

# Bugs on Bushes

## Dr Forsey's Outdoor Education SmartCases

This kit can be used for a 'Bugs on Bushes' activity, or more accurately, a tree, hedge or bush living invertebrate survey by a class of participants lead by a teacher. The equipment is suitable for a range of habitat areas.

In this lesson plan you will find the following information to ensure optimum use of the equipment and help you achieve the best possible learning outcomes for your pupils:

- Equipment list
- Full activity methodology
- Suggested adaptations for age and ability
- Curriculum links
- Suggested follow up activities

The kit and associated methodology has been developed and refined over a number of years, it has been tested by thousands of school children and hundreds of teachers, both in school settings and fieldwork locations.



## Kit list –

You will need (for a class of 30 participants working in six groups of five):

- 6 x Gratnells SmartCase
- 6 x White sheet or shower curtain
- 18 x Pooter
- 18 x Paint brush (1-2cm brush head)
- 1 x Pack pooter sanitising wipes (Clinnel Universal Sanitising Wipes or similar)
- 6 x Large wooden pole or broom handle
- 6 x Dustpan brushes
- 12 x Field Studies Council Bugs on Bushes ID Guide or OPAL Biodiversity Survey Invertebrate Identification Guide - select guide most appropriate to age and ability of participants
- 12 x Tree ID Guide of your choice or OPAL Biodiversity Survey Hedgerow Identification Guide or the woodland Trust Tree ID App - select according to study site and age and ability of participants.
- 18 x Transparent collecting pots with lids (100-200ml capacity will be small enough to fit in the SmartCase)
- 18 x Small magnifying glass
- A selection of leafy bushes, hedges or trees in a safe location to survey

## Preparation –

- Split the equipment equally between the six Gratnells SmartCases. The pack of pooter wipes should be retained by the leading adult.
- Buy or print, cut out and laminate the ID guides.
- Select or design a recording sheet/card (examples shown at the end of this guide) suitable for the age and ability of the participants.
- If participants have not used a pooter before, have a practice before heading out into the field. Use individual dried peas or uncooked rice grains for the practice. Never try to pooter anything that is larger than the tube! This kit allows for three pooters per group of five. Use sterilising fluid, a dishwasher, or the wipes detailed on the equipment list to ensure the pooters are clean before and after use and between users.

**Tip: Only use the pooters to collect creatures from the white sheets. If you pooter from the soil, small particles of dry soil could make it through the filter and into your mouth.**

- Designate your working area using markers e.g. football cones (not included in kit) if no natural or man-made boundaries exist.
- Check the trees you will be studying for the presence of dead branches, you do not want the participants dislodging rotten or partially fallen branches during the activity.
- Carry out your own site, activity and participant specific risk assessment taking account of the prevailing weather conditions.
- Split your participants into six groups.

## Primary National Curriculum Links –

- KS1 Working scientifically
- Year 1 Plants
- Year 1 Animals, including humans
- Year 1 Seasonal change
- Year 2 Living things and their habitats
- Year 2 Animals, including humans
- Year 2 Plants
- Lower KS2 Working scientifically
- Year 3 Animals, including humans
- Year 4 Living things and their habitats
- Year 4 Animals, including humans
- Upper KS2 Working scientifically
- Year 5 Living things and their habitats
- Year 6 Living things and their habitats
- Year 6 Evolution and inheritance



## What to do –

This is a great activity to study the invertebrates (sometimes referred to as minibeasts) living in your trees, but it could also be carried out on hedges and bushes. Please note - if it is windy you may find fewer invertebrates than on a still day.

### Introduction and Demonstration (~10 minutes)

Explain that in this activity session we are going to find out about tree living invertebrates (minibeasts) and their habitats. Ask participants these questions while gathered under the trees or as part of your classroom work ahead of your outdoor session....

### What is a habitat?

The place where an animal lives is known as a habitat, and different sorts of animals live in different habitats. Habitats can be very big, like the arctic habitats where polar bears live, or very small such as between two blades of grass where a money spider might make its web. Remember, a habitat is just the place where the animal lives. Your house is your habitat!

**A tree will be a habitat for many invertebrates as well as larger animals. Can you think what animals you might find?**

Birds, squirrels, caterpillars, etc.

### **Can anyone see any other habitats around them?**

Under their feet in the leaf litter.

