

Fawley Power Station

Science (Physics) visit for 16-18 year olds

Fawley Power Station generates electricity using oil. It is powered by heavy fuel oil. Fawley has the ability to generate 1,000MW of electricity for the National Grid System. This is enough power to meet the need of around 1 million people - equivalent to the working population of Hampshire.

Come to our power station to see:

1. The 198m high chimney, Hampshire's tallest structure
2. Futuristic Control Room accessible to visitors
3. Views across the turbine hall

Visit Fawley Power Station in Southampton, Hampshire

Please use the following contact details to arrange a visit to Fawley Power Station:

Power Station Visits Co-ordinator

Fawley Power Station, Fawley, Southampton, Hampshire, SO45 1TW

T: 02380 245698

F: 02380 245617

E: fawley@rwenpower.com

Please provide a minimum notice period of 2 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 Fawley 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 and will include:

- Introduction Briefing
- Guided tour of the power station
- Review & Feedback session

The full duration of this tour is 2 hours.

The tour includes a visit to the control room and seeing the cooling water drums, gas turbines, boilers and generators. In the exhibition room, visitors are shown models of the power station and a model which shows how electricity is generated at Fawley.

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 parts of the following KS5 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 5

Energy and Electricity

Electrical Circuits and Transformers



Size of group

Tour groups are limited to 16 persons.

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

Monday to Friday starting at 1000hrs and 1400hrs.

During Fawley Power Station's annual overhaul it is often necessary to reduce the length and route of the standard tour for safety reasons. The overhaul period is normally June until September. Therefore it may be advisable to avoid booking a tour during this period.

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 physics 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
- Why step up and step down transformers are used
- The Energy Transfer Cycle (potential, thermal, mechanical/kinetic, electrical)
- How the grit arrestors work to remove particulate material
- The water cycle and how the filter screens, pump house and condenser operate
- How much oil is required to power a light bulb and an electric heater for an hour
- How fuel efficient an oil fired power station is compared to other fuels
- How to fire up and how long it takes to start a power station from 'cold'
- The role of a oil fired power station in providing peak load to the national grid

Health & Safety

Where parties include young persons under 18 years of age their taking part in the visit shall be regarded as an agreement by their parents or guardians to the conditions upon which this booking confirmation has been issued.

The station will provide visitors with personal protective equipment, safety helmet, spectacles, high visibility waistcoats [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.

Visitors should wear flat sturdy shoes suitable for walking across mesh and uneven flooring (no sandals and flip-flops).

Visitors should wear clothing adequate for prevailing weather conditions.

The site tour requires visitors to undertake a considerable amount of walking and some flights of stairs. If an individual has any access requirements, the station will require this information as soon as possible.

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.

Visitors must not touch any part of the machinery or instruments as serious damage and personal injury might result from so doing.

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

Photography, filming and the use of mobile phones is not permitted.

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

Empowering the next generation from the first
day of school to the first day of work



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.

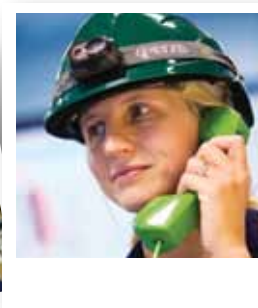
Visit the Climate Cops section of www.npower.com/education to order your free resource today.



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