

# Eco Trail

**Eco Trail – This is a half day activity, add a second half day activity to make your own programme for your day at Suntrap. Click [here](#) for KS2 activities**

Use map skills to undertake an activity trail to learn about the different eco and sustainable features at Suntrap, including solar panels, ground source heat pump and rainwater harvesting system. Pupils will share what they have learnt and consider how each feature contributes to reducing greenhouse gas emissions.



## Learning objectives

- to use map skills to navigate around the Suntrap grounds
- to understand how increased greenhouse gas emissions led to climate change
- to define renewable energy sources
- to explain how sustainable features help to reduce climate change

### Some suggestions for visit preparation

1. Discuss “what is climate change?” as a class.
2. Look into what school initiatives are already taking place to help combat climate change.

### Follow on suggestions

1. Write to your local councillor/MP about why climate action is needed.
2. Watch Horrible Histories Season 9 – Precious Planet

## National curriculum links

### 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

## Physical education

- take part in outdoor and adventurous activity challenges both individually and within a team

### 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.

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 10 houses per year!

#### 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.

#### 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.

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.

### Homes for Nature

Around Suntrap we have created lots of 'micro habitats' and shelters to help our local wildlife have a safe home. We have two green roofs on site, this one above the animal enclosure provides food and shelter for invertebrates. Around the animal enclosure we have different designs of invertebrate 'hotels' with wood chippings and bamboo, homes for different creatures. Around our garden we have many bird and bat boxes, providing safe places for both animals to roost and nest.

#### Why is it sustainable?

Green roofs are a sustainable way of cooling down structures whilst also providing homes for invertebrates and food for birds. They are also a great tool for absorbing carbon dioxide out of the atmosphere. The invertebrate hotels provide habitats for invertebrates like solitary bees and beetles that perform important services in the environment like pollination and decomposition. Bird and bat boxes act as replacements for lost ancient trees that are full of holes for the animals to roost in, creating boxes provides suitable safe places for the animals to reproduce.

#### What is the wider impact?

Green roofs could revolutionise the way we design urban areas, especially cities. They can drastically cool cities in the summer and help with air pollution issues. Utilising 'wasted' space of buildings roofs and instead use them as natural carbon capture tools, whilst also making cities much nicer to spend time in with increased green spaces. Birds and bats have suffered from deforestation and lack of ancient trees, providing them with homes will allow them to continue their services within the ecosystem, such as pest control.

### Water Harvesting

Water harvesting systems collect the rainwater that would usually run off into drains or onto pavements, and store it in tanks for other uses. The most common examples of this are water butts or rain barrels that you usually find in gardens. If you look around, you'll notice we don't have any water butts, instead the water from the roofs of our buildings is collected underground in big tanks. The water from the outdoor classroom and the main building is filtered to remove any big bits of dirt and leaves and kept in tanks to be used again in the gardens.

#### Why is it sustainable?

**Boot wash**  
Water collected from the main building is stored under the ground near the front door. It will flow down to be used for the boot washing taps, for you to clean your wheels! From there it then drains into the pond in the corner of the garden. The rainwater is much better for the pond and the wider environment, because it doesn't contain chemicals that are put into main water to make it safe to drink.

#### What is the wider impact?

Rainwater harvesting is one of the ways we are reducing our impact on the environment. A growing population is putting increasing pressure on our water resources. At the same time, climate change is likely to lead to summers with lower rainfall and so there will be less water available. It is predicted that demand for water will be greater than the available supply by 2050 so we need to become more efficient at how we use it. Rainwater capture has no carbon footprint compared to tap water because it doesn't need to be actively collected, treated in a plant to make it drinkable and then transported long distances. Even a simple water butt or bucket left out in the rain can be a mini rainwater harvester for use in your garden!

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

Bringing nature nearer