

Species surveys

These activities are intended to get children looking more closely at the different species of animals and plants found in specific habitats around them

Animal Shelters

Turn logs and stones to discover creatures sheltering beneath them. Old carpet, corrugated metal and other debris will also shelter animal life. Refuges such as these can be scattered in an area to assist study. Always ensure that the shelter is replaced carefully in its original position after turning.

Attracting Pond Creatures

Pond creatures can be obtained by providing suitable baits or microhabitats for them. For example, suspend pieces of meat, bunches of leaves or other materials and check to see what creatures attach themselves. Fill a net bag (e.g. the type used for oranges) with pebbles and leave it in the pond for a few weeks. Empty the bag and see what has colonised. Try to think of other microhabitats which might attract a different range of species.

Beating Tray

Place a beating tray, upturned umbrella (preferably white) or white sheet under a tree, bush or hedge. Beat the branches with a stick to make the insects fall.

Bumblebee Survey

There are 19 species of true bumblebees in Britain, but these may be divided into three categories for simplicity: browns - no black bands on thorax; red-tails - thorax partly or totally black, tail red or orange; white-tails - thorax with some yellow or brown and some black areas, tail white, buff or brown.

Butterfly Survey

About 15 species of butterflies are commonly found around schools and these are fairly easy to distinguish from each other. Try to identify the different types of butterfly and then work out which plants they are visiting and whether this is to feed or lay eggs on.

Galls

Look for galls on oak trees and other species. These deformities house, and are caused by, small insects whose eggs are laid in the plant. Look up oak apples, marble galls, currant galls etc. in an insect book - there are over 20 types on oak

alone. Cut the twig supporting a gall without an exit hole and place the cut end into moist soil in a jar. Cover the jar with muslin and see what emerges.

Insect Sweep Net

These can be bought or made: straighten out the wire in two coat hangers; twist the wires around each other to make a stronger wire and bend back into hanger shape; cut a pillow case in half to use as the bag; sew the bag onto the wire (keeping hems on the outside); clamp the ends of the wire to a broom handle using two jubilee clips. Walk slowly, sweeping the net from side to side through the vegetation.

Pitfall Trap

Sink a jar or tin into the ground and cover with a piece of wood or slate. Use two stones to raise this slightly so that insects etc. can enter but small mammals are kept out. Empty the trap each morning. Compare results when traps are baited and not baited; try different baits, including meat, fruit etc.

Pond Dipping

Remember to spend some time watching for creatures before pond dipping. A great variety of pond creatures can be caught without netting at all, simply by dipping cartons into the pond. This is a good way of avoiding for a while the over-excited and distracting use of nets. Look for creatures clinging to the under surface of rocks in the pond. When building a pond, include some rocks (not sharp ones) near the edge for this purpose.

Pond Life Cycles

Set up small freshwater aquaria in which to observe all stages of the life cycles of single species. Exclude other species whose eggs etc. might be confused with those of the species under study, but make sure that the organisms on which they feed are present. Suitable subjects for study might include insect larvae, snails etc. You will also be able to identify any eggs found in the pond by hatching them under such conditions.

Pond Viewer

Cut the bottom from a container such as an ice cream carton. Stretch cling-film over it and hold in place with a rubber band. Push the bottom into the water and look through it to gain a clearer view of underwater life than is normally possible.

Pooter

This is a piece of equipment used to collect insects and other invertebrates by sucking them into a tube. Pooters may be bought or made. Essentially, there should be a tube which the person sucks, separated by a muslin screen from the tube through which the insects are collected into a pot. One possible design consists of a six inch length of wine siphon tubing with a length of drinking straw wedged into one end with muslin. A more elaborate pooter can be made using a

small jar fitted with a bung through which the sucking and collecting tubes are passed.

Quadrats

A quadrat (a square frame to delineate a sample area) is a useful aid to assessing and comparing sites with respect to their plant and animal life. A half metre square (i.e. $\frac{1}{4}$ m²) is a useful size. Place at random within the area of study and record the species and their abundance within the quadrat (repeat as necessary to ensure the results are representative). Depending on the nature of the species being studied, the most appropriate way of recording abundance might be in terms of actual number, estimated number or percentage cover. Grid squares over the quadrat may be useful when making estimates; you might stretch elastic bands between nails on the quadrat frame (if wooden) to make a grid. Home-made quadrats can be constructed very easily from wood, thick wire or card.

Signs of Mammals

Look for burrows, droppings, tracks, evidence of feeding etc., using either the Mammal Atlas Guide to Cornwall's Mammals or the Collins Guide to Animal Tracks and Signs to interpret them and find out what lives in the garden or school grounds. A variety of mechanisms can be made to collect these signs, such as footprint traps, bait tubes or hair tubes.

Sorting Flowers

The similarities and differences between flowers can be explored in tabular form (colours on one axis and shapes on the other) or through a "sorting tree". The following flower shape categories might be useful: umbrella (e.g. cow parsley); bell (e.g. bluebell); tube (e.g. foxglove); daisy (and other composites, including dandelions and thistles); pea (characteristically shaped flowers such as the vetches); four petals (e.g. watercress and other members of the cabbage family); notched petals (e.g. red campion); five petals (e.g. herb robert); etc, etc.

Pressing Flowers

A reference collection can be useful in exploring the variety of plant life and in allowing rapid identification of plants in future survey work. Needless to say, pupils should be given strict instructions as to the undesirability of picking flowers under normal circumstances. Only use plants which are present in abundance and not nationally scarce, only with the permission of the landowner, and do not uproot the plants. The same type of preservation can be used for tree leaves and grasses as well as other flowering plants, ferns, mosses etc. and even seaweeds. Place each specimen between two sheets of blotting paper and sandwich this between two thick layers of newspaper. Place on a firm surface and pile heavy books on top. Leave in a warm, dry place for about three weeks. Mount the dried specimens onto paper using sticky tape.

Flower Stories

When surveying flowers, bear in mind that knowledge of a list of plant names is not necessarily interesting in itself. Tell the children something interesting about each flower, whether it be biological or historical. The Reader's Digest Field Guide to the Wild Flowers of Britain is a particularly useful source of information on the origins of names, the medicinal or other uses, the history and the mythology surrounding each species.

Nature through the Seasons

Relate regular surveys to weather measurements and time of year. Relate other weather studies to wildlife. For example, study the sun's movement by making a simple shadow clock (a 1m stick mounted vertically on a level surface on which the positions of the shadow can be chalked at intervals), and note differences between the plant and animal communities of north and south facing hedges, walls or banks. Compare plant and animal structures designed to avoid or utilise the effects of wind (e.g. streamlined bodies and parachute seeds). Observe the effects of rainfall/lack of rain on wildlife (e.g. snails and slugs emerging/sheltering, plants thriving/withering).