WHAT YOU WILL LEARN IN GREEN STUFF. . . .

THE DIFFERENT WAYS THAT OUR HOMES AND SCHOOLS ARE POWERED, **HOW YOU CAN BE SAFER AT HOME**, HOW TO IDENTIFY FOSSIL FUELS, **HOW TO IDENTIFY RENEWABLE ENERGY SOURCES**, HOW YOU CAN SAVE ENERGY AND HELP THE ENVIRONMENT.

GREEN STUFF

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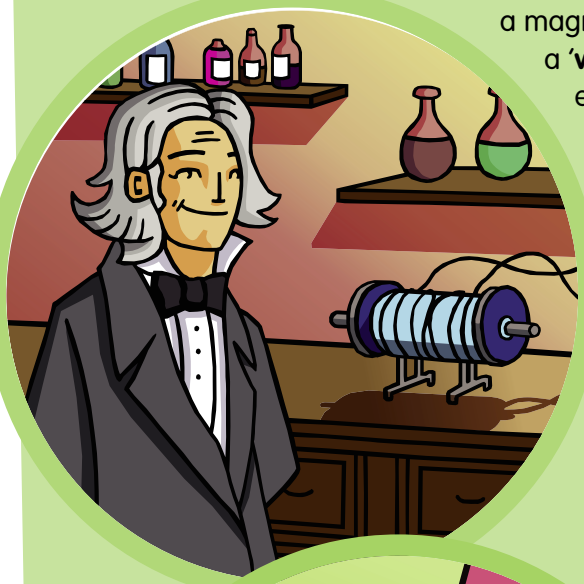
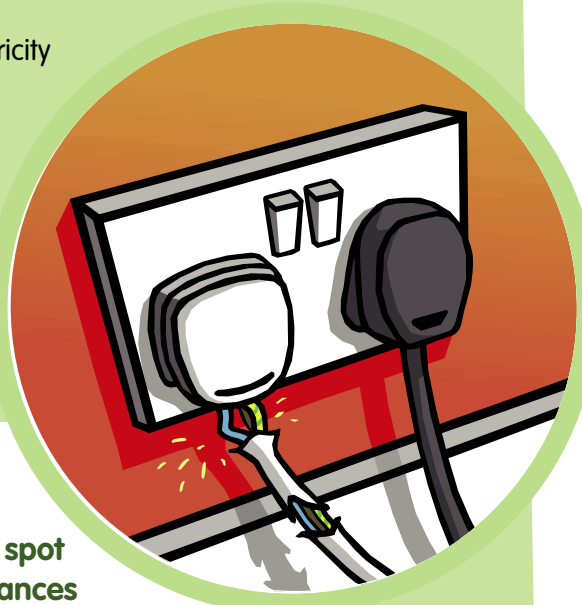
THE HISTORY OF ELECTRICITY



In **1831**, the scientist **Michael Faraday** found that if he pushed a magnet into a coil of wire, it produced what he called a '**wave of electricity**'. Today, in all power stations, electricity is made in the same way, using huge coils of wire and enormous magnets.

In **1881**, a town called **Godalming** in Surrey became the very first place to have a public electricity supply. The electricity was used to light the streets, houses and shops.

Now we use lots of electricity at home and at school. The items, or machines that are powered by electricity, are called appliances.



WATCH OUT! Electricity can be very dangerous. If you can see wires coming out of a cable, you should not touch it! If you do, you could get an electric shock that can kill you!

Below are examples of how much electricity is used by some household appliances:

Television	100 watts
Cooker	1500 watts
Kettle	2400 watts
Tumble Dryer	2500 watts

EXERCISE: Who can spot the most electrical appliances in the classroom?

If you are at home – why not try to see who can spot the most appliances in the room?

SPOT THE DANGERS

Spot the dangers in these pictures and circle them. Clue: there are at least 10 altogether.

