

# Energy Sustainability Day

## Energy sustainability day

A day for pupils to learn about renewable energy & insulation and their role in reducing green-house gas emissions. They will carry out an investigation of the effectiveness of different types of insulation and find out about the role of the sun in photosynthesis and in generating electricity. Students will explore some of the sustainable features which help Suntrap to reduce our green-house gas emissions. They will have the opportunity to demonstrate their understanding of climate action through an achievable personal behaviour change.



## Learning objectives

- to understand that changes to the climate is a natural process, but that the heating of the atmosphere has speeded up through human activities releasing greenhouse gases
- to define renewable energy sources
- to explain how sustainable features help to reduce green-house gas emissions

## Some suggestions for visit preparation

1. Discuss "what is climate change?" as a class.

## Follow on suggestions

1. Write to your local councillor/MP about why climate action is needed.

## National curriculum links

### Y5 Science

#### Properties and changes of materials

- compare and group together everyday materials on the basis of their properties including their conductivity
- give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials

### Y6 Science

#### Evolution and inheritance

- identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution

#### Electricity

- associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit
- compare and give reasons for variations in how components function, including the brightness of bulbs

### Geography

#### Human and physical geography

- the distribution of natural resources including energy and water

#### Geographical skills and fieldwork

- use maps to describe features studied use symbols and key

**Photovoltaic Panels**

A solar photovoltaic (PV) panel changes sunlight into electricity. Sunlight is caught by the solar panels and converted into usable electricity by the inverter. This is used to power the lights, electric sockets and appliances directly or stored in a battery for use later when the sun is not shining. If not used or stored, the excess electricity is directed back to the National Grid.

1 Solar panels convert sunlight to DC current  
2 Inverter converts DC electricity to AC  
3 Take electricity your home requires  
4 Extra electricity credited on grid

The Lodge and Main building's PV panels can generate approximately 30,000 kWh of energy per year. The average 3 bed house uses 3000 kWh per year, which means Suntrap could power 13 houses per year!

**Why is it sustainable?**

We have PV panels on the Lodge and on the main building. The panels give us electricity to power the buildings and it means we don't need as much electricity from the grid. Solar panels are a renewable energy source, and this means they energy source won't run out unlike gas, coal or oil which also produce lots of carbon emissions. Renewable energy sources are "greener" energy sources like wind power, wave power and solar power.

**What is the wider impact?**

Investing in a solar power system makes you less reliant on the National Grid for your electricity. It's also cheaper in the long run because you don't have to pay for your electricity, and you can even earn money for the electricity that goes back into the National Grid. You can even get solar power farms, where there are whole fields of solar panels generating electricity for towns and businesses. The largest one is in Wales, which supplies electricity for Shotwick Paper Mill. The solar farm supplies 70% of the paper mill's energy requirements, saving the business 22,500 tonnes of carbon emissions annually.



Click [here](#) to read our day visit risk assessment

Bringing nature nearer