

# GREEN TUNNELS AND LABYRINTHS

*Consider the use of tall planting to help break up large, open areas of the school grounds to create smaller, atmospheric spaces to support learning. As well as creating interest, supporting biodiversity and meeting the needs of those children who feel more comfortable in smaller spaces, tall species (such as willow) can also be planted in the form of a tunnel to create interesting journeys between spaces.*

## **Definition**

A green tunnel is a structure created by planting a tall, flexible plant species in two parallel lines before tying the upright rods together overhead to create an archway. If the tunnel is wide enough, then this gives children the opportunity to spend time in the tunnel whilst allowing others to pass through unhindered. Tunnels can be planted with both ends open or with an entrance / exit at one end and leading to another space (for example a seating area).

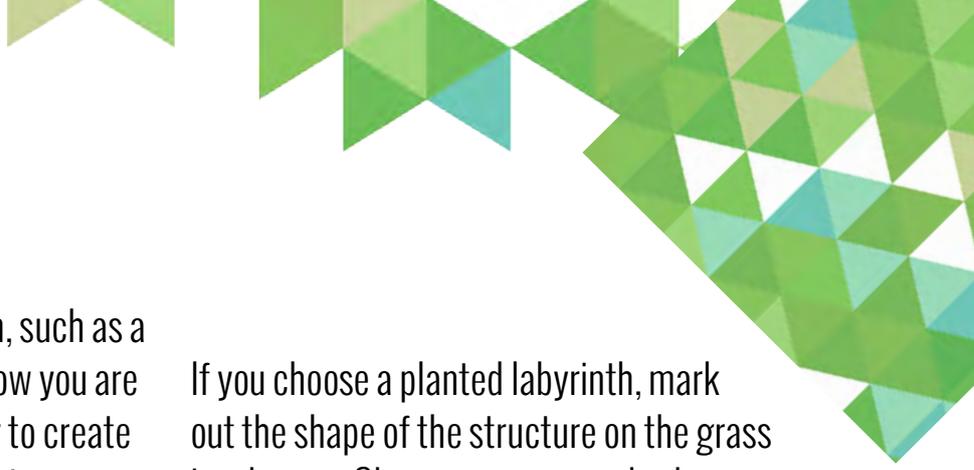


A green labyrinth, or maze, is a system of planted corridors for children to navigate with no direct link from one end to the other.

## **Procedure**

Based on your needs, the space available and the labour support team identified, decide which type of structure you are going to plant and where. Involve the children in identifying the best location, marking out and measuring the space, sourcing the correct number of plants and the materials needed and then in the actual planting itself. Be aware that the planting will take some time to grow and establish and thicken to create the structure you are aiming for. However, once established you will be rewarded with a structure that supports biodiversity, creates natural shade, provides shelter from the wind and, with ongoing maintenance, will last many years.

If you choose a green tunnel, decide on its purpose – either to enhance the journey between two spaces or as a



walkway to a specific destination, such as a quiet seating area. Think about how you are going to tie the planting together to create the shape required. Lengths of string or plastic cable ties are two potential options. Willow is supplied in log lengths called rods. The rods are long and straight and flexible, meaning they can be planted directly into the ground and then tied together to create the shape required. Other taller planting may need to be supported to grow through the use of a simple frame comprising wooden poles and wire. Train the plants to grow along the wires by tying branches using the string or cable ties. Make sure all ties are adjusted over time as the plants grow.

If you choose a planted labyrinth, mark out the shape of the structure on the grass in advance. Choose ever green shrubs or taller plants such as willow or bamboo.

Check the quality and depth of the soil profile first, you may need to import some top soil. Maintenance should be undertaken over the winter when the plants are dormant. In the case of willow, weave new growth between rods to maintain the shape of the structure and prune excessive growth. Check ties on all plants to ensure they are not restricting growth.