LIVING ROOM

KITCHEN

BEDROOM

BATHROOM

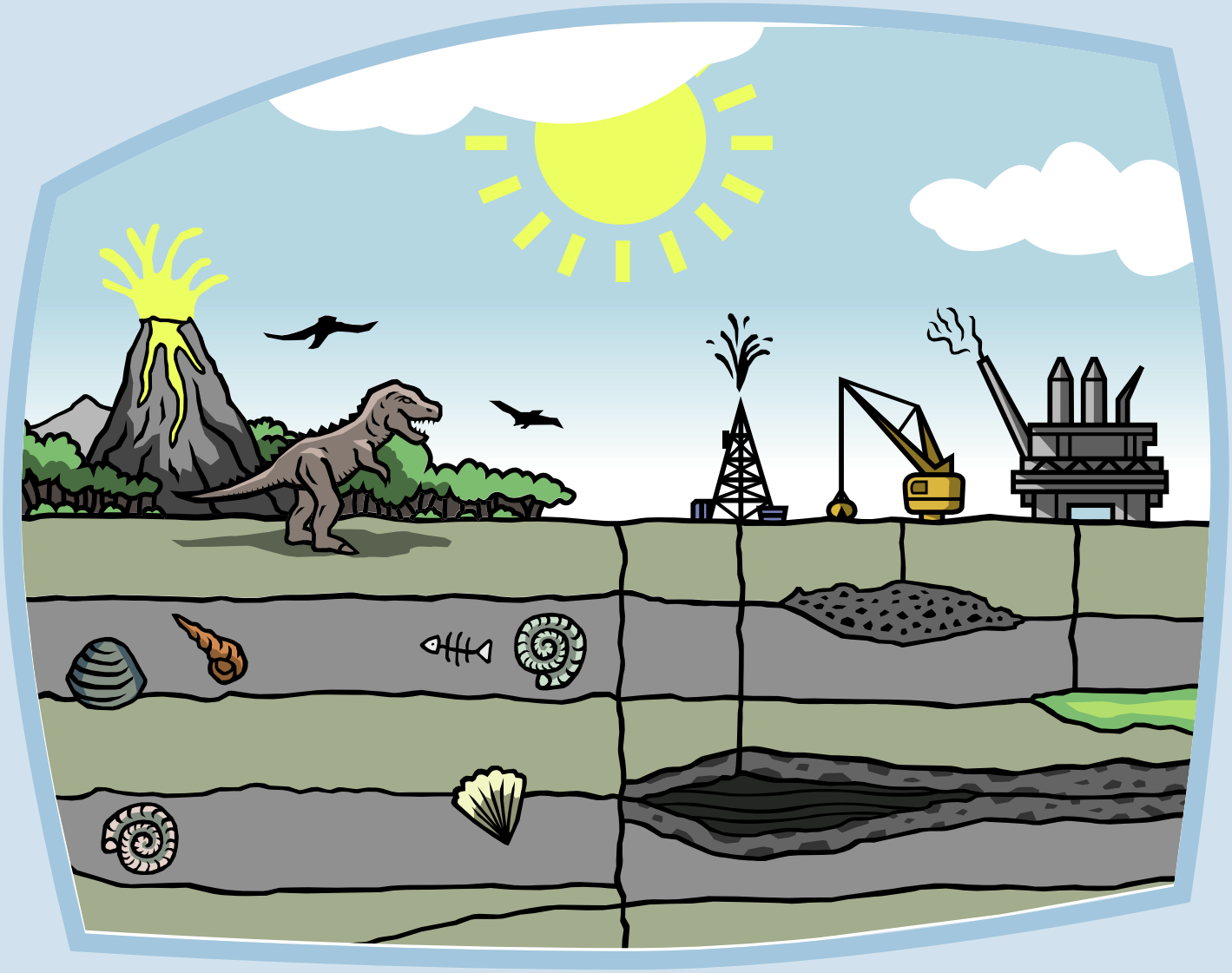
EXERCISE:

Why are these things dangerous?
What can you do to prevent risks in the home?

When you have finished, ask your teacher for the answers.

