

## Energy and climate action – use clean, renewable energy



The sun delivers more energy to earth in an hour than is used worldwide in a year!

### Think about it...

Here are some questions to get your class thinking about clean, renewable energy ...

1. *How does burning fossil fuels affect our climate?*
2. *How many people in the class use renewable energy at home?*
3. *What types of clean, renewable energy are available in Ireland?*
4. *Why aren't we using more renewable energy?*
5. *How can you encourage people in your community to use less energy and use clean energy?*

### Energy in-use

Most of the energy used every day is from burning fossil fuels, like coal, oil and peat. This energy is used every day in homes, businesses, schools and for travel. Burning fossil fuels produces carbon dioxide. Carbon dioxide is one of the greenhouse gases which are causing climate change. Greenhouse gases cause the earth to heat up by trapping the sun's heat in the earth's atmosphere. Climate change is causing the earth to become warmer.

### Because of climate change:

- Global temperatures are rising
- The polar ice caps are melting
- Droughts and flooding are more common
- Deserts are getting bigger
- Some animals and plants are at risk of becoming extinct
- Extreme weather like storms and hurricanes are more common

The choices you make today will decide the future of the climate. By encouraging others to choose to use more renewable energy, you can take climate action.

## Clean, renewable energy

In 2017 renewable energy sources provided about 10.6% of Ireland's energy, with a target of 16% by 2020.

In Ireland we get enough sun to use solar panels to heat 60% of the hot water needed in a typical home.

Ireland has a lot of renewable energy resources but only a small amount is being used.

### The main sources are:

- The sun (solar energy)
- The wind
- Water (hydropower, wave and tidal energy)
- Heat below the surface of the earth (geothermal energy)
- Biomass (wood, waste, energy crops)

### Using renewable energy:

- Reduces carbon dioxide emissions
- Provides a secure energy supply, that will not run out
- Reduces dependence on fossil fuels
- Creates jobs in renewable energy projects

## What can you do?

### *Clean Renewable Energy*

- **Passive solar design** uses the energy from the sun to provide heat and light in buildings. Houses designed to face south capture sunlight. Energy bills can be reduced by more than 10%.
- **Use solar panels.** Some solar panels produce hot water; a well-designed solar hot water system can supply 60% of the annual hot water requirements for homes. It works even when the sky is overcast or cloudy. PV solar panels produce electricity that can be used in homes.
- **Switch to using wood fuel** instead of fossil fuels like peat, coal or gas. Burning wood in a modern, efficient stove or boiler is better for the environment. Wood is CO<sup>2</sup> neutral; the amount of CO<sup>2</sup> given off by burning wood equals the amount taken in when the wood is growing.

- **Heat-pumps** convert energy from the air outside of your home into useful heat. Heat generated is released through radiators, underfloor heating or warm air.
- Write to your local politicians asking them to improve funding for renewable energy projects such as wind, solar and wave power.

## Find out more

### Resources for Teachers and Student

#### *Websites and videos*

- Visit SEAI's web pages on [renewable energy](#)
- The [Student Energy](#) website has a range of videos about renewable and non-renewable energy sources.
- [Green Mountain Energy](#) have developed a series of videos explaining different type of renewable energy
- Find out more about [Solar PV panels](#)

### Resources for Teachers only

#### *Classroom Activities*

Use the [Energy in Action](#) resources with your class:

- A2 Activity 3: The Power of the Wind - Making your own generator
- A2 Activity 3 Worksheet C: The Power of the Wind - What do you think?
- A2 Activity 4: Exploring the Wind Turbine
- D5 Activity 1: Solar Energy and D5.1 Discussion Points
- A4 Exploring Ocean and Tidal Energies – Overview

### Taking Climate Action

- Research the impacts of climate change in Ireland and globally, using the links below.
- Calculate your Carbon Footprint and come up with ways to reduce it.
- Go on a carbon diet! Try to use less energy in your everyday life at home, at school, when you travel and remember to think before you buy.

- Research what the Irish Government are doing to take action on climate change. Investigate what other countries are doing. Write to your politicians asking them to take Climate Action.

## Resources for Students and Teachers:

### Websites

- <http://www.epa.ie/>
- <http://www.dcae.gov.ie/en-ie/climate-action/Pages/default.aspx>
- <http://www.climateactionprogramme.org/>
- <http://unfccc.int/>

### Examples of climate action campaigns:

- <https://1010uk.org/>
- <http://www.350.org>
- <https://www.stopclimatechaos.ie/>
- <https://www.foe.ie/>
- <http://www.greenpeace.org>
- <https://www.irishtimes.com/news/environment/climate-strikes-irish-students-rally-across-the-country-1.3903120>
- <https://www.seai.ie/blog/victory-luke-address-to-i/>

### Infographics

- [Climate Action Plan 2019 - How do we reach our target?](#)

### Calculate your carbon footprint:

- <http://www.epa.ie/climate/calculators/>

### Videos:

- Eco Eye: [Climate Change & Ireland's Citizen's Assembly](#)
- Eco Eye: [Climate Friendly Living, A look at our carbon footprint and the measures we can take to reduce it](#)
- Eco Eye: [Climate Change and Me](#)
- [Fossil free Ireland, Dr Cara Augustenborg, TEDxUCD](#)
- Leonardo DiCaprio on climate change <http://leonardodicaprio.com/news/>
- [Before the Flood](#)

- National Geographic: [Causes and Effects of Climate Change.](#)
- [Greta Thunberg full speech at UN Climate Change COP24 Conference](#)
- [An Inconvenient Truth](#) / An Inconvenient Sequel: Al Gore's films on the global impact of climate change

**Resources for Teachers:**

**Climate Action Lesson Plans:**

- Lesson plans on global warming and climate change
  - [C3 Activity 1: Global Warming in a Bottle](#)
  - [C3 Activity 2: The Effect of Global Warming on the Polar Ice Caps and Melting Glaciers](#)
- Lesson plans on sustainability  
[A3 Activity 1: Visualising: Why Sustainability? Is there enough land for everyone?](#)