## Tips

- There are plenty of willow growers, suppliers and artists online who can offer advice and support

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# HERB SPIRAL

*Planting herbs in a spiral is a cost effective, space saving way of growing for a variety of uses. The helical shape is also commonly encountered in the plant and animal kingdom (for example the cross-section of some plants and the shell of a snail), in mathematics (Archimedes' spiral), in mysticism (Celtic spiral) and in astronomy (the galaxy).*

## **Definition**

The herb spiral is a structure designed to grow plants that creates a range of microclimatic conditions in a small space – zones with direct sunlight, shade, higher or lower humidity. Its construction consists of stones or old bricks placed in the ground in the shape of a snail shell. This shape not only helps to strengthen the structure, but also compensates for the thermal differences between day and night. During the warmer day the stones warm up and at night pass this accumulated heat to the rest of the herb spiral. Between the stones the spiral is filled with gravel or sand at the bottom to support drainage and then soil as the growing medium for the herbs.

## **Procedure**

Choose a suitably sunny place with a space approximately 2 x 2 metres (in this case the recommended spiral height is one metre). In case of smaller space, reduce the spiral height appropriately (1:2).

Draw out your design and include different herb species in different levels. Consider their demands on sunlight (the north side will be mostly in partial shade), moisture (the top of the spiral will be drier and the bottom will retain more moisture), the rate of growth and the colour and scent of the flower (if you want your spiral to be varied and fragrant). Rosemary is an example herb that would suit being planted near the top of the spiral as it likes to sun and can survive in drier conditions. Herbs that would suit being planted in the middle include Lavender, Sage and Thyme. The lower layer will support herbs such as Bee Balm, Chives and Parsley. The dampest places in the lowest layer will support Peppermint.



When you have identified a location, make use of string and a stick to create a circular spiral shape on the ground that can be built up in layers. Remove the turf and dig in stones to form the large base circle. Fill the

base circle with gravel or sand and then soil. Plant the herbs around the edge of the stones, create the next level and repeat.



## Tips

- Your herbs will need watering, so consider who will do this and when.
- In the herb spiral, place a whiteboard with pictures of planted herbs and information about their use, when they can be harvested and the maintenance required.

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# INSECT HOTEL

*Whether you want to focus on protecting and conserving pollinating insects, monitor biodiversity, observe specific types of insects and their development stages or support children's observation skills, an insect hotel can be a great tool. Working with a group of children to build your own not only enhances the school grounds for insects, but also provides the opportunity for children to make use of basic tools.*

## **Definition**

An insect hotel is a simple construction of any size, divided into several sections filled with different types of natural materials (for example small branches, hollow stems, pine needles, dry leaves, straw and moss). The purpose of an insect hotel is to create a sheltered habitat for various insects to hibernate over the winter or to use as next sites to lay eggs.

## **Procedure**

Survey your grounds to identify the best place to build your insect hotel – preferably somewhere quiet and in sunlight or light shade on a flat surface.

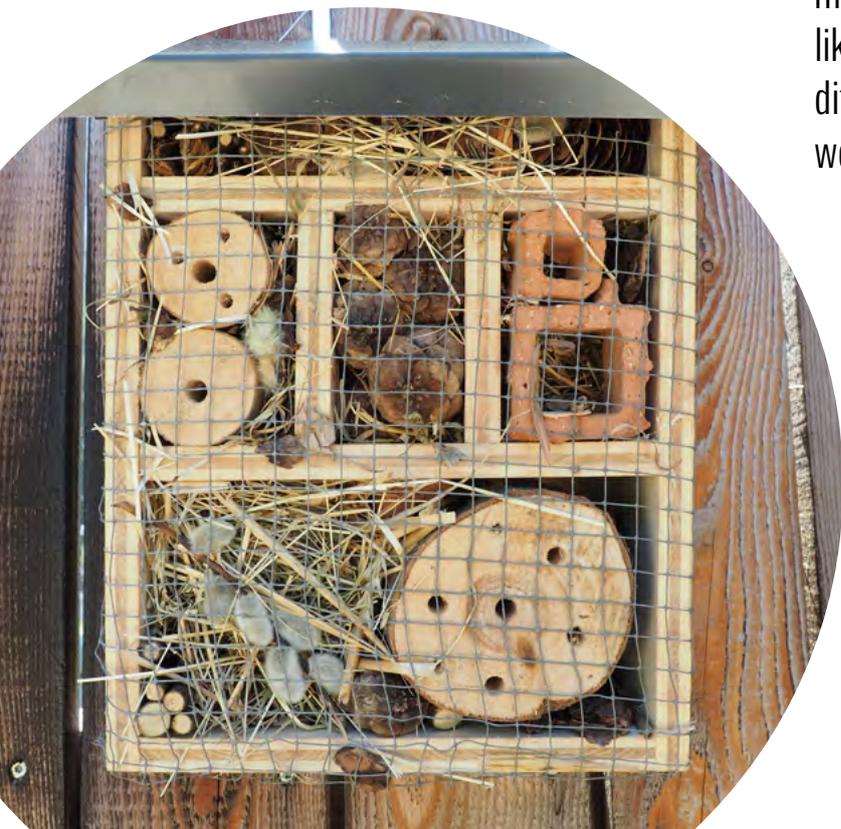
You may decide to create smaller hotels that can be hung from fences or trees.

