OUR FUTURE .ENERGY

INTRODUCTION

We use energy to power our phones and TVs, to heat our houses, cook our food, and transport us by car, train and plane.

Energy is an extremely important part of our daily lives, but you might not pay much attention to how much you use or where it comes from.

OurFuture.Energy is a website where you can find games and quizzes, animations and videos, as well as current news stories to help you find out more about energy.

It helps you understand the basic science behind the energy sector and look at how we can reach a balance of secure, affordable and sustainable energy.

These three issues are known together as the energy trilemma.

We have teamed up with Children's University Scotland to create simple and fun activities to get you thinking about the energy trilemma and what it means in your everyday life.

Completing the Activities

The activities are suitable for Children's University passport holders aged 11-14, and include a mix of creative, imaginative and problem solving activities.

Each activity comes with 3 'Essential Reading Links' to the website, which will give you some background knowledge and ideas to help you complete the tasks.

There are also 'Quiz Links' you can complete on the website and enter your score in the box provided.

Once you have completed the activities, remember to take your worksheets and Children's University passports to school to receive your credit.

Who knows, maybe you'll be making important energy decisions one day, from creating laws to inventing the next big energy technology.

ESSENTIAL READING LINKS

SECURITY

The Main Energy Sources: ourfuture.energy/post/13
Demanding Electricity: ourfuture.energy/post/33
Surprising Uses of Oil: ourfuture.energy/post/32

AFFORDABILITY

Salt Water Lamp: ourfuture.energy/post/24
Living Off Grid: ourfuture.energy/post/22
Lunar Panels?!: ourfuture.energy/post/36

SUSTAINABILITY

Air Pollution: ourfuture.energy/post/76
How Green Is Your Outfit?: ourfuture.energy/post/31
Fracking, Yes or No?: ourfuture.energy/post/2

You can find many more fantastic learning activies on the Children's University Scotland website:
childrensuniversityscotland.com

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SECURITY

THE ENERGY TRILEMMA

When making plans about how we will use energy in the future, there are three main issues we need to think about: **security, affordability** and **sustainability.**

Energy security refers to the amount of energy available where and when we want it; not just at the flick of a switch, but in the future too.

- How much do we rely on an energy source for our energy needs?
- Do we use our own energy sources or get them from another country?
- Are power stations able to give us energy when we want and need it?
- Is the energy source renewable or non-renewable (will it run out one day)?

ESSENTIAL READING LINKS

SECURITY

The Main Energy Sources: ourfuture.energy/post/13

Demanding Electricity: ourfuture.energy/post/33

Surprising Uses of Oil: ourfuture.energy/post/32

Find the main sources of energy in the word search below. Answers can be upside down, backwards and diagonal so look closely!

U	W	I	X	F	J	O	A	D	J	V	L	N	O	S
R	U	M	B	S	A	G	L	A	N	K	L	T	R	H
Z	V	F	U	D	H	W	A	W	U	C	J	J	D	A
J	C	M	N	W	V	S	O	R	C	Y	M	H	Y	Y
X	Q	T	B	G	G	N	R	Z	L	R	I	L	H	X
W	J	E	T	A	E	Z	T	Z	E	A	B	K	J	B
I	F	T	G	B	N	O	C	W	A	L	N	W	M	S
N	I	L	K	H	B	A	T	P	R	O	K	M	Q	K
D	L	S	Z	F	B	T	U	H	T	S	G	V	K	W
H	I	M	K	O	X	U	R	M	E	N	A	M	T	A
X	P	C	R	K	I	Q	N	O	S	R	I	M	I	V
M	Q	L	C	O	A	L	R	J	J	R	M	T	D	E
B	W	U	W	Q	N	C	M	U	A	Q	B	A	A	D
O	N	Y	A	R	X	W	W	O	J	M	Q	D	L	P
S	S	A	M	O	I	B	N	C	P	E	P	E	T	E

ENERGY SOURCES:

BIOMASS	OIL
COAL	SOLAR
GAS	TIDAL
GEOTHERMAL	WAVE
HYDRO	WIND
NUCLEAR	

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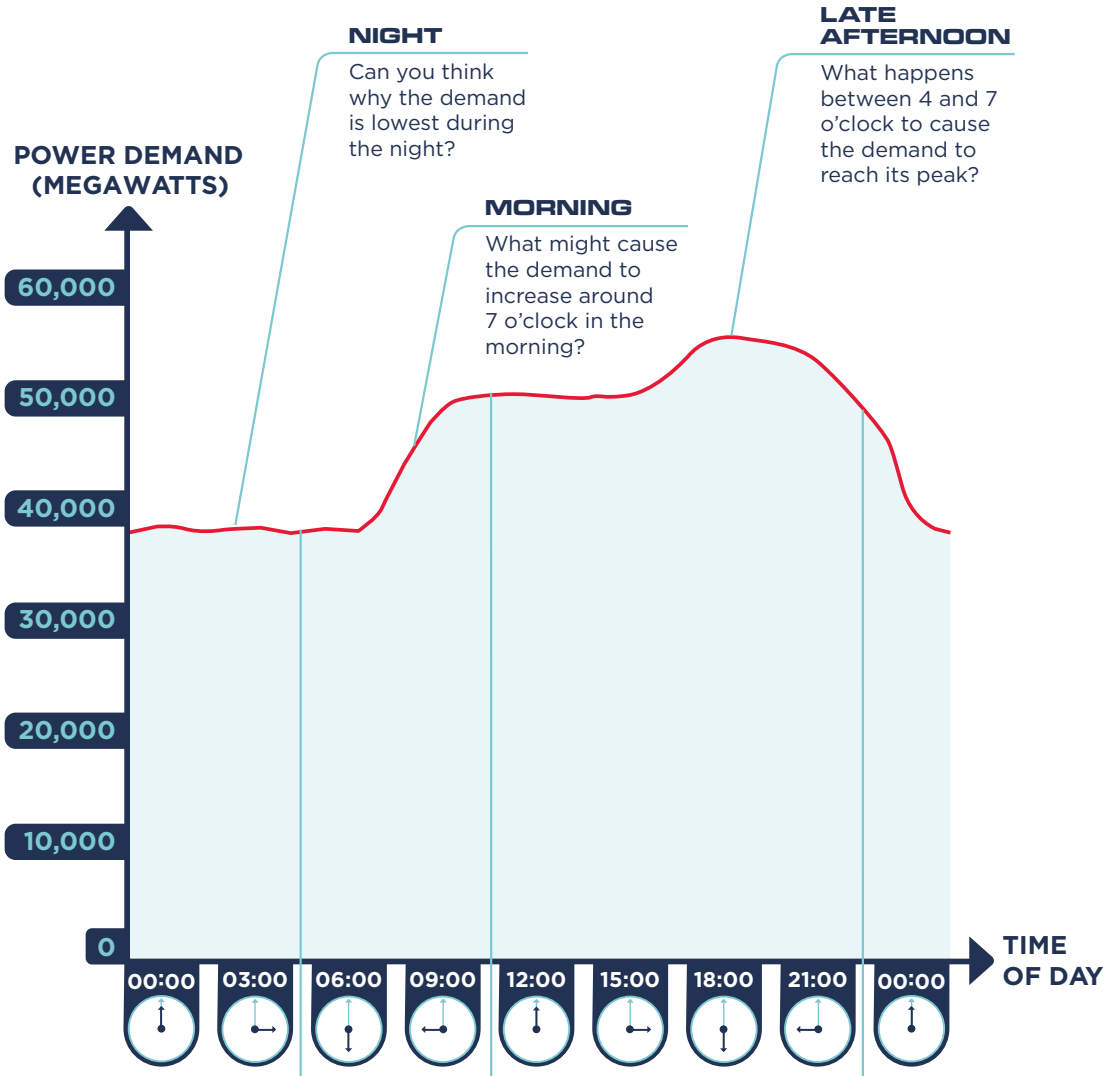
OUR FUTURE .ENERGY

SECURITY



NIGHT

Can you think why the demand is lowest during the night?

MORNING

What might cause the demand to increase around 7 o'clock in the morning?

LATE AFTERNOON

What happens between 4 and 7 o'clock to cause the demand to reach its peak?

DEMAND

This line represents the total demand for power across Great Britain on a typical winter's day, measuring tens of thousands of megawatts.

GENERATION

To meet this demand, energy is generated from hundreds of power stations across the country using different sources of energy.

CHANGING DEMAND

As demand changes, the generation from power stations must change to keep the system balanced.

Can you explain the shape of the graph above?
Hint: Look at the time of day on the horizontal axis.

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AFFORDABILITY

Affordable energy is very important. We use energy for heating, transport and electricity, so we need to make sure everyone has access to it and can afford it.

One way of bringing down the cost of energy, is to make using energy more efficient. In other words, create products and services that use less energy without affecting performance.

QUIZ LINK	YOUR SCORE
Everyday Energy: ourfuture.energy/post/56	

ESSENTIAL READING LINKS

AFFORDABILITY

Salt Water Lamp: ourfuture.energy/post/24

Living Off Grid: ourfuture.energy/post/22

Lunar Panels?!: ourfuture.energy/post/36

Design a new technology that we could use to save energy in your choice of heating, transport or electricity. It can be based on real science or something completely from your own imagination!

If you don't know where to start, ask yourself the questions below to spark your imagination!

WHAT AREA ARE YOU TRYING TO IMPROVE?

Heating

Transport

Electricity

WHAT DO YOU WANT TO ACHIEVE?

Save energy

Generate cheap electricity

Create a new type of fuel

COULD WE USE THIS TECHNOLOGY IN REAL LIFE?

Yes

No

Draw your design below, pointing out the different parts that make your idea work, use another piece of paper if you need more space.

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SUSTAINABILITY

Some of the energy sources we use to power, transport and heat our lives, are having a negative effect on the earth because of the greenhouse gases (GHGs) they release; the result of this is climate change.

Sustainability focusses on inventing new technology and changing our behaviour in order to:

- Be more aware of how much energy we use (and waste) in our daily lives.
- Collect the natural energy sources around us without damaging the environment.
- Investigate how best to collect and store renewable and nuclear energy so they become a bigger part of our energy mix.

ESSENTIAL READING LINKS
SUSTAINABILITY
Air Pollution: ourfuture.energy/post/76
How Green Is Your Outfit?: ourfuture.energy/post/31
Fracking, Yes or No?: ourfuture.energy/post/2

QUIZ LINK	YOUR SCORE
Cows VS Cars: ourfuture.energy/post/21	

If you had the power to **make three laws** to help protect the environment and make us more sustainable, what would they be?

LAW 1

LAW 2

LAW 3

Can you think of any potential problems with your laws?

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