FOSSIL FUELS

Fossil fuels were formed from the remains of prehistoric plants and animals. There are three main forms of fossil fuel: coal, oil and gas.



COAL: Coal is a hard, black coloured, rock-like substance that can be burned. The earliest use of coal was in China.

OIL: Oil was formed more than 300 million years ago and is found under ground between folds of rock. Oil is pumped from below the ground by oil rigs. It is then run through pipe lines or travels by ship.

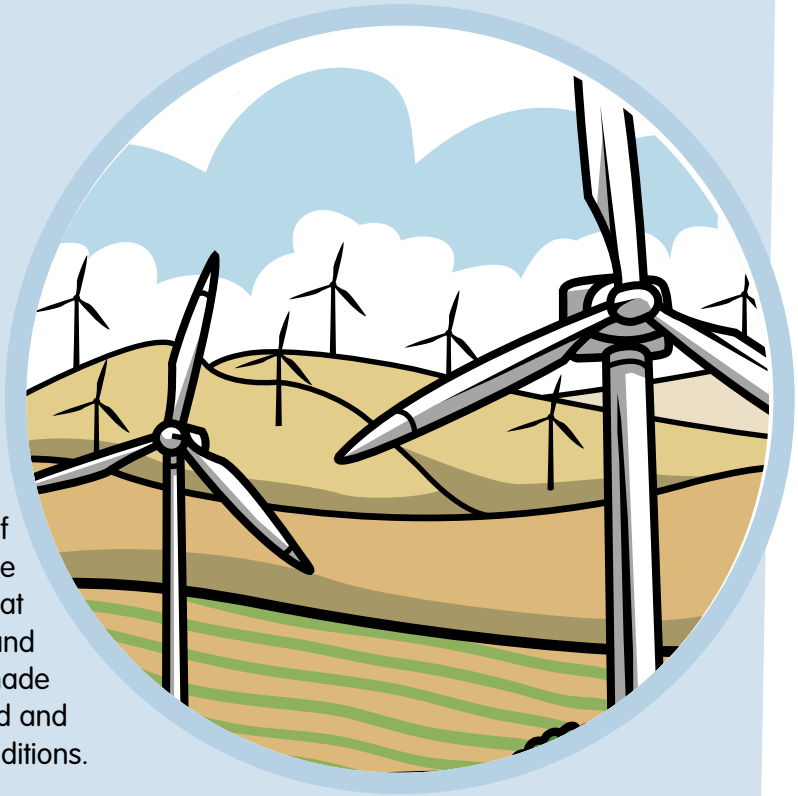
NATURAL GAS: Natural gas is lighter than air and is mostly made up of a gas called methane. Natural gas was first found in Iran. It has no natural smell but can be very dangerous and can cause explosions. For this reason, before it is put into the pipe lines, a smell is added (a bit like rotten eggs). If you can smell gas, you must tell an adult and ask them to open the windows and phone the gas emergency number:

0800 111 999

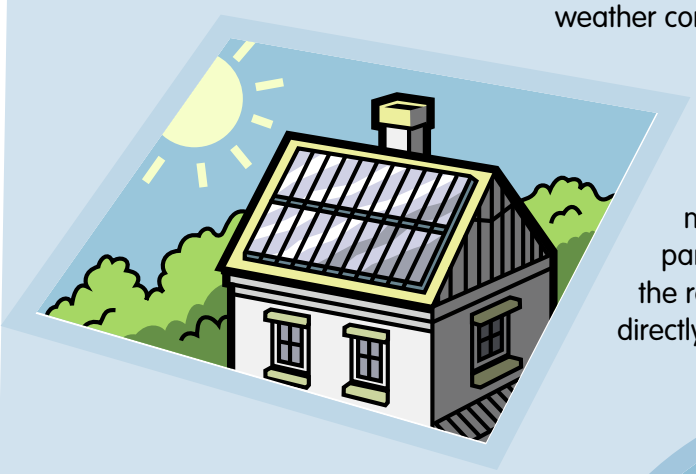
EXERCISE: Can you think of every day uses of these fuels?