If you are creating a larger structure with pallets, consider some form of roof to help reduce the impact of rain.

Fill all gaps and holes with a wide variety of materials to support different insects. The more variety of materials you use, the more likely you will be able to observe and admire different types of insects. Drilling holes in wood will help attract Solitary Bees.

Every Autumn ensure any hole or gaps are filled with fresh materials to help support insects over the winter.

Leave wider gaps at the base of the structure to support larger animals such as hedgehogs.

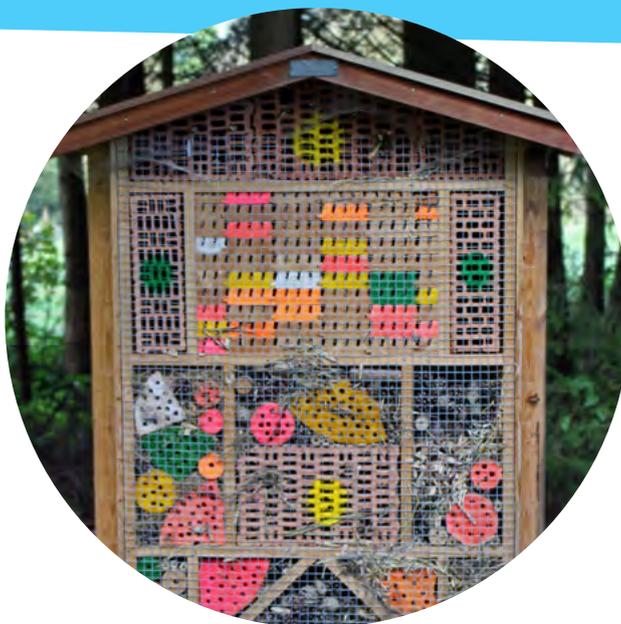


## Tips

- Building an insect hotel increases the chance of beneficial insects, such as bees and butterflies, visiting your school garden and pollinating your vegetable and fruit plants.
- As well as flying insects, such as ladybirds and solitary bees making use of the habitat, beetles, spiders, centipedes and woodlice will bury into the decaying wood. This provides a great opportunity for children to learn about the needs of different insects and to monitor change over time.

## Example from the RSPB

<https://www.rspb.org.uk/get-involved/activities/give-nature-a-home-in-your-garden/garden-activities/build-a-bug-hotel/>



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# PALLET SEATING WITH / WITHOUT A FLEXIBLE ROOF

*Providing flexible seating in the school grounds offers many advantages for example, an opportunity for pupils to socialise, as a resource to create smaller, quieter spaces and as an area to gather a class before and during a lesson outdoors. There are lots of examples available depending on your needs, for example carpet tiles, foam mats, waterproof beanbags, log stumps and wooden pallets*

## **Definition**

Recycling wooden pallets is a cheap and easy way to create low level, accessible seating on a flat surface. Several pallets in one location can accommodate a class of children. Foam mats or one large foam block covered in material laid on top of the pallets will provide comfort. Whilst the pallets can be left outdoors, the foam matting can be stored inside (or in a low level storage chest nearby) to ensure there is always something dry to sit on after rain.

