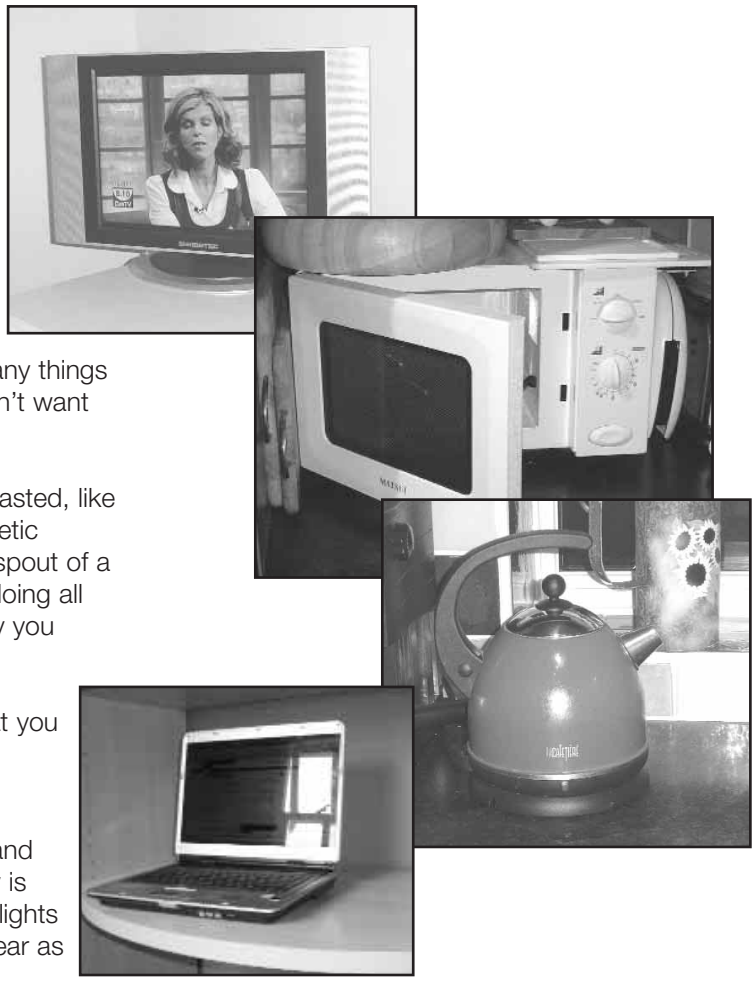
So electrical energy and/or chemical energy in gas is supplied to your home. But what happens to it then?

It gets transferred into different types.

Here are all the different types of energy:



So a gas boiler gets chemical energy from burning gas and turns it into heat energy in the water. A microwave gets electrical energy from the Mains supply and turns it into kinetic energy (the turntable), light energy (the clock and light), heat energy (the microwaves) and sound energy (the noise it makes while running).



Some types of energy are more common than others. For example, many things make a noise or heat up, even if we don't want them to.

Unfortunately, some energy is always wasted, like the heating up of a computer or the kinetic energy in the steam coming out of the spout of a kettle. The more things you leave on, doing all these energy transfers, the more energy you waste.

First of all, it's up to you to find out what you use at home.

Most of the energy your house uses, especially in winter, will be on cooking and central heating. By far the most energy is used on heating things up. Things like lights and TVs do use energy, but nowhere near as much.

Task 1

Where Does the Electrical and Chemical Energy Go?

Anything that needs electricity or gas to work in your house is a machine. A machine's job is to turn one type of energy into another.

For example, a TV is a machine: it turns electrical energy into light coming out of the screen, sound out of the speakers and a little bit of heat.

Make a table of all the machines you can think of in your house, what goes into them, what comes out and how long you use it for. There are probably lots of types of energy coming out, not all of which we want! You can start like this:

MACHINE	ENERGY TYPE IN	ENERGY TYPES OUT	TIME ON PER DAY
TV	Electrical	Light, Sound and Heat	1½ hours and all day on Standby

Task 2

How Can I Save Energy At Home?
This is the important one. What can you do to save energy? Do a poster on saving energy at home.

This government website can help you get started:
www.energysavingtrust.org.uk

ENERGY AT SCHOOL

Schools need energy for the same kinds of thing – central heating, computers and lights, the kitchens. However, they need rather more of it.

Task 3

Saving Energy in School
Find out how much money your school spent on electricity and gas last year. Do another display, on how your school can cut down on the energy it uses.

Remember, consider everything that needs energy: heating, lights, cookers, computers, everything! Ask other pupils and teachers for ideas.

WASTE AND RECYCLING

We throw a lot of things out, and they just end up in landfill. Or if we burn rubbish, we release Carbon Dioxide into the air. So what can be done to improve our waste?

Recycling is easy. Most areas have good recycling facilities, so most glass, paper, cardboard, metal and even plastic you have can be recycled.

But don't just recycle! If you reduce the amount of stuff you use, and reuse things you might otherwise throw away, you'll find that you need to buy less and your energy saving will be fantastic!

Main Task

You've got your 2 displays: one on saving energy at home and one on saving energy at school. It's time to practise what you preach.

Make a PERSONAL ENVIRONMENT OBJECTIVE SHEET for yourself with five aims. These aims should be ways that you are going to help save energy and cut down on waste.

Try for **four small aims** and **one big aim** to start with.

The **small aims** are just things that affect you: turning off lights, not leaving the TV on standby and so on. Be as original as you can! If you think of more than four that you feel you can carry out, put them down too!

The **big aim** is one that gets other people involved, like forming an eco-club at school or introducing a recycle, reduce and reuse scheme at home.

fact

Strain Potential Energy is the energy stored in a wound up clock or a stretched elastic band.

Gravitational Potential Energy is the energy possessed by an object when it is placed in a position from which, if it were free to do so, it would fall under the influence of gravity.

Nuclear Energy is the energy contained in the middle of atoms. We can only get at it by breaking up things like Uranium at the moment, as happens in nuclear power stations.