RENEWABLE ENERGY

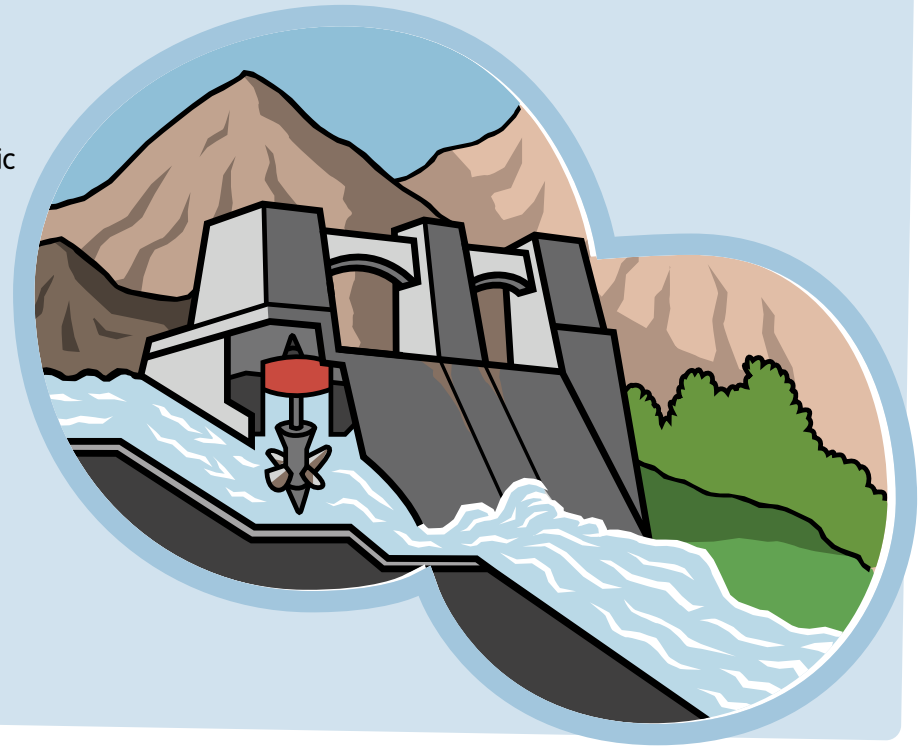
One day, our supplies of fossil fuels will run out. Because of this, we have to look for new ways to generate power that won't run out and that are also kinder to the environment. These are called Renewable Energy sources because they can be used again and again and will never run out. In the future, we will use more renewable sources like these.



WIND POWER: Wind farms are made up of a group of wind turbines that use wind to generate power. These wind turbines have large blades that spin in the wind. The blades turn a generator and electricity is made. The turbines are specially made so that they can work in most wind and weather conditions.



SOLAR POWER: Solar power uses the sun's rays to make electricity. Using large solar panels that look like giant mirrors, the rays of the sun can be turned directly into electricity.



HYDRO POWER: Hydro-electric power stations channel water through huge pipe lines that lead to turbines. The turbines have big metal blades that are turned very quickly by the water, this turns the generator and the generator makes electricity.

DID YOU KNOW

When you turn on a standard light bulb, only 10% of the electricity used is turned into light. The other 90% is wasted as heat!

AMY'S STORY

Amy's family are very bad for the environment! They never think about the damage they are causing or the amount of energy they are wasting.....

When Amy wakes up in the morning her TV is still on from the night before, with the volume on low.

Amy turns on the bedroom light and goes for a long, deep bath.

The gas and electricity bills are always high in Amy's house!

DID YOU KNOW

Every time you open the refrigerator door, up to 30% of the cold air can escape!

Amy leaves her hair straighteners on for ages to 'heat up', while she gets ready for school.

Amy's mum always fills the kettle until its full, even when she is only making one cup of coffee!

"Mum, its boiling in here, have you put the heating up full-blast again?!"

"Ok. I'll just open the window if you're too hot."

"Remember-I'm picking you up, so don't be late!"