## **Procedure**

Pallets can often be obtained for free, but must always be checked before use to remove any nails or splintered wood. Older pupils could get involved with sanding, if required.

Survey your grounds to identify the best location for a group of pallets.

You may decide to fix your pallets together and attach boarding on top to create a flat surface.

Consider the use of a tarpaulin, or other material, to create a flexible, temporary roof over your pallet seating area to create shade and shelter. Make use of the vertical surface surrounding your pallet seating (for example the boundary fence or wall) to attach the material using rope or ball bungees (example supplier [www.muddyfaces.co.uk](http://www.muddyfaces.co.uk))

The pallet seating can be used to gather a class of pupils during a lesson outdoors, but also offers a range of other opportunities such as a stage for drama and role play and



an outdoor meeting space for pupil groups (for example the Eco Committee or Pupil Council). Bear in mind that pallets are usually made of low quality wood, therefore regular checks

will be required to ensure the seating is safe to use. Replace and recycle any damage pallets as required.



If your pallet seating is on the grass, it may be helpful to erect wooden posts with hooks around the area to help with attaching a temporary roof.

## Tips

- There are a range of pallet cushion suppliers available online.
- If you are making use of a temporary roof, such as a tarpaulin, during damp weather make sure you angle the material slightly to ensure rainwater doesn't gather in a pool in the centre.
- Pallets can be painted to add colour and interest.

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# PALLET STAGES

*Performances on a stage in front of an audience are a feature of the school experience from public presentations, expressive arts, re-enactments to recitals and so on. These are valuable confidence/character building opportunities and a means for pupils to flourish in alternative ways. The addition of a simple wooden stage to the school grounds offers children the chance to hone their performance skills in a more relaxed setting.*

## **Definition**

A pallet stage for public appearances is a great feature for school grounds. It can be a fixed or portable and it can be open or permanently covered. Surrounding grounds features such as trees, walls or posts could be used to attach a temporary stage covering.

## **Procedure**

Identify a space close to the building to locate the stage as this will make it easier to set up speakers or a sound system using mains electricity. If you want a roof, then you may need to cement wooden posts at the four corners of the stage to which you can attach a sail or tarpaulin by way of small hooks in the posts.

If you have a concrete surface or similar, you can build a stage directly onto that. However, if the space is not level it can be aligned by digging out the upper layer of the soil, compressing the surface and backfilling it with fine gravel.

A simple stage can be constructed from around 9 pallets dependent upon the final size you require. Clean and treat the pallets with a wood preservative in advance. Position the pallets side by side to make a 3x3 square. You can screw the pallets to each other



to limit their movement. This gives you a simple platform of 1 pallet depth, but you might want to be more adventurous with layout!

Cover the layer of pallets with panels of marine plywood cut to size and treated with wood preservative. Screw these panels into place. You can then paint the stage with outdoor wood paint or even cover it with artificial grass.



## Tips

- Audience seating could be created from log stumps, outdoor beanbags or similar.
- If the stage is against a school wall you could attach treated marine plywood to the back wall and paint it to give the stage a dramatic backdrop.

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# RAISED BEDS

*Raised beds can be a useful addition to school grounds where space is at a premium, where there is no grass or where the quality of the soil is poor. Growing herbs, fruits and vegetables in raised beds has many advantages, for example supporting children's understanding of where our food comes, learning about lifecycles, experiencing seasonal change and enhancing the grounds for biodiversity.*

## Definition

A raised bed can take many forms, for example a tyre, a recycled plastic container, an old sink or a wooden structure. Children can be involved in every stage from identifying a sunny location within the grounds, to planning what to grow and when, sourcing suitable plants and seeds, planting, harvesting and cooking the produce. Raised beds are also an inclusive way to grow, providing access for everyone and reducing the need to bend or kneel.

## Procedure

Identify the best location for your raised beds and consider design, layout and the number you need to achieve your aims without creating too many to maintain over time.

