Didcot A Power Station

Science (Physics) visit for 11-14 year olds

Didcot A Power Station is a 2,000MW dual-fired power station, which generates electricity using coal, gas and biomass.

Come to our power station to see:

1. Our 199m high chimney – taller than Blackpool tower!
2. Our control room from our viewing gallery
3. Where the coal arrives by train and is unloaded

Visit Didcot A Power Station, Oxfordshire

Please use the following contact details to arrange a visit to Didcot A power station:

Power Station Visits Co-ordinator

Didcot A Power Station, Didcot, Oxfordshire, OX11 7HA

T: 01235 512291 **F:** 01235 516097 **E:** eddidcot@rwenpower.com

Please provide a minimum notice period of 3 weeks when booking your tour so we can ensure your visit to our power station is as beneficial as possible.

We look forward to welcoming you to Didcot Power Station and helping your students to gain a real insight in to how electricity is generated!

The visit consists of

This visit around our power station is free of charge for UK educational institutions and will include:

- Introduction/Presentation/DVD/Health & Safety briefing
- Guided tour of the power station
- Review & Feedback session

The full duration of this tour is 2 hours.

The visit begins with a brief introductory talk on power generation at Didcot. A short video 'Welcome to Didcot' is shown followed by a tour of the site including a visit to the coal plant, turbine hall and control room viewing galleries.

As part of our Health & Safety policy we offer this tour to Year 4 pupils (8-9 year olds) onwards.

Your views and those of your students are important to us and help us to develop our education commitment. We will ask your students some questions after the visit and will provide you with a short feedback form. We would be grateful if you would complete the form and send it back to us.

This visit helps to deliver part of the following KS3 Science (Physics) Learning Objectives

- Understand how a power station generates electricity
- Understand the energy transfer cycle during the generation process
- Understand the role of electromagnets, transformers and turbines

Key Stage 3 The National Strategy Framework for Teaching Science:

4. Energy, Electricity and Forces

4.1 Energy Transfer and Electricity

Year 7 - Describe how energy stored in a range of energy resources, e.g. food, biomass, oil, gas, wind and waves, can be usefully transferred

Year 8 - Use a simple model of energy transfer to describe common observations

- Explain why quantitative measures of energy transfer should also be considered when making informed decisions, e.g. building wind farms
- Explain how electricity is generated using a variety of energy resources

Year 9 - Justify the selection of an energy supply system in a particular situation, e.g. an island off the north coast of Scotland compared to an island near the equator

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Size of group

We can accommodate groups of 5 to 35 people.

This tour is booked on the strict understanding that the group visiting adheres to our Health & Safety requirements and to their Local Authority's regulations regarding off site visits including the adult:child ratio to provide adequate supervision during this visit.*

* Please advise us of your Local Authority's adult:child ratio when arranging your tour as in some cases our ratio may be more cautious, therefore we would require you to adhere to npower's ratio.

These visits are available

Guided tours of Didcot A Power Station are held in the morning and afternoon, by appointment only, from Monday – Friday throughout the year (excluding Bank and Public Holidays). All tours are subject to advance booking and the availability of the Tour Guides.

Key words that may be referred to during the visit

Potential Energy, Chemical Energy, Thermal Energy, Mechanical/Kinetic Energy, Electrical Energy, Energy Transfer, Frequency Hz, Voltage V

Skills and concepts that may be referred to during the visit

- Be aware of the real world industrial application of chemistry principles in action
- Understand the impacts on the local area of the process of electricity generation
- Experience science in the workplace
- Recognise the importance of finding / developing sustainable energy solutions

By the end of the visit students should be able to describe

- What is induced in a coil of wire when a magnet is moved through it
- How, in a generator, the frequency of the alternating current is set by the speed of rotation of the magnet. (3000 rpm = 50 Hz)
- The role of the boiler, turbines and electromagnets in generating electricity
- The Energy Transfer Cycle (potential, thermal, mechanical/kinetic, electrical)
- The water cycle and how the filter screens, pump house and condenser operate

Health & Safety

Visitors should wear flat sturdy shoes (no sandals and flip-flops), suitable for walking across metal mesh flooring and clothing adequate for any prevailing weather conditions. The site tour requires the visitors to undertake a considerable amount of walking and a number of flights of stairs. If an individual has any access requirements the station will require this information as soon as possible.

