



Architecture &
Design Scotland
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Design elements for school grounds

Planting and gardens



Planting and gardens



It is important to grow plants which suit the conditions you have. When choosing plant species, consider the final size, the plant’s ideal habitat, and any special feature such as colour, fruit or scent. Special considerations are needed to ensure flowering seasons coincide with term time.

For more advice on planting, contact local authority greenspace or tree officers, landscape architects or designers, horticulturists or plant suppliers.

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Planting

Creating a thriving garden starts with selecting plants that naturally flourish in your existing conditions. Rather than trying to alter your garden’s environment, choose plants well-suited to its unique characteristics.

This section will guide you through the process of choosing the right plants by considering their mature size, ideal habitat, and any special feature (flowering, colours, fruit or scent).

Location or aspect

When identifying planting areas, assess sunlight (full sun, partial shade, full shade), prevailing wind direction, and any harsh conditions like air pollution or coastal exposure. Protect new plants by considering nearby activities and land use.

Water or drainage

Keep in mind how water sits or drains in the area. Determine which areas are often water-logged or dry.

Soil

Determine the type of soil located on the school grounds. Some areas may need to be improved by adding compost or fertilisers. Other considerations include compacted vs loose soil, volume and potential pollution detected in the area.

Planting in hard landscaping

Planting in or on hard landscaping generally involves higher costs. This is because it often requires removing the existing hard surface, including the sub-base and underlying soil, installing planters, and adding new topsoil. To support healthy growth, ensure that enough hard surfacing is removed – or that planters are large enough – to provide sufficient root space for the plants. Plants generally establish less well in planters due to limited growing space and planters drying out more easily. It is important to choose the right type and species of plants to ensure they establish and grow well. Root barriers may be required when planting within hard surfacing.

Planting in soft landscaping

Planting within existing soft landscaping (such as lawn or planting beds) is lower cost and easier to undertake than planting in/on hard landscaping. Soil type and drainage conditions should be investigated to ensure the right plant species for soft landscaping.



Existing utilities

Each utility provider has their own off-stand requirements in which trees or shrubs cannot be planted. Check with your local authority for more information.

Distance to buildings, boundaries and hard surfaces

When planting trees or shrubs near buildings or boundaries, consider their mature size, canopy shape and density, root system, and potential fruit. This can help prevent future damage, view obstruction, loss of daylight, or maintenance issues.

Views

Consider how new planting will effect views and natural surveillance. Will they preserve important sightlines? Can they screen unwanted views? Vary plant heights (low, waist-high, and high) to create distinct spaces within the school grounds.

Colours

Consider plants with different foliage, bark, stems, flowers or fruits to bring additional colour to the school grounds and its different spaces throughout the year. Choose plants that flower during term time rather than during summer holidays.

Scent

Scented plants can be distinguished by flowers (lavender), foliage (katsura tree) and touch (thyme) which can add to the sensory experience. Choosing plants with a strong and heavy scent, or a mix of scents, should be a consideration.

Impact



Play value

Consider plants that can bring additional play value to the school grounds: fruits, plants to hide in or build dens with, and plants to use for arts and crafts.

Biodiversity and wildlife

Plants that attract wildlife can provide enjoyment and opportunity to observe biodiversity. Choose a variety of plants to create different habitats and attract a wide range of wildlife.

Plants to avoid

Research poisonous or harmful plants to ensure they are not included in the school grounds. A helpful checklist of potentially harmful plants is available on the [RHS Campaign for School Gardening website](#). Thorny or vigorous plants should generally be avoided unless specifically needed to deter unwanted access.

Funding or free planting

Speak to your local authority greenspace officer. Free trees can be applied for from [the Woodland Trust website](#).

Labour or skills

Consider the necessary skills and whether external contractors are required. This may include planting skills, a landscape contractor, a hard landscaper, mechanical tools or machinery for planting on hard surfaces.

Maintenance

Any planting requires maintenance, especially during the first few years when higher maintenance is required to ensure the plants establish well. This includes watering (especially during dry periods), regular weeding, and protection from misuse to avoid damage to the plants.

Bulbs and lawn



Spring bulbs

Spring bulbs provide early-season colour. To ensure continuous blooms, plant a variety of species, such as snowdrops, crocuses, muscari, daffodils, tulips, and alliums. Bulbs can be planted in planters, long grass, or other beds. Avoid areas with heavy foot fall or regularly mown lawns. Plant in late autumn.

Suitable species: Snowdrops*, Grape hyacinth*, Daffodils*, Tulips*, Allium (*check toxicity for these plants as they can be harmful if eaten, and are a skin irritant)

Low maintenance required.

Ground cover planting

Planting for ground cover is useful in various areas, from shady spots under shrubs and trees to other locations where weed suppression is desired.

Suitable species: Periwinkle or Japanese Spurge.