Avoid planting under trees and in other shaded spaces.

Growing in different types of raised beds offers a wider learning experience and a chance to experiment.

Include stones or gravel or sand in the base to support drainage.

You may wish to line your raised beds with weed suppressant membrane (available from garden centres) to avoid soil loss.

Increased footfall around the base of the beds may lead to grass erosion and mud. Avoid this by laying paving slabs, pea gravel or bark chippings around the raised beds or garden area.

A low level storage chest would provide easy access to gardening tools and



resources and consider how you are going to access water.

At the end of the growing season over the autumn and winter plant a green manure in each bed which is then dug into the soil at the start of the growing

season providing increased nutrients for your next crop.

Wooden raised beds offer the potential to include artwork in the garden, for example painting the sides or using mosaic tiles.



## Tips

- There is lots of useful, free information regarding gardening and growing in schools, including planners that help you plant crops that can be grown and harvested in the academic year, online. Examples include: The Royal Horticultural Society <https://schoolgardening.rhs.org.uk/home> and Garden Organic <https://www.gardenorganic.org.uk/schools>
- Remember to regularly water in dry weather. Soil in raised beds dries out quickly.
- Encourage staff to see the cross curricular opportunities available as well as focussing on growing food, for example links to Citizen Science, artwork, literacy and numeracy.

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# BAREFOOT TRAIL

*Barefoot walking over a variety of outdoor materials can produce many different sensations: soft sand; crumbly gravel; smooth, flat pebbles warmed by the sun or the moist, slippery, bark of a fallen tree trunk. A child becomes so much more aware of their own body when negotiating these different surfaces. It stimulates the arches of the feet and encourages more focus on balance and movement, thus supporting the development of better posture which can endure. Walking barefoot over uneven surfaces can equally contribute to the correction of flat footedness as the child is compelled to position their feet correctly under such conditions.*

## **Definition**

A barefoot trail is a short pathway created from a variety of surface materials. Ideally it should be a twisting route rather than straight with elements at differing heights from the ground. The experience of walking barefoot not only stimulates the senses and neuro-motoric

development but also strengthens our connectivity with nature.

## **Procedure**

Decide the location of the trail with a good start and end point. Ideally it should be located in partial shade away from prevailing weather conditions. Design the shape of the trail and determine the range of materials to be used. It would also be useful to have somewhere to hang shoes at the beginning.

To create the trail dig out a trench, flatten this and line the edges with stones or logs. To make it a more permanent feature and afford it more protection you may want to embed the trail in concrete. Otherwise, use weed suppressant membrane to line the trench and then back fill



with your chosen surface materials. You may want to have logs separating different individual surface types. Remember that

some surfaces will wear down over time and need replenishing.

## Tips

- If you use logs to edge the trail treat them first with wood protective paint to prolong their life span.
- Periodically rotate the individual parts of the sensory path.
- During the winter you can remove the materials from the trail into shallow containers or boxes to preserve them for longer and use them as a 'pop-up' barefoot trail on a tarpaulin as and when required.

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# STUMPS

*Stumps are a simple, sustainable readily available element to add interest to school grounds. They can be various heights and dimensions and positioned for a variety of functions or simply left loose in the grounds.*

## **Definition**

Schools most frequently opt for a cut of the tree trunk to give a moveable stump measuring around 30 -45cm diameter and 30 - 40 cm tall. However, the remnants of a fallen tree can be a valuable resource for the grounds simply due to the biodiversity which the rooted, standing dead wood attracts. Using stumps with some of the roots intact but dried out can be a great stimulus for children's imagination as not only invertebrates get into the nooks and crannies but fairies and pixies as well! They can look fantastic adorned with wild flowers and ivy growing over them.

## **Procedure**

When introducing stumps involve the children in devising a simple code of conduct so that everyone can enjoy themselves without coming to harm. Examples might include no throwing, safe carrying, nothing above head height and rolling heavy stumps. Encourage children to report splits and sharp sections so that these can be repaired or removed. Sturdy stumps should last a long time and even when the rot sets in deadwood is far from dead...providing a habitat for a wide and varied range of invertebrates which in turn are a food source for many vertebrates.



