Autumn
How plants get ready for winter

Curriculum links

Science
Unit 2B Plants and animals in the local environment
Unit 3B Helping plants grow well

Geography
Unit 8 Improving the environment

Art and Design
Unit 2B Mother Nature, designer

Citizenship
Unit 1 Taking part – developing skills of communication and participation

Learning objective
To understand that plants need light for healthy growth, and understand why leaves change colour.

Introduction
The pack is suitable for use with around 30 participants divided into up to 5 groups. In the pack there are:

Instructions showing how to use the activities.
Materials and equipment for 5 groups and their leaders.
A risk assessment for the site and the activities in the pack.
A checklist of contents.

Activities for Key Stage 1:
• Leaf Rainbows
• Photosynthesis game

Activities for Key Stage 2:
• Leaf Rainbows
• Photosynthesis game
• The photosynthesis tree

To carry out the activities in this pack it is essential that participants have some prior understanding of how plants use energy from the sun and photosynthesis. See pre-visit activities for materials on these areas.
Using the site

Please begin your visit with a talk about using the site.

Wildlife sites are home to many animals, plants and insects and you'll meet some of them on your visit, please treat them with respect. Human visitors who come to enjoy the wildlife too, so please keep the site looking good. When you have completed an activity, please try to put everything back as you found it, e.g. turn any dead wood you have looked underneath back over or scatter the leaves you picked discretely.

If there site has a pond and wet areas, make sure you know where these areas are and if you are using any of them, that participants are supervised.

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Checklist

Please ensure that everything is there before you return the pack and report any losses.

- Paper
- Sellotape
- Craft materials
- Folder A - ‘Why leaves change colour’
How plants get ready for winter

Leaf Rainbows

Key

Where
Resources
Equipment
Instructions

Any wooded area

‘Why leaves change colour’ sheet in Folder A

Paper, Sellotape

The job of the leaves is to absorb energy from the sun and turn it into sugar that the tree can use for food to grow. In winter there is less sunshine and the tree doesn’t get enough energy to make it worth keeping its leaves. Chlorophyll, the green chemical in the leaves that turns the sunlight and carbon dioxide from the air into sugar, isn’t needed any more and the tree stops making it. As the green chlorophyll isn’t in the leaves any more they are left a brownish colour. Cold nights and sunshine turn any sugar that is left in the leaf reddish. For a more in depth explanation see ‘Why leaves change colour’ in Folder A. In small groups, participants search for leaves of different shades and colours and create a “leaf rainbow”. See if you can order different shades of the same leaf to show how it changes from its summer to its autumn colour. If you want to keep the rainbow you can tape the leaves on to a piece of paper.
KS1 Photosynthesis Game

Any large space

When the leaves on a plant make sugar from the sunlight and carbon dioxide in the air they release oxygen as a waste product. We need oxygen to breathe, so plants are very important in keeping us alive. This game shows how important plants are.

Divide the group into two. Half of the participants represent trees and stand about 20 metres from each other. The remaining participants have to walk between the “trees”, holding their breath until they reach a tree. The game leader then starts to cut down and remove the trees. This makes it more difficult for the participants to move from one tree to the next still holding their breath. By the end of the game they will have discovered that trees are important to help us to breathe! A simple but effective way of helping participants to learn about one of the vital roles of trees whilst using some of their own energy!

Adapted from: Rupert Aker, Soil Association (in the FACE publication ‘Games for the Outdoor Classroom’)

The photosynthesis tree (KS2)

Any wooded area

Craft materials

Remind the participants of the process of photosynthesis; the plant uses light energy to convert gases from the air and water into sugars and oxygen. In small groups, they then use their imagination and artistic skills to create a representation of this process as a hanging which they will then use to ‘dress’ a tree. They might create model sweets to represent sugars, blue fabric to represent water etc.

When the hangings are finished, hang them from a suitable tree and invite each group to use their hanging to explain the process of photosynthesis to everyone.

Adapted from: Bobby Harvey, FACE (in the FACE publication ‘Games for the Outdoor Classroom’