### **We are hoping to find lots of minibeasts in their habitats today, but what are minibeasts?**

“mini”= Small, “beasts” = Animals. They are small animals. Depending on the age/ability of the participants you may wish to use the word ‘invertebrates’ in place of the word ‘minibeasts’. It is unlikely we will be able to find a squirrel or a bird, we would need to be very quiet to not scare them away, but keep your eyes open for signs of them while we are outside.

### **Older/higher ability participants might consider how are these animals are adapted to life in the trees?**

Sharp claws for gripping the trunk, long tails for balance while jumping from branch to branch, appropriately coloured body structures for camouflage, the ability to fly to move between trees without touching the ground.

### **Teacher Demonstration**

- When the participants arrive, carrying their SmartCases, gather them around an example tree to demonstrate the technique.
- Open one of the SmartCases and spread the white sheet out under your chosen leafy tree, bush or section of hedge (one group of participants should do this as a team, each holding a corner of the sheet).
- Use the stick provided to give the branch above your sheet several firm taps to knock off any minibeasts living there or shake it enthusiastically (but carefully) if it is within arm’s reach. Or, use the soft brush to sweep down the hedge towards the white sheet.
- Promptly use the pooter to catch any creatures that have been displaced or scoop them up directly into collecting pots if they are too big to pooter safely.
- The participants should collect, identify and record all their finds using the ID guide and your recording method of choice appropriate to the age and ability of the participants.
- They will repeat this procedure for several branches of the same tree or rotate around the bush.
- They should also make observations and recordings about the tree/bush/hedge. They should also use the tree/leaf ID guide to record the species of tree they are studying. Participants could collect a leaf or examples of the seeds present for use in follow up work.
- Depending on the age/ability of the participants they could go on to study a second tree or a bush/section of hedgerow and do a comparison of the invertebrates found.

### **Activity (~40 minutes)**

- Each group takes their SmartCase full of equipment to their assigned tree/bush/section of hedge and carries out the activity as per the teacher demonstration. Move between the groups, checking on progress and directing them to/supporting them with identification and recording.
- Any groups finishing quickly should be directed to repeat the procedure on further branches or on second tree.

- Once the time is up, or the participants are ready to move on, gather all of the participants into a circle ensuring they bring their collecting pots with them. Ask the participants to pass the pots around the circle so the participants get to see wide range of invertebrates, sharing with each other the name of the invertebrate(s) they have found.
- The participants should return to the tree they studied, carefully release their invertebrates and observe them for a few moments (if they don’t immediately fly away!).
- The participants should collect their equipment back into their own SmartCase.

### **Other things to try:**

#### **Tree Display with Food Chains/Web**

Dedicate a wall space to create a display based around what you have found. Use a variety of natural and/or craft materials to create the tree. The participants can draw the invertebrates they have found and stick the pictures on, carrying out research to identify the other mammals and birds that also live in trees and add images of those too. You could link each of the animals together into a food chain and then food web. If you repeat the activity in different seasons (see activity below) then create a second display to show the tree at a different time of year.

#### **Life Cycles/Seasonal Change**

Repeat the activity at different times of year. What happens in winter? What happens to the tree and what happens to its inhabitants? The life cycles of several of the tree’s inhabitants could be investigated, migration and hibernation could be explored.

#### **National Projects**

If you choose to carry out your survey on a hedge row instead of a tree, you could take part in OPAL’s national Biodiversity Survey. The OPAL guide also includes a handy ID sheet for the hedgerow plants.

#### **Example recording sheets:**

Simple tick card – great for younger participants – create your own with the creatures common to your site and add pictures to aid identification/recording.

<b>Bugs on Bushes - Tick Card</b>		
<input type="checkbox"/> Shield Bug	<input type="checkbox"/> Ladybird	<input type="checkbox"/> Other.....
<input type="checkbox"/> Crane fly	<input type="checkbox"/> Spider	
<input type="checkbox"/> Caterpillar	<input type="checkbox"/> Weevil	

Full recording sheet – great for older participants – you could create your own to obtain the data you need for post-activity analysis and development of specific numeracy skills or for follow up work on adaptation or food chains/webs

**Your name** ..... **Date:**.....

Species	Tally	Total	Interesting Features
Shield Bug			
Cranefly			
Caterpillar			
Ladybird			
Harvestman			
Aphid			
Weevil			
Lacewing			
Earwig			

Tree Details	Notes
Species	
Deciduous or Evergreen	
Seeds	
Leaf Colour	

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