This type of planting is low maintenance and suppresses weed growth.

Lawn

Lawns are usually planted to create an area for different play activities. Consider reducing lawn areas and adding diverse planting to encourage more variety of learning and play spaces.

Suitable species: hard wearing lawn mix (provided by most seed or turf suppliers)

Lawns are high maintenance due to regular cutting and fertilising. Maintenance can be reduced by turning some areas into long grass, wildflower or tree planting.

Grasses



Long grass, meadow and wildflower areas

Existing lawn areas can be turned into long grass, meadow or wildflower areas to increase biodiversity, reduce maintenance, and for educational or play purposes. Long grass contains grass species only; meadows contain a mix of grass and wildflower species; wildflower areas contain wildflower species only. For each of these three area types, there are seed mixes for different conditions (wet, shady, dry) and different features (colour, height, etc).

Paths can be created within these areas offering different play and learning experiences. Long grass or wildflower meadows can be damaged by high activity and should only be established in areas with low activity or for educational purposes.

Suitable species

Different wildflower seeds and turf are available for different environments (wet, shady, full-sun, etc.) as well as for different soil types and required colours. Speak to suppliers for the best mix.

Maintenance

Requires an annual cut in September or October after flowering, with cuttings removed from the area. Annual wildflower mixes are high maintenance as these require annual planting, bed preparation and reseeding. Due to the annual autumn cut, meadows and wildflower areas look more barren and rougher compared to short-cut lawns during the winter months. Therefore, these areas might not be suitable for well-overlooked entrance areas. Consider framing these areas with an amenity grass verge.

Plants and shrubs



Climbing plants

Climbing plants can be used for softening and greening bare walls, building facades, structures or fencing, and reducing noise or air pollution. Fast-growing species can be used to cover areas in a short period of time. Some self-climbing plants may require climbing supports such as trellis, wires or existing fencing.

Suitable species: Clematis*, Honeysuckle, Jasmin (*skin irritant)

Low maintenance. Annual cut may be required, depending on species.

Perennials

Perennials offer a wide variety of colour, form, texture and interest throughout the year. Perennials are any plants that persist for several years, usually with new growth that survives from growing season to growing season. Below are three main types of perennials: hardy, half-hardy and tender.

Suitable species:

- hardy: Geranium and Lavender
- half-hardy: Penstemon and Salvias
- tender: Dahlias and Gazanias

Perennials each require different conditions and maintenance.

Shrubs

A single shrub can create a focal point. Group planting can be used to separate spaces or create soft boundaries that block unwanted views and access, and provide protection from noise, wind and air pollution.

Suitable species: Butterfly Bush, Deutzia, Dogwood, Lilac, Magnolia, Snowy Mespilus, Witch Hazel

To reduce maintenance, consider the growth rate and final size of shrubs. For lower maintenance, cut every three to five years. Regular weeding and watering is required during dry spells, especially during the first years until the planting area has been established. Ground cover or low planting can be used to suppress weed growth.

Hedges



Hedges

Like shrubs, hedges can also be used to create separate spaces and soft boundaries. They also reduce air pollution and offer protection from unwanted views, access, noise or wind.

Suitable species

Suitable species:

- formal and regular pruning: Beech, Hornbeam, Privet* (*harmful when eaten)
- wildlife hedging: Currants, Blackthorn*, Bramble*, Beech, Hawthorn*, Hornbeam, Dog rose*, Field maple, Honeysuckle (*species with thorns, not suitable close to paths or areas of high activity)

Maintenance

To reduce maintenance, consider the growth rate and final size of hedging plants. Choosing smaller species can reduce the need for regular hedge maintenance, but these may not offer the required protection from unwanted views, noise or wind.

In general, hedging requires a monthly cut during the growing season (April–October), while free growing hedging requires a cut every three to five years. Regular weeding and watering during dry spells is required until hedging has been established.

Wildlife hedges should not be pruned until late winter or early spring so that wildlife can take advantage of the insects and fruits provided during the winter months. To protect birds, wildlife hedges should not be trimmed in the nesting season (March–August). Cut hedge sections at different times, so there is always an undisturbed place for wildlife.

Fruit trees



Fruit shrubs or trees

Fruit planting is a good addition to the school ground. Fruit shrubs can be planted in groups or hedges for pupils to easily pick themselves. Fruit trees can be planted in raised planters, planting beds, existing lawns, or grown as espaliers along walls.

Suitable species

Apples, Pears, Plums, Cherries, Currants, Raspberries, Chokeberries and Gooseberries (available without thorns).

Variety (inc. heritage fruit planting) and advice on suitability for local conditions are available from [Scottish Fruit Tree's website](#) and [Plants and Apples website](#).

Maintenance

Fruit shrubs are low maintenance. Cut every three to five years. Fruit trees require medium maintenance, with an annual cut.

