

Plant life

These activities are intended to help children learn about how plants grow and live, as well as introducing them to the role of plants in the world around them.

Butterfly Garden

Set up a butterfly garden to attract butterflies, bees, hover-flies and other pollinating insects. Read *Starting a Butterfly Garden*.

Colonising Soil

Clear two soil plots of vegetation. Cover one with a plastic sheet, held 8cm above the ground by stakes. Make weekly records of the number of plant species colonising each plot and the percentage vegetation cover. Draw conclusions on the methods of colonisation used by the different species.

Dandelion Parachutes

Drop dandelion seeds from a height of 1m directly above a cross marked on the floor. Record how far from the cross they land. Repeat, but this time using a hairdryer at different distances to simulate winds of different strength.

Favourite Flowers

Observe a group of different flowers and record the number of visits made to each type of flower by each type of insect.

Germinating Seeds

Plant seeds in a container filled with soil, water them and cover the container with transparent plastic or glass to retain moisture. A number of factors can be varied to observe their effects on the success and speed of germination and growth: rooting material; moisture; temperature; light; depth of planting; orientation of seed.

Insect Pollination

Using net bags to exclude large insects (e.g. bees) from flowers, you can test whether pollination by these insects is important. Use net which is fine enough to keep out the insects, but not so fine as to suffocate the plant. Look for buds which are about to open. Tie bags around some and leave bagged throughout; leave some flowers unbagged to be pollinated freely; cross-pollinate one group of bagged flowers, by dabbing pollen from one onto the stigma of another using a paintbrush; the fourth group should have their bags removed temporarily until

one insect has been observed to visit. Then see whether seeds set and interpret your results.

Model Flowers

Construct anatomically correct flowers or complete plants from a range of materials. Cornwall Scrapstore is an ideal place to source free materials for all sorts of craft activities.

Osmosis

Cut three thick slices of potato and scoop out a cavity of the same size and depth from the upper surface of each. Put one in boiling water for a few minutes to kill its cells. Place each in its own small dish containing a small amount of water. Place sugar or salt in the cavity in one cooked and one raw potato. After two or three hours, the sugar or salt will have drawn water into its cavity in the raw potato but not in the boiled one; only the living cells are able to achieve this. The potato without sugar or salt is a control. Strips of dandelion stalk are also useful for showing osmotic effects: the inner cells (cortex) are bound to the relatively inelastic outer (epidermal) layer; if the cells of the cortex absorb water the strip bends, but if they lose water it straightens; place strips in water, sugar solution and air to see what happens.

Plant Veins

Cleanly slice off the bottom of stick of fresh celery and place it in a jar of water containing red food colouring. After about 24 hours the veins on the leaves will have turned red. Slice through the stem to reveal coloured veins.

Potometer

This is a simple piece of apparatus which allows rates of water uptake to be compared between different plants or between the same plants under different conditions. In its simplest form it consists of a glass tube filled with water; a plant shoot is inserted (and sealed around) at one end; at the other end is a capillary tube into which the water extends. A comparative index of the rate of transpiration can be obtained by measuring the rate at which the water is drawn from the capillary tube. The rate of transpiration will alter if the shoot is exposed to, for example, different temperatures or air movements (fan). Leaf areas of shoots which are compared should be the same. Smearing one or both leaf surfaces with petroleum, or removing leaves, will demonstrate the importance and distribution of stomata.

Seed Dispersal

Sterilise some soil by baking it, or obtain some sterile peat-free compost. Add to it a sample of soil from a chosen area and allow seeds in it to germinate. Grow the plants until they can be identified. The seed bank in any soil contains more species than are present there as growing plants (these will include seeds which have dispersed from other areas and seeds of species which formerly inhabited the area). Scrape the mud from people's shoes and, by allowing the seeds in it to

germinate, see how many species are being dispersed in that way. Place sterile soil outside for a period and see how many species germinate in it.

Tree Nursery

Ask permission from a landowner to collect native tree seeds in autumn. Plant each seed 1cm below the soil surface in a yoghurt pot with a hole in the bottom and a few small stones to help with drainage. Place the pots in a warm, light place, and keep the soil damp but not wet. Transplant the seedlings into larger pots after one year and then plant outside (ask the Cornwall Wildlife Trust for advice) in the winter of the second year.