

Education – Northern Gas Networks

Supporting schools and education facilities in the delivery of sessions linking to Net Zero, climate change, sustainability, and industry.

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.

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.

- Deliver workshops to discuss Net Zero, sustainability and topics around climate change.
- Tailored sessions for classes, organised groups, and year groups.
- Support in delivering careers events you hold in school.
- Speak in and deliver assemblies around Net Zero, sector specific careers and apprenticeships.
- Staff CPD opportunities to provide you with up-to-date industry information which could support delivery of in school sessions and links to industry with your students.

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.

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

Meet the team!

All our team are recognised STEM Learning Ambassadors, have undertaken Advanced Safeguarding training and have Enhanced DBS Certificates. The team are super enthusiastic about delivering fun and engaging sessions about Net Zero and helping to spread awareness about the challenges we face, and possible solutions.



Dave



Alex



Rebecca

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!

We have detailed our sessions in the following resource table, but we can work with you to develop a bespoke session to meet your needs, and the needs of your students. We can discuss the length of your session, the best format for your requirements and are happy to explain how our resources fit with your school curriculum or exam specifications.

Our sessions can be adapted for SEND students, just let us know in your enquiry.

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

Secondary Schools

Resource name	Description
Energy Island	<p>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.</p> <p>This session can be run as a 'Dragons Den style' project where students are challenged to look at factors such as energy sources, supply chain management, waste reduction, and carbon offsetting. This project encourages students to think creatively about sustainable business practices.</p>
Hydrogen cars	<p>An interactive and experiment-based session.</p> <p>Experiment that shows firstly how green hydrogen can be produced (electrolysis).</p> <p>Students then work with model cars that are powered using hydrogen in a fuel cell. Net Zero will be explained. We can also look at advantages and disadvantages of fuel cells.</p>
Fuel Cells	<p>An interactive and experiment-based session.</p> <p>Experiment that shows firstly how green hydrogen can be produced (electrolysis).</p> <p>Students then work with model cars that are powered using hydrogen in a fuel cell. Net Zero will be explained and students observe how fuel cells work and the advantages and disadvantages of fuel cells.</p>
Insulation	<p>An interactive and experiment-based session that looks at how insulating homes, and efficiency, are of massive importance for the UK to reach Net Zero.</p>
Hydrogen Electrolysis Experiment	<p>An interactive and experiment-based session.</p> <p>This experiment shows how green hydrogen can be produced.</p>

Resource name	Description
Fossil Fuel vs Renewables	<p>A hands-on session introducing Net Zero and climate change. Students explore the differences between renewable energy and fossil fuels through a simple experiment, helping them understand why transitioning to cleaner energy is essential for protecting the environment.</p> <p>This session involves an experiment using candles and renewable resources.</p>
Hydrogen-Production and Distribution	<p>An interactive and experiment-based session. Introduces how “Green hydrogen” can be produced using an electrolysis experiment. Students then build their own model gas network which will be tested to see if it functions correctly and meets demand.</p>
Escape Room	<p>An interactive session which uses the idea of an escape room. Students are tasked with the challenge to decode padlocks by solving a series of puzzles linked to Net Zero, climate change and future energy.</p> <p><i><u>(This session has limited availability, please contact us for dates)</u></i></p>
Greenhouse Effect Experiment	<p>An interactive and experiment-based session. Simple experiment to demonstrate the impact carbon dioxide plays on global warming.</p> <p>Works best when there is sunshine, and equipment can be set up in the sun.</p>
Atmosphere and Climate Change	<p>Covers the evolution of the atmosphere from the Earth’s creation to now. The greenhouse effect and climate change are covered and leads to discussions around Net Zero. Simple experiment to demonstrate the impact carbon dioxide plays on global warming.</p>
Bond Energies	<p>This shows what happens to molecules during combustion. It allows students to calculate the energy released when different fuel burn. This then links to how some fuels can help the UK reach Net Zero.</p>
Biogas and Digestors	<p>A hands-on, experiment-based session exploring how biogas is produced, how it’s used, and how it can support the UK’s journey to Net Zero.</p> <p>We’ll set up a simple biogas experiment during our visit. As it takes a few days to develop, teachers will need to check on it later in the week to see the results.</p>
Designing a Hydrogen Infrastructure	<p>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.</p>

Resource name	Description
Industry Cadets (5 hours commitment for delivery of sessions)	Coming September 2026! A series of sessions to be delivered over 5 hours (one day or separate sessions) to include hands on practical activities designed to encourage employment skills and gain an industrial cadets award. For more information, ask your NGN rep.
Carbon Capture	An interactive and experiment-based session. This session will give a brief overview to carbon capture, how it works, and how it could help the UK to reach Net Zero. It will look at carbon capture, how carbon dioxide is captured, transported and stored.
Carbon Cycle and Renewables	A game-based introduction to the carbon cycle, which then highlights the problems of energy production (burning fossil fuels) increasing carbon dioxide. We then look at the greenhouse effect and why we need to reach Net Zero.

Post 16 Sessions

Resource name	Description
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. This session can be run as a 'Dragons Den style' project where students are challenged to look at factors such as energy sources, supply chain management, waste reduction, and carbon offsetting. This project encourages students to think creatively about sustainable business practices.
Atmosphere and Climate Change	Covers the evolution of the atmosphere from the Earth's creation to now. The greenhouse effect and climate change are covered and leads to discussions around Net Zero. Simple experiment to demonstrate the impact carbon dioxide plays on global warming.
Carbon Cycle and Renewables	A game-based introduction to the carbon cycle, which then highlights the problems of energy production (burning fossil fuels) increasing carbon dioxide. We then look at the greenhouse effect and why we need to reach Net Zero.
Hydrogen-Production	An interactive and experiment-based session.

Resource name	Description
and Distribution	Introduces how “Green hydrogen” can be produced using an electrolysis experiment. Students then build their own model gas network which will be tested to see if it functions correctly and meets demand.
Hydrogen Electrolysis Experiment	An interactive and experiment-based session. This experiment shows how green hydrogen can be produced.
Fuel Cells	An interactive and experiment-based session. Experiment that shows firstly how green hydrogen can be produced (electrolysis). Students then work with model cars that are powered using hydrogen in a fuel cell. Net Zero will be explained and students observe how fuel cells work and the advantages and disadvantages of fuel cells.
Bond Energies	This shows what happen to molecules during combustion. It allows students to calculate the energy released when different fuel 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.
Carbon Footprint	Students look at Net Zero and the greenhouse effect. Students then answer 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 solutions to it with their students.

Games and Quizzes

These sessions can be delivered as standalone but work best delivered alongside other resources.

Resource name	Description
Net Zero Board Game	Basic board game to help the understanding of Net Zero. Usually done as part of another session.
Energy Trumps	Energy-based card game to introduce renewable energy.
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, highlight the importance of Net Zero.
Carbon Footprint Quiz	A quiz designed to allow students to calculate their own carbon footprint score. This highlights the impacts their own lives have on global warming. The students look at how they could reduce their own carbon footprint.

We have developed and adapted our resources for extracurricular sessions both inside and outside of schools including:

- Eco / Science Clubs
- Cubs and Scouts – We have developed resources to work towards the Science Badge.
- Holiday / after school clubs

Please get in touch for more information by emailing us at efeducation@northerngas.co.uk or by scanning the QR Code.