"Ok, see you later!"

Amy and her brother go to different schools, so her mum drives her brother to school and her dad drives her to school. They are both a 10 minute walk away.

REASONS NOT TO BE LIKE AMY'S FAMILY!
Here are the main reasons that you should not waste energy……..

Remember the three C's!

- **Cost** – Gas and Electricity can be expensive, so saving energy could save your family a lot of money!
- **Climate Change** – Using a lot of energy speeds up a process called Climate Change, this causes the world to heat up and can lead to rare animals disappearing forever.
- **Conservation** – Fossil fuels take millions of years to make but we are using them up very quickly. If we save energy, then these fuels will last longer.

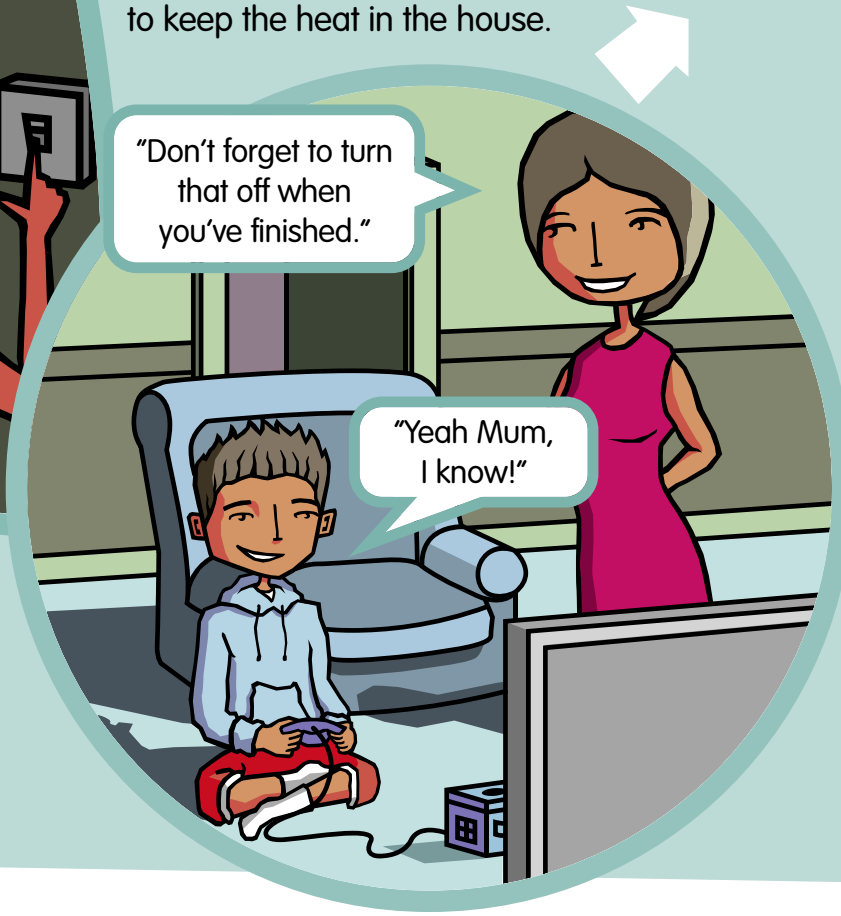
EXERCISE: What could Amy's family do to save energy each day? Write a letter to Amy's parents, giving them energy saving information and describing the ways in which they are currently wasting energy.

PETER'S STORY

Peter's family really cares about the environment and try to save energy wherever possible.

Peter likes to watch TV while he eats his breakfast, but he always remembers to turn it off afterwards and not leave it on standby.

In Peter's house all the light bulbs are special, energy efficient light bulbs and they have good, heavy curtains to keep the heat in the house.



