WWF
UK
2013

SOURCE: NASA

"Humanity stands … before a great problem of finding new raw materials and new sources of energy that shall never become exhausted. In the meantime we must not waste what we have, but must leave as much as possible for coming generations."

Svante Arrhenius, Chemistry in Modern Life (1925)

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NEWSLETTER

UK

2013

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Schools

WELCOME TO LEARN

This edition of Learn looks at energy – our growing demands, the effects of our reliance on fossil fuels, and the need to look at renewable energy sources.

© WILD WONDERS OF EUROPE / INAKI RELANZON / WWF

THE ENERGY DEBATE

The energy and climate change challenge is one of the biggest facing the modern world. In the face of issues on this scale, young people may feel that they can do very little. But by understanding some of the challenges, exploring the choices and solutions available – including renewable energy sources and clean, green technologies, and by thinking globally and acting locally, they can make a small but significant difference. See the 'In Focus' and 'Ideas for the Classroom' sections for information and activities.

ARE YOU READY FOR WWF'S EARTH HOUR?

WWF's Earth Hour (23rd March 2013, 8.30pm) is a unique annual phenomenon. Hundreds of millions of people will turn off their lights for one hour, on the same night, all across the world in a huge, symbolic show of support for our amazing planet and the need to tackle climate change.

This year the Earth Hour message is all about energy and creating a better future for our planet by moving away from dirty fossil fuels and onto clean, green renewable energy which works with the awesome power of nature, not against it.

As the event takes place on a Saturday, most schools choose to hold their own 'Earth Hour' in the days or weeks before the big switch off. And to help schools we are providing a range of materials such as a support pack, a fantastic new renewables energy resource for schools that sign-up, and the chance to see your school feature on our interactive Earth Hour map!

Register your school now by visiting **earthhour.wwf.org.uk/schools**

RAINFOREST EXPLORERS WANTED!

Take your school on an exciting journey of discovery to learn about the wonders of the rainforest with **I Love Amazon Week**, part of Sky Rainforest Rescue, a joint campaign between Sky and WWF which aims to protect one billion trees in the Amazon. The fantastic free resources, including lesson ideas, a poster, photocards and slide sets, will give you everything you need to engage and inspire 7-11 year olds. And you can run your week any time that suits you. There's also a great competition with prizes for your school.

Register your school now by visiting **www.sky.com/amazonweek**

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IDEAS FOR THE CLASSROOM

The activities are starter activities and are designed to give a flavour of how you could approach this topic in the classroom. More activities can be found in our free renewables education resource: **wwf.org.uk/learnenergy**

A MATTER OF CHOICE?

Brainstorm with the class different forms of energy. Explain that some are dirtier than others – and release greenhouse gases which warm the planet, while others use the power of the wind, wave, tides and sun and are cleaner. Divide the class into groups and allocate an energy source to each group. They should research and produce a short PowerPoint outlining the pros and cons of their energy source.

You can find websites to help you at:
wwf.org.uk/learnenergy

CLIMATE NEWS!

Invite pupils to imagine that they are undercover reporters. They have to research and write a 300 word breaking news story around the issues caused by climate change for one of the following: polar bears, people living in low-lying areas in a developing country, a farmer, a UK householder whose home is near a river, a conservationist managing a nature reserve, orang-utans living in the rainforest.

You can find websites to help you at:
wwf.org.uk/learnenergy

ENERGY DATA MINING

Using **yearbook.enerdata.net** pupils prepare a graph to show the total energy consumption (Mtoe) for 1990, 2000 and 2011. Which are the highest and which the lowest energy consumers? What are the energy use trends? Why might some developed countries have a relatively low energy consumption? Next pupils prepare a graph of 2012 and projected 2050 population statistics based on the data provided on **wwf.org.uk/learnenergy**. Does this change their view of which are the high and which the low energy consuming countries? Prompt them to think about per capita use if they are struggling. What might a low consuming country say to a high consuming country? (Mtoe = Million tonnes of oil equivalent; Primary energy consumption refers to the direct use at the source, or supply to users without transformation, of crude energy, that is, energy that has not been subjected to any conversion or transformation process).

A DAY IN THE LIFE OF...

Ask pupils to keep a 'diary' for a week, capturing all the activities they do in a day that use energy. Pairs of pupils should swap diary entries, and write a short story for their partner which retells the energy story of the week to show how reductions in energy use have been made.

