

Education

About Us:

At Northern Gas Networks, we deliver gas to keep homes warm and provide energy for cooking and industry.

We transport gas to 2.7 million customers in the North of England through 37,000km of pipes, that's enough pipes to stretch from Leeds to Sydney and back again! We maintain and upgrade our pipe, network and respond to gas emergencies to keep everyone safe.

As well as providing energy today, we're busy planning for a greener future. We know the gas we use is contributing to climate change because it produces carbon dioxide when burned, so we're exploring opportunities to deliver more sustainable forms of energy, such as hydrogen.

Site visits:

Depending on your location, we can offer a visit to the UK's first 'Hydrogen Homes' located in Gateshead. The only place for the public to experience real working 100% hydrogen appliances in the place of today's gas appliances.

Meet the team!

If you would like to find out more, please contact us at efeducation@northerngas.co.uk and one of the team will be in touch!

What we can offer your school:

We know our young people care passionately about the environment and want to help them understand the effect of climate change. We run fun, **free** learning sessions which are interactive and engaging and can be delivered through assemblies, lessons, presentations, or a full day of activities.

We also produce resources for you to continue to use in your teaching or for STEM and Eco clubs.

All of our sessions have been developed with the current curriculum and exam board specifications in mind, to ensure that they are relatable to your own school objectives.

Alongside opportunities for your students, we can also offer staff CPD sessions to provide you with up-to-date information about the gas industry.



Alex



Dave



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Here is an overview of our sessions, or we can also work with you to develop a bespoke session to meet your needs. We deliver sessions through assemblies, lessons, presentations, or a full day of activities. We'll discuss the length of session and best format to meet the needs of your pupils with you. We can explain how our resources fit with the school curriculum and exam specifications. We also produce resources for you to continue your teaching or for STEM and Eco clubs after our visit.

For more information or to book a session please contact us at: efeducation@northerngas.co.uk

Resource name	Description	Primary	Secondary	Post 16	NGN Delivery	Teacher Delivery
Energy Island	Introduction to Net Zero, greenhouse gases, climate change, Renewable and non-renewable resources-advantages and disadvantages. Pupils develop their own island to try and achieve Net Zero for energy production. Can be tailored to fit with available time.	✓	✓	✓	✓	
Atmosphere and Climate change	Covers the evolution of the atmosphere from creation. The greenhouse effect and climate change are covered and leads to discussions around Net Zero.		✓	✓	✓	
Net Zero Board Game	Basic board game to help the understanding of Net Zero. Usually included as part of another session.	✓	✓		✓	
Energy Trumps	Energy based card game to introduce renewable energy.	✓	✓		✓	
Carbon Cycle and renewables	A game-based introduction to the carbon cycle. The problems of energy production (burning fossil fuels) and increasing carbon dioxide levels are highlighted. We then look at the Greenhouse effect and why we need to reach Net Zero.		✓	✓	✓	
Fossil Fuel Combustion vs Hydrogen combustion	Shows the combustion of fossil fuels and what is produced when they burn. This is compared to hydrogen combustion, which can be produced "greenly" and why it can help us to reach Net Zero.		✓	✓	✓	
Net Zero Quiz	A quiz that covers Net Zero, climate change, greenhouse effect and solving the problem. The quiz is designed to allow discussion and to cover key misconception, leads to new understanding, highlights the importance of Net Zero.	✓	✓	✓	✓	
Insulation-How science works	An investigation-based approach to look at how insulating homes, and efficiency are of importance to reaching Net Zero. Experimental approach taken, will need access to hot water.	✓	✓		✓	✓

Resource name	Description	Primary	Secondary	Post 16	NGN Delivery	Teacher Delivery
Hydrogen-From Production to home.	Introduction of future fuels and the possible uses of hydrogen. Involves a practical approach to production, distribution, and end use of hydrogen. Looks at any problems and solutions.	✓	✓	✓	✓	
Hydrogen electrolysis experiment	Experiment to show how green hydrogen can be produced.	✓	✓	✓	✓	
Greenhouse effect experiment	Simple experiment to demonstrate the impact carbon dioxide plays on global warming.	✓	✓		✓	
Net Zero explained	A basic presentation that covers Net Zero, Climate Change, Greenhouse effect and some of the possible solutions.	✓	✓	✓	✓	
Net Zero-Class general task	A work booklet designed for teachers to deliver to students.	✓	✓			✓
NGN future fuels team	Presentation (lecture style) of what Northern Gas Networks does and why we do it.		✓	✓	✓	
Greenhouse gas Superhero's	An introduction to greenhouse gases and what they are and how they form but done by designing superheroes and super villains.	✓			✓	
KS1 Global warming	A very basic introduction, including an experiment, for KS1 into what global warming is and the problems associated with it.	✓			✓	
Bond energies	This shows what happens to molecules during combustion. It allows students to calculate the energy released when different fuels burn. This then links to how some fuels can help the UK reach Net Zero.		✓	✓	✓	
Designing a Hydrogen infrastructure	Design a Hydrogen Infrastructure: Challenge students to design a hydrogen infrastructure for a specific location or community. They plan the production, storage, and distribution of hydrogen, considering factors like demand, supply, and infrastructure requirements.		✓	✓	✓	
Hydrogen as a Replacement for Methane	Look at methane molecules and hydrogen molecules and find out how they are different. Then look at how the combustion/burning of them is different. The students look at the advantages and disadvantages of methane and hydrogen. The students will get an insight into current projects looking at using hydrogen as a green alternative to methane. Then the class is split in half to debate the use of hydrogen vs methane.		✓	✓	✓	

Resource name	Description	Primary	Secondary	Post 16	NGN Delivery	Teacher Delivery
Net Zero Project	This is a project activity for students to complete. It is very flexible and can be done as an enrichment day, in lessons, or run with a STEM/Eco club. It is led by teachers but could be adapted to involve more independent study. The project will show pupils the importance of Net Zero and trying to reduce the effects of global warming on the planet. We are happy to attend to start the project then return at the end of the project to judge the pupils finding- but can be run as an independent project by the school	✓	✓			✓
Carbon Footprint	Students look at Net Zero and the greenhouse effect. Students then answers a series of questions to work out a carbon footprint score. This highlights the impacts their own lives have on global warming. The students then look at how they could reduce their own carbon footprint.	✓	✓	✓	✓	
Staff CPD	We are happy to deliver sessions to members of staff about the possible projects around future energy and why it is being done. This will allow staff to have informed discussions about Net Zero and possible solution to it with their students.	✓	✓	✓	✓	

To find out more, book a session or discuss a bespoke session, email efeducation@northerngas.co.uk