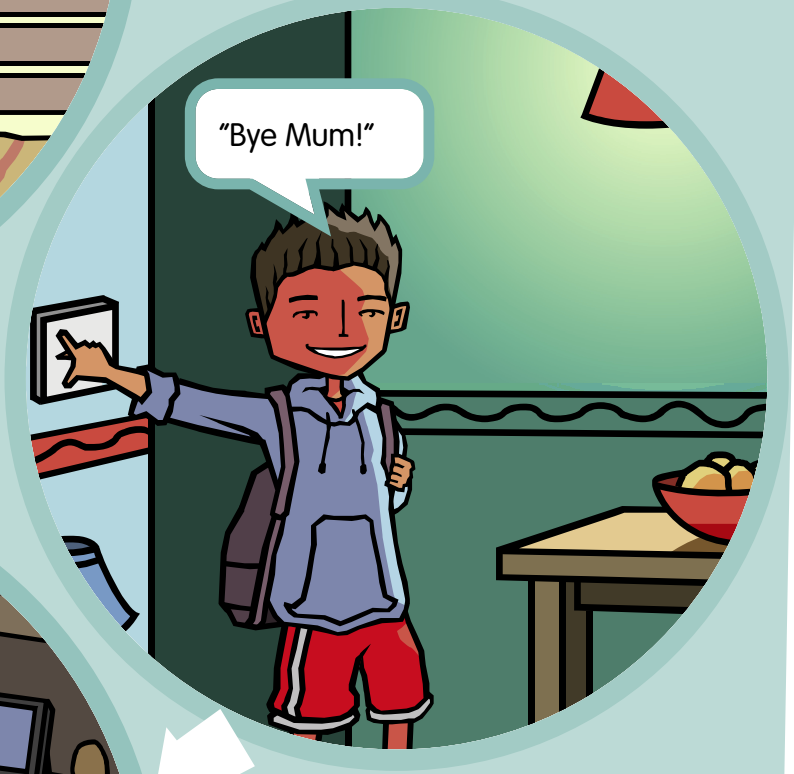
DID YOU KNOW

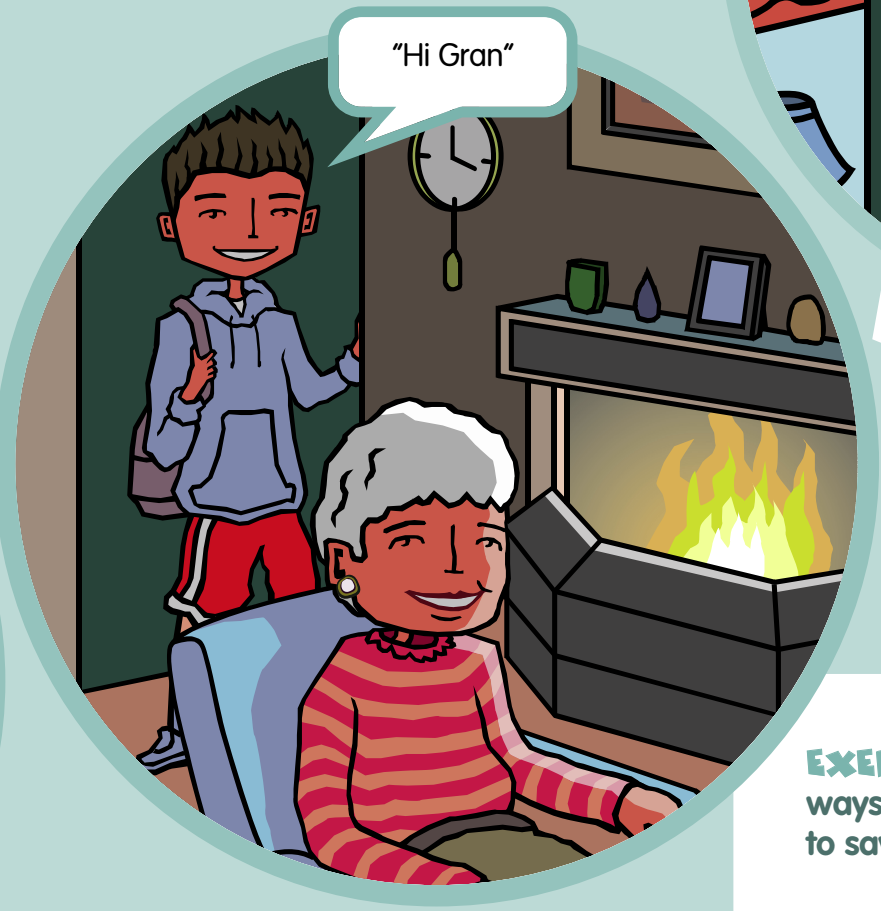
An energy efficient light bulb uses 75% less energy than a standard bulb and it can last up to four years!

