



U4energy



The European school challenge

Electricity

U4energy themes



2010 - 2011



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ELECTRICITY

Electricity in the 21st century

Electricity has become a common part of our everyday lives. Think about what it would be like if it came to disappear? There are currently 1.6 million people worldwide who do not have access to electricity. We use electricity so much in our everyday lives that we sometimes take it for granted. Yet our consumption continues to increase. By 2050, predictions estimate that world demand for electricity will quadruple! Fossil fuels alone can no longer sustain such demand. That is why the European Commission has launched an [ambitious plan](#) to cut emissions, increase energy efficiency, and increase renewable energy sources: all by 20% by 2020. These measures will help European citizens move towards a more sustainable future. These types of policies are expected to yield the decarbonisation of 70% of European electricity by 2050. Increasing renewable energy sources is indeed one important aspect. However, one should also consider the fact that fossil fuels still continue to be part of the energy mix. For that reason, CO₂ capture and storage are also expected to provide more advanced and viable solutions. By 2050, European thermal electricity is expected to adopt such systems for more than half its production.



Your school may not have the means to switch to greener energy sources, but you can help! You can make better informed decisions about daily behaviours in order to increase energy efficiency. Whenever you use electricity intelligently, not only do you save money, you also conserve natural resources, thereby reducing your carbon footprint.



The issues around lighting

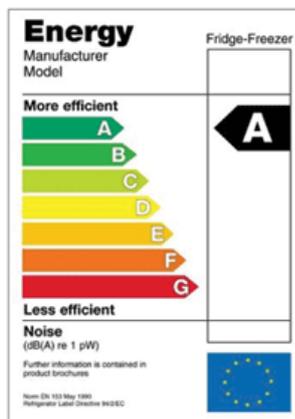
For the past 130 years, we have enjoyed what has now become known as traditional lighting, stemming from incandescent light bulbs. Yet these lights are not as efficient as one might think. Only 5-10% of the energy consumed by incandescent bulbs is transformed into light. New systems such as compact fluorescent bulbs (CFL's), light emitting diodes (LED's) or low powered halogen lights have gradually emerged as energy efficient alternatives. Although their initial cost is substantially higher, they last up to 10 times longer and use 65-80% less energy! In order to help European



citizens steer in the right direction, the EU has imposed a gradual phase-out of incandescent bulbs. Since 2009, EU manufacturers have been facing new legislative measures to gradually move towards an efficient offer. By 2012, they will no longer be allowed to manufacture incandescent bulbs. According the EU, these new measures are expected to yield yearly savings of 15 million tons of CO₂ and the possibility to power an additional 11 million households by 2020.

Reduce your electricity consumption

There are many things you can do to reduce your electricity consumption by adapting daily behaviours. Many of the actions you do at school can also be applied at home. Use natural lighting as much as possible and turn off the lights whenever you are the last person to leave a room. Many everyday appliances are often left on



stand-by mode. Yet they still consume up to half of the energy they use as when switched on! Turn off and unplug all devices that are not in use. Install power strips to allow you to effortlessly turn on and off a number of appliances at once.

At home, you can also do even more by paying attention to household appliances. Watch out for energy efficient labels! They will let you know which appliances are more energy efficient than others. Simple actions like washing full loads of clothes at 30 or 40 °C instead of 60 °C will already reduce energy consumption by half! Hang your clothes up to dry

instead of using a dryer.

Can you think of other great ways of being more energy efficient? Try to think of all the appliances you use every day and what you can do to avoid wasting energy.

Possible activities/discussion topics:

- Map the daily activities at home and at school that require electricity. What can you do to increase their efficiency?
- What kind of electricity sources are you using at school and at home? Are these sources renewable or non-renewable?
- Visit a home electronics and domestic appliance store and get acquainted with energy labels and product specifications.



Useful links:

Further information about energy:

IUSES, Intelligent Use of Energy at School:

- Tips & Hints
 - <http://www.iuses.eu/tips.html>
- Downloads, teachers & students
 - <http://www.iuses.eu/downloads.php>

The FEEDU, Persuasive force of children through education, toolbox:

- <http://www.feedu.org/educational.php>

Directorate-General for Energy:

- Labelling of Domestic Appliances
 - <http://www.energy.eu/focus/energy-label.php>
- Advice on energy-saving light bulbs:
 - <http://ec.europa.eu/energy/lumen/overview>

Look up energy resources in your language:

Kids Corner Energy Education Database:

- <http://www.learn-energy.net/kidscorner/te2.html>

U4energy resource repository:

- <http://www.u4energy.eu>

Tips & facts:

- Did you know that ink-jet printers consume 90% less energy than laser printers?
- Up to 10% of the energy used by a household comes from appliances on standby.
- Did you know that CFL's use up to 80 % less electricity and can last up to ten times longer than conventional, incandescent bulbs?
- Did you know that ink-jet printers consume 90% less energy than laser printers?
- Accumulated dirt on a lamp can block up to 20% of light, often encouraging people to turn on more lights. Make sure to clean light fittings!
- The EU energy label helps consumers understand the energy efficiency level of light bulbs, cars, and most electric appliances – so pay attention!
- Save energy by turning off lights when you are the last one to leave a room.
- Take advantage of natural light – it's free!
- Incandescent light bulbs waste 90% of the energy they consume as heat.

Spot the difference!

Can you tell the difference between the two images? Discuss these images with your classmates to define which actions should be adopted and which should be avoided. Good luck!