ENERGY DETECTIVES

Divide the class into groups and send them on a special mission: to survey different parts of the school to see how energy is being used and wasted. They should think about doors and windows, furnishings such as carpets, curtains or blinds that might insulate rooms, lighting, heating, equipment such as computers, water taps, etc. A survey template can be found at **wwf.org.uk/learnenergy**. Groups of pupils should present their findings as a report, along with their recommendations for improvements.

By 2013, wind energy alone could provide 10% of the UK's electricity

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QUESTION TIME

These questions are provided to aid discussion, using the poster as a stimulus. The questions will need to be adapted to the particular age groups and their prior knowledge.

See the In Focus section for help with the answers to these questions.

Question 1

What does the image suggest about energy use around the world?

Question 2

What might happen if everyone used as much energy as we do in developed countries?

Question 3

Do developing countries have a right to use as much energy as we do?

Question 4

What does renewable and non-renewable mean?

Question 5

Which forms of energy are 'kinder' to the planet? Does this matter? Why?

Question 6

How can we reduce the amount of carbon dioxide we put into the atmosphere?

Question 7

Where will our energy come from in the future?

Renewables

Renewable energy is plentiful and infinite. There's no shortage of renewable energy from the sun, wind and water. We just need to use more of the technologies that harness them.

Hydro-electricity: uses the kinetic energy of moving water to make electricity.

Wave energy: the movement of the ocean can be used to power a turbine.

Solar energy: converts sunlight directly into electricity using solar or photovoltaic (PV) cells.

Wind energy: wind turbines change the kinetic energy of the wind into mechanical or electrical energy.

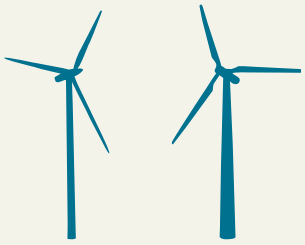
Biomass: steam from water boiled by burning dead wood, wood chips, left-over crops, etc. is used to turn turbines and generators.

LEARN
IN FOCUS

We need energy for just about everything we do. But our reliance on fossil fuels is bad for the environment and is causing our planet to heat up. We need to find new ways of producing energy and make different choices around how we use it.

2º C

WE NEED TO KEEP GLOBAL AVERAGE TEMPERATURE RISE AS FAR BELOW 2º C AS POSSIBLE



24% HIGHER

FROM 2006-2011 INSTALLED RENEWABLE ENERGY HAD GROWN BY 24% IN THE UK

THE PROBLEM WITH ENERGY...

We use energy for virtually everything we do: from cooking, to washing, to heating, to making things, charging our phones, to getting about. And increasingly we use energy for our leisure activities. Moreover, current trends suggest that global energy demand is set to soar, with growing numbers of people across the world expecting the same access to energy sources as the 'developed' world enjoys, while the energy use of so-called 'Western-style' countries continues to rise.

Inevitably these spiralling energy demands are having significant consequences for the environment. The increased production of greenhouse gases associated with our reliance on fossil fuels, for example, is linked to an acceleration of changes to the climate across the globe. And climate change affects us all – whether it's extreme weather changes such as flooding or drought, food shortages, or the loss of species and habitats.

We need to keep global average temperature rise as far below 2º C as possible compared to pre-industrial levels to avoid the worst effects of dangerous climate change. Appropriate alternative sources need to be developed to replace oil, natural gas or coal so that we can continue to heat our homes, cook our food, keep clean, get around and manufacture the goods we need. Using renewable and alternative energy sources could help developed nations be less dependent on other countries that produce more oil, assist the developing world in being less dependent on fossil fuels, bring growth and new jobs – and protect the planet!

What is needed to achieve a 'low carbon' future

- Government action to drive and support international conventions on energy and climate change, and set domestic policy, regulations and standards.
- Business investment in clean, green technologies such as renewable energy.
- Ditching the dirtiest fuels like tar sands. These 'toxic fuels' are even more polluting than conventional oil, and yet oil companies continue to increase their production.
- Public demand for greener energy technologies, by making choices about which energy providers they use and which tariff.
- Energy efficiency and energy use reduction, for example, by choosing to insulate our homes, opting for more efficient lighting and appliances, making different travel choices.
- We all need to show the government that people are prepared to stand up for clean, green energy developments.

ENERGY ISSUES IN THE CLASSROOM

An exploration of energy use, climate change and renewables relates to many aspects of Geography, Science, PHSE and Citizenship at key stages 2 and 3 (years 7-11 and 11-14), as well as providing opportunities to practise mathematical and writing skills. A study of energy and renewables is also a great Education for Sustainable Development topic as pupils can not only learn about a subject but also turn environmental concern and good citizenship into practical action at school and at home.

WWF

Why we are here
To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

wwf.org.uk

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