DID YOU KNOW

A heavy coat of dust on a light bulb can block up to half of the light!

Peter remembers not to leave the lights on as he leaves.





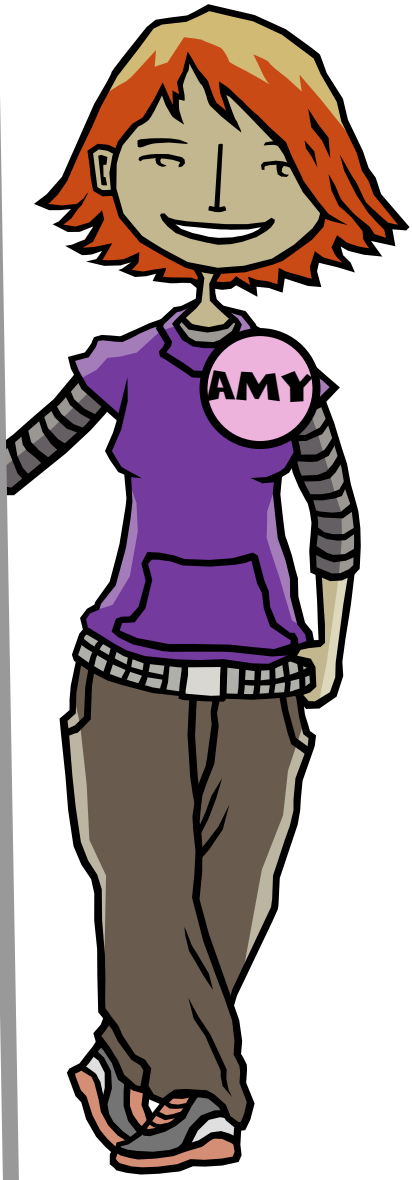
It is particularly important that older people keep warm, so after school Peter checks that his Gran has everything she needs to do this.

EXERCISE: Can you count the ways that Peter's family is helping to save energy?

EXERCISE: Write a newspaper article about how Peter's family are saving energy and why this is important.

EXERCISE:

MATCH THE SENTENCES TO THE CORRECT PERSON:



This person always leaves the TV on standby.

This person always walks to school.

This person leaves the window open, even though the heating is up high.

This person turns the bedroom light off before leaving the house.

This person has no idea what an energy efficient light bulb is.

This person's parents don't use their cars for short distances.

This person makes sure that sockets in their house are never over loaded.

This person's family always uses a tumble dryer to dry clothes and never lets them dry naturally.