The Station will provide all visitors with personal protective equipment (safety helmets, safety spectacles and ear plugs if appropriate), which must be worn at all times during the site tour. If an individual is unable to wear a safety helmet, i.e. for religious reasons, the station will require this information as soon as possible.

On arrival all visitors will be offered refreshments consisting of tea, coffee, orange squash and biscuits. Please would you inform the station as soon as possible if any member of the group is unable to have the refreshments mentioned. Please note smoking whilst on site is not permitted apart from in designated areas.

Due to magnetic fields on site, please inform the station as soon as possible if any visitor has a pacemaker, cochlea implant or items fitted that may be affected in these areas. We will also require all visitors to switch off their mobile phones whilst out on site.

Due to certain ambient conditions the Coal Plant and its immediate surrounding area has the potential to be high in dust particles. Therefore as a precautionary measure, any visitors with a respiratory condition such as asthma will not be permitted to enter the area. A small quantity of our fuel may contain nut or a nut derivative product. If a visitor has a nut allergy, and carries an Epipen to treat an acute allergic reaction, they will also not be permitted in this area. Please inform the station prior to arrival if a member of your group has any of the conditions mentioned.

For each booking, cameras and photography are not permitted unless authorisation is sought in writing from the Station Manager prior to arrival.

Visitors must follow the station guides and follow the designated footpaths and walkways at ALL times.

Security reserves the right to refuse entry and remove any individual from the site. If necessary, security reserves the right to search an individual and their belongings including their vehicle whilst on site. Please note you are not permitted to bring animals on to site.

A Risk Assessment of the power station guided tour is available upon request.

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Follow up back in class

You/your students may find the following web sites/resources of help:

'Energy in Action' film

Access our short film that highlights how electricity was discovered and is generated.

Visit our STEM – power station visits section of **www.npower.com/education**

Tour a power station

Access our virtual tour of one of our power stations to see how electricity is generated.

Visit **www.brightergraduates.com/npower-plant-tour**

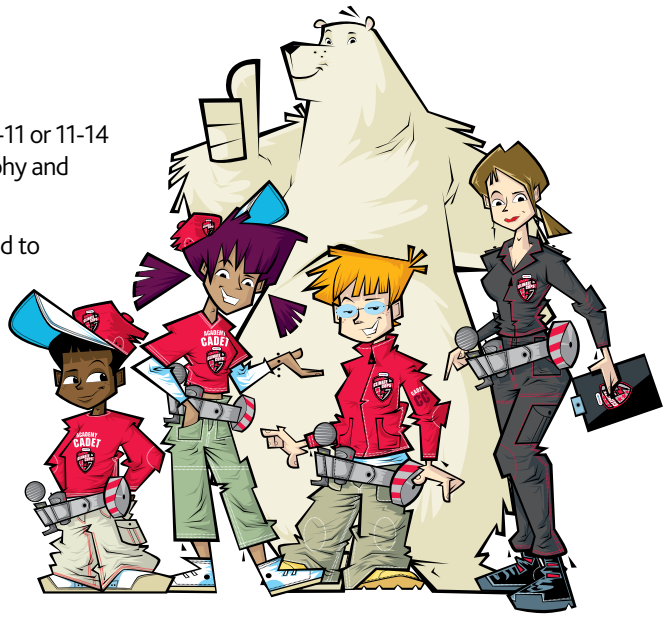
npower Climate Cops teaching resources

Order our free of charge npower Climate Cops teaching resources for 4-7, 7-11 or 11-14 year olds which are mapped to the national curriculum for Science, Geography and Citizenship.

Our fun and engaging resources provide you with the learning tools you need to help you deliver fun and engaging lessons on energy, energy efficiency, renewable energy, climate change and sustainable development via worksheets, interactive presentations, games, full colour posters, information sheets and teacher notes.

The Teaching resources for 7-11 and 11-14 year olds are multi media.

Visit the Climate Cops section of **www.npower.com/education** to order your free resource today.



Apprenticeship and Graduate recruitment schemes/Job roles

Explore our web site to find out more about the exciting job roles within our company and our Apprenticeship and Graduate recruitment schemes.

Visit: **www.npowerjobs.com**

For further information about the npower education programme, please visit **npower.com/education**

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