Watering during dry spells is necessary until fruit shrubs and trees have been established. Consider where fruit trees are being planted, to avoid issues caused by fallen fruit.

Check [Scottish Fruit Tree's website](#) for additional information.

Trees

Trees

Selecting the right tree depends on several factors, including its intended purpose, such as creating a barrier, providing shade, or increasing biodiversity. Site conditions such as soil type, water availability, and wind exposure should also be considered.

Research the maximum height and spread specific to the species (factoring size when mature). Ensure there is sufficient space for roots, distance to buildings or structures, under or above ground utilities, and other trees.

There should be a minimum distance of 2m between tree trunks to any paths or hard surfaces, otherwise root barrier will be required. Consider leaf or fruit fall if close to hard surfaces, pathways or seating areas to avoid higher maintenance or surfaces becoming slippery.

Trees can be planted in different sizes (whip planting, specimen or heavy standards). Smaller trees are lower cost and might establish better, but they take longer to grow to their final size and are more prone to damage from play or vandalism.

Consider the most suitable size depending on the planting location and any potential protection required (tree guards or temporary fencing such as picket or paling fencing).

Suitable species

Native species suitable for woodland or group planting include Alder, Birch, Crab Apple, Oak, Rowan, Whitebeam, Wild Cherry and Willow.

Along boundaries, paths or streets include Gingko (seeds harmful if eaten), Small-leaved Lime, Ornamental Cherry and Whitebeam.

Individual trees such as Aspen, Chestnut, Gingko (seeds harmful if eaten), Japanese Maple, Hanging Willow, Hanging Beech, Hornbeam, Katsura Tree, Purple Beech and Pine.

For further information on trees visit [the Woodland Trust](#).

For advice on suitable species, get in touch with your local authority greenspace or tree officer.

Maintenance

Low to medium maintenance is required for trees. Watering is required during dry spells until trees have been established. Leaf removal may be required. Once established, factor in yearly inspections on tree health and safety. Cut branches to keep stem clear, or remove lower branches (crown lifting) and shape as required.



Willow structures

Willows can provide pupils with areas for different activities such as natural play, quiet zones, and hide and seek. You can grow and train your willows to form a variety of structures, such as domes, play houses, half-bowers, tunnels, hedges and shelters.



estimated time

Willow grows up to 2m per year, but will take 1–2 years to fully mature.

Allow one month for sourcing and planting materials.

Willow should be planted while dormant, to help establish a strong root system.

The best time for planting is from December to early April.



labour and skills

Basic gardening skills are sufficient for planting and maintaining willow. If you're constructing more elaborate structures, DIY experience will be helpful.



estimated costs

Willow cuttings can be taken from existing willows.

If purchased from a supplier, cuttings typically cost £1 each, with small, bare root plants starting from £2.

***see 'Costings note' on p.26**

Design considerations

Ensure sufficient space requirement for root growth.

Do not plant close to buildings or existing services (refer to planting section on p.5).

For further information on willow structure design and maintenance, visit: www.rhs.org.uk

Technical considerations

You may need to speak to your local authority greenspace officer for guidance on where to plant your willow structure.

Legal considerations

Not applicable

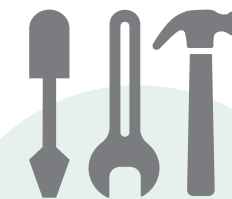


materials

Willow whips (cuttings) are used to create living willow structures.

For example, a high arch measuring 1m wide by 1m long typically requires 14 whips at 3m in length.

For each additional meter of length, you can expect to need around 12 more whips.



maintenance and lifespan

Keep your willow structure well watered during its first year to help it establish.

Prune at least once a year, ideally in late winter or early spring.

Any natural twine or bindings used where rods cross should be replaced every 2–3 years to prevent rotting.



further ideas

Incorporate seating into your willow structure to create a quiet reading area.

Willow structures also work well near sensory or wellness gardens and can support natural play when combined with additional features or loose parts.

Willow structures

Incorporating willows into your school grounds are a natural way to encourage imaginative play and outdoor activities. Below are some examples of how these can be used for play.

Types of play structures:

- willow dens
- living willow tunnels
- arches and pergolas
- fedges (fence-hedge hybrids)
- living willow igloos
- enclosed living willow areas

Benefits of willow structures for play:

- encourages natural play
- supports outdoor play
- promotes teamwork and learning
- renewable resource
- versatile and adaptable



A willow structure with leaves growing across the branches, creates a natural shaded area in the summer.



A willow structure in the winter with bare branches can add drama to an otherwise empty garden.

Wellness, sensory or quiet gardens

Wellness, sensory or quiet gardens can be a great addition to school grounds. They provide a quiet space for groups or individual pupils to retreat and connect to nature. The gardens can be used for teaching small groups, or as a perfect background for individual learning support. During break times the gardens can be a natural quiet spot for pupils to eat lunch or play.



estimated time

Design phase: approximately 1–3 months, depending on who is involved in development.

