Cyfoeth Naturiol Cymru
Natural Resources Wales

Activity plan

Carbon footprint

Key Stage/Age group	**KS2/3**
Time needed for activity	**30 – 45 minutes**
Location	**Outdoor environment with access to a range of trees**

Context

This activity plan highlights the important role trees have in absorbing carbon dioxide from the atmosphere through photosynthesis storing it as carbon in the form of wood.

Natural Resources Wales' purpose is to pursue the sustainable management of natural resources in all its work. This means looking after air, land, water, wildlife, plants and soil to improve Wales' well-being, and provide a better future for everyone.

Curriculum links

	ESDGC - Natural environment	ESDGC - Consumption and waste	ESDGC - Climate change	
KS2	• People depend on the environment for energy, food and other materials and resources	• Take personal action and influence others to save energy and reduce consumption • Ways to reduce their energy use and the energy use of others	• That there is a range of views as to how best combat climate change • Climate can change with time • The range of ways to both save and generate energy	**Please note this activity will also help you to deliver aspects of the Literacy and Numeracy Framework and Digital Competence Framework**
KS3	• How human activity changes local and global environments	• An ecological footprint is a measure of human impact on the environment	• The links between lifestyle and CO_2 emissions	

Objectives

By the end of this activity learners will be able to:

- work out their carbon footprint using measurement, calculations and a graph
- measure how much carbon is stored in trees
- explain the important role of trees in storing carbon
- consider how to make changes to reduce their carbon footprint

Equipment and resources

- **Information note - Carbon**
- **Resource cards - Carbon footprint**
- **Worksheet - Carbon footprint**
- **Clipboards**
- **Pencils**
- **Tape measures**
- **Calculators**
- **Tree ID sheets, apps or books**

What to do

1. Spread out the footprint cards in an area (if necessary, weigh down e.g. stones, tie to trees, etc).
2. Discuss what a carbon footprint is and how our everyday activities emit carbon – see Information Note - Carbon.
3. Learners can work individually, in pairs or small groups (footprints should be calculated based on the activities of one member of the group or pair or agree an average representative figure.
4. Distribute worksheets, clipboards and pencils.
5. Learners can follow the step by step instructions on the worksheet to calculate their annual carbon footprint. By locating and replacing the scattered carbon footprint resource cards learners can complete the missing values in the first column on their work sheet.
6. Having calculated their total annual carbon emissions, learners can follow the instructions on the worksheet to find a tree that stores that amount of carbon.
7. A separate calculation allows learners to work out how long it has taken for their chosen tree to absorb their annual carbon emission, i.e. the age of the tree.
8. Compare results by asking learners to order themselves in a line from highest carbon footprint to the lowest. Discuss how everyone, especially those with higher carbon footprints could reduce their impact by making changes in their everyday lives.

Key questions

- **What is a carbon footprint?**
- **What might contribute to our carbon footprint?**
- **How are trees connected to our carbon emissions?**
- **How can we reduce our carbon footprint?**

Adapting for different needs/abilities

Less able

- Go through worksheet step by step using yourself as an example.
- Complete the worksheet as a group: leader to use an average for each of the activities following discussions with the group.
- Break down each stage of the worksheet and check results and understanding before moving onto the next stage.

More able

- Hide or spread the Resource cards - Carbon footprint over a larger area.
- Learners to work through worksheets independently.
- Complete worksheet without calculators.

Follow up activity/extension

- Calculate the carbon footprint of a household, whole school, etc.
- Put an action plan in place to reduce the calculated carbon footprint.

Try our other Trees and Woodlands activity plans:

- Activity plan - Seed dispersal
- Activity plan - Tree planting
- Activity plan - Carbon storage calculator

Additional information

See Information note - Carbon

Looking for more learning resources, information and data?

Please contact: **education@naturalresourceswales.gov.uk** or go to **https://naturalresourceswales/learning**

Alternative format; large print or another language, please contact:
enquiries@naturalresourceswales.gov.uk
0300 065 3000