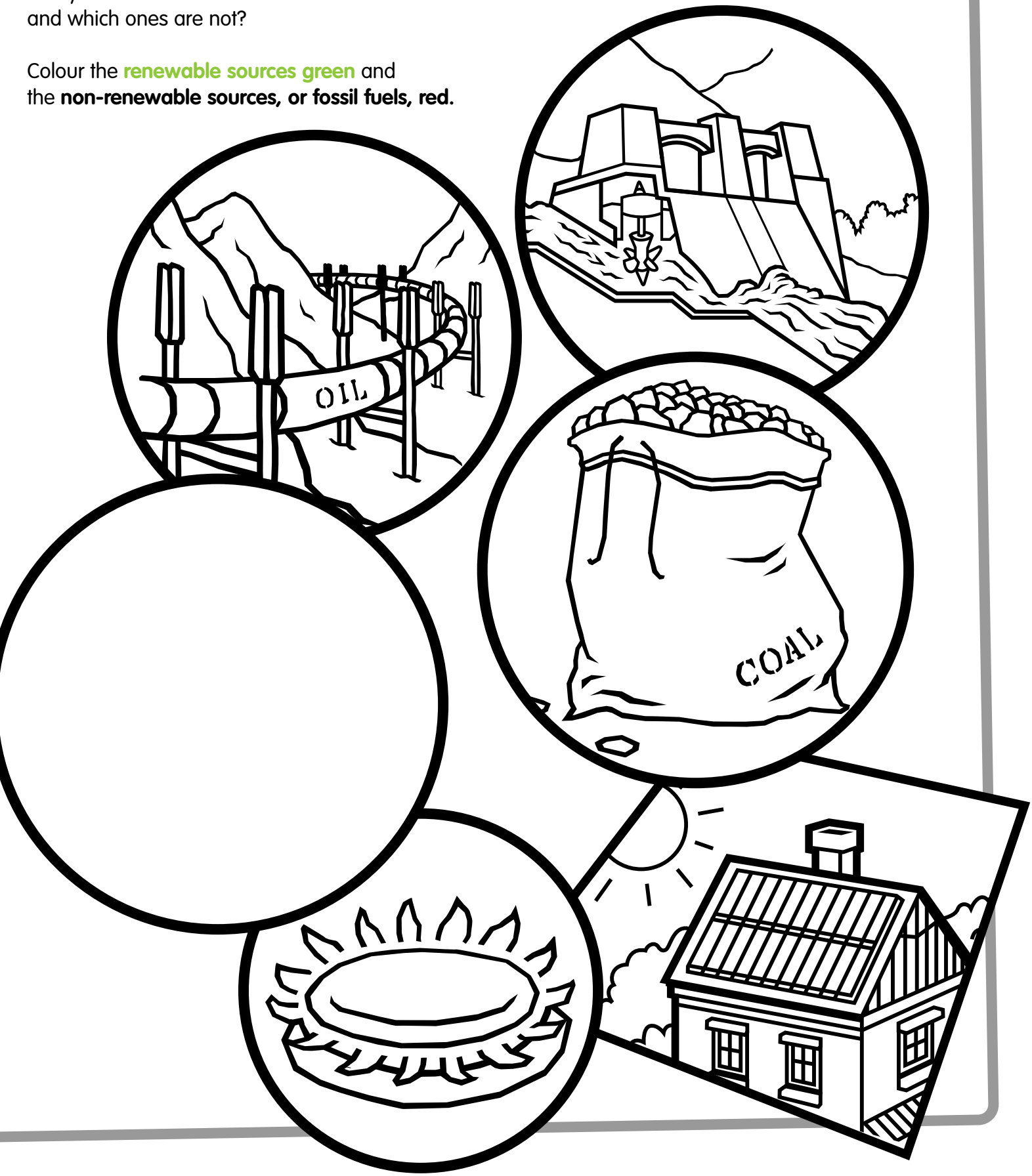
This person's family always has high energy bills.

EXERCISE:

HOW MUCH DO YOU REMEMBER?

Can you remember which sources are renewable and which ones are not?

Colour the **renewable sources green** and the **non-renewable sources, or fossil fuels, red.**



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TAKE ACTION!

Now you know all about where our power comes from and the importance of saving energy. Here are some ways that you can take action!

TELL YOUR FAMILY!

Tell your family about what you have learned and let them know the next time you see anyone in your house wasting energy!

SEE HOW MUCH YOU CAN SAVE!

Ask an adult to let you see the gas or electricity meters and write down the numbers you see. Then, look again a week later and see how much bigger the numbers have become. This will let you see how much energy you use in a normal week.

The next week, try to be a bit more like Peter and save more energy. After a week, have another look at the meters and see how much you managed to save!

Further help and information can be found on our website: **www.sse.com**
SSE, Inveralmond House, 200 Dunkeld Road, Perth PH1 3AQ

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Written and produced by SSE Energy
DESIGNED BY THINKTASTIC, EDINBURGH