## **Tips**

- Chose a wood type to avoid heavy sap or excessive degradation
- The stumps can be grouped in a circle and used as a gathering space for outdoor learning.



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# TOTEMS IN SCHOOL GROUNDS

*If children are to respect and value their school grounds they must connect with their surroundings and enjoy being there. A nice way to strengthen pupils' connection is to let them leave their own mark in the form of hand-made totems.*

## **Definition**

Totem is derived from a native North American word referring to a spiritual being or a symbolic object as an emblem for a defined group. A totem is most frequently represented as a wooden pillar carved, painted or hung with a series of relevant symbols.

## **Procedure**

Ideally each class will have their own totem pole.

In this way all pupils can become involved with creating their own individual symbols which collectively make the whole structure.

Inspiration could be taken from the different species of wildlife that are found in the school grounds or locality and the pupils can consider an individual plant/creature's special features and how they can be expressed as a totemic symbol.

Ensure that any wooden pole erected is sufficiently embedded into the ground with concrete and further fixings dependent upon its height. Ideally the totem should not exceed two metres.

The wood should also be treated with a suitable preservative to extend its life. To ensure that the totems are sustainable then the features added to them by each class should be detachable otherwise be prepared to add further totem poles over time!





The totemic symbols can be made from: fired clay; metal; recycled materials or wooden discs onto which the image is etched or branded. They can be attached to the poles using twine, nails or wire.

When the totem poles are adorned this could be accompanied by a ceremony.

## Tips

- If embedding wooden poles in the grounds is not an option then totems could equally be attached to walls or railings.
- Existing pillars or posts could be commandeered as totem poles.

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# OPEN PALLET COMPOST BIN

*Composting is a really simple way of recycling the green waste arising in school. It supports a reduction in the waste collected from schools for landfill and it supports better plant growth as a quality fertiliser to condition the school's flowerbeds and planters. Encouraging pupils to partake in a system of composting gives them a valuable lesson in sustainable waste management and it may have a knock-on impact on their behaviour in their own household. The formation of compost also offers valuable lessons around the decomposition process and the life cycles and behaviour of soil organisms.*

## **Definition**

An open wooden composter is a well-ventilated container designed to be an eco-friendly way of creating and storing compost.

## **Procedure**

The key features of the wooden composter are the gaps in the wood to aerate the compost, a front door so that the compost can be readily accessed with a shovel and the bin should have no base so that there

is no barrier between the compost and the

surrounding soil thus enabling soil organisms to circulate freely. The composter should be sited on level ground, in partial shade and away from prevailing wind.

The simplest construction is from four wooden pallets, some galvanised wire for fixing them together, six wooden stakes for stability and a hinge to create a door.

Clear and level the ground where the composter will sit. Create three sides of a square with pallets stood on their sides. Strap these side and back panels together using ~50cm lengths of galvanised wire wrapped and twisted tightly at each top and bottom corner. Wooden stakes can be hammered through the pallets at each corner for stability. Attach a hinge to the front edge of the left-hand pallet and connect this to the final pallet which will act as a swinging doorway.

Place branches at the base of the finished composter to serve as a drainage layer that





will allow air access. The base can first be lined with chicken wire to deter vermin. You are now ready to begin filling your bin with garden and kitchen waste!

A key factor is water. If the compost is too dry, the soil organisms in it will not survive. Ideally the compost should feel damp to the touch but not

too wet. Rake the compost at least once a week and regulate the water content. If the compost is too wet then limit the regularity of adding wet waste such as fruit clippings and rake more frequently. It takes about a year for compost to mature to a dark nutrient-rich substrate.

## Tips

- The composter can be built from many hardwoods such as oak, acacia, chestnut, plum or cherry. Woods high in resin are ideal such as pine or larch.
- The wood can be treated to lengthen its lifespan with an organic lacquer. Be aware that many wood treatments could release toxins into the food chain.

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