Implementation: typically 1–4 weeks, including time for purchasing materials and installing elements.

The garden will take 1–2 years to fully establish.



materials

You will need topsoil and planting such as sensory species, fruit shrubs, or trees. Use planters if you are creating the garden on a hard surface.

For paths or hard-standing areas, choose a suitable surface material if you are installing into soft landscape.

Include seating, this could be standard or self-built, and consider features such as wind chimes, water elements, or bird feeders to enhance the sensory experience.



estimated costs

The plants required to fill a border can cost between £45 – £100m² depending on the style, size and age of the plant.

**see 'Costings note' on p.26*

Design considerations

Consider the location and proximity to other areas in the school ground carefully: Does the area have natural surveillance to reduce potential anti-social behaviour? Does it offer views over the school ground or wider surrounding areas? Is there sufficient distance away from more active areas to avoid any disturbances? Does it provide shelter?

If possible, adapt an existing planted area to create this garden space.

A variety of elements can be included to enhance the sensory experience, such as different types of seating, informal paths (still providing accessibility for different mobilities), a range of planting (different heights, colours, scents). The addition of wind chimes, bird feeders, insect hotels, and water features can also create interesting focal points.

Technical considerations

Not applicable.

Legal considerations

Permission or sign off by local authority may be required for any self-build elements.



labour and skills

Planting skills will be required, or you may choose to work with a landscape contractor.

Hard landscaping or site clearance may require additional construction skills or the use of mechanical tools or machinery.



maintenance and lifespan

Plants will require an annual feed and frequent watering until fully established.

General weeding will be required. Consider using mulch to help suppress weed growth and retain soil moisture.



further ideas

Incorporate seating to create quiet spaces for reflection.

Consider planting near other natural areas such as growing beds or willow structures to create a natural zone within your school grounds.

Wellness, sensory or quiet gardens

Existing situation

Picture a place that feels uninspiring. There is a hard, paved area next to a tall, blank wall with some greenery nearby, but it is empty and lacks purpose. The space is already in a quiet underutilised area in the school grounds, and the school has identified this as an ideal place for reflections and a quiet garden. At present the area has no clear boundaries to distinguish it from the general playground, with no areas for sitting or sections to allow pupils to experience the space or feel relaxed.

Proposed activity

In this scenario, the school decides to revitalise the space, and considers:

- creating a path through the hard surface area
- adding a sensory wall by using timber or pallet panels
- building a timber post with a shade sail
- incorporating fixed or moveable furniture
- cultivating sensory planting to create a natural boundary
- providing loose play parts to enhance the senses, such as various materials and fabrics or music instruments



In this example, a school's outdoor area is transformed with a timber post and sail structure, providing shade and relief from the heat. The design explores various options for adding colour and interest to an otherwise blank wall. A pathway edged with a diverse array of wild meadows, shrubs, and plants directs pupils toward the shaded area. Climbing plants are incorporated into the design, ascending the timber posts and draping down the wall.



The school has enhanced its grounds by creating a stone pathway. Benches with integrated planters offer seating, while a low timber post wall protects the plantings and defines the path's edge.

Bird, bat boxes and insect hotels

Bird and bat boxes, and insect hotels, can attract beneficial biodiversity into the school grounds. These animals can provide opportunities for pupils to observe and learn, and could form part of the curriculum.

To create a DIY insect hotel, gather natural materials such as twigs, leaves, pine cones and bark, along with building materials such as bricks and pallets. Arrange them in a sheltered, shady spot in your garden to create a natural habitat for various insects (see p.25).



estimated time

Allow 1–2 weeks for collecting natural materials (if involving pupils) and for construction, especially if creating the boxes or hotels as a self-build project.



materials

Off-the-shelf bird or bat boxes can be purchased or built using small bits of timber.

You will need pallets, wood, brick or loose material. Use only untreated materials for insect hotels.



estimated costs

Off-the-shelf bird or bat boxes typically cost between £10–£30.

Materials for insect hotels, such as pallets, wood, bricks, and other loose items, can often be sourced for free.

***see 'Costings note' on p.26**

Design considerations

Consider the type of bird box and ensure the hole diameter is suitable for the relevant birds. Bird boxes: install at a height of 2.5m or higher. Avoid facing south, south-west or south-east directions, if possible.

Bat boxes: install in trees, on walls and on buildings, at a height of 3–6 m (the higher the better) in an open, sunny position (ideally with 6–8 hours of direct sunlight, or where it receives the morning sun). Ensure the bat box will not be disturbed by bright lights at night, such as street or security lights.

Insect hotels: position in sunny to half shade areas and be sheltered from the weather. When installing boxes and hotels, ensure they are located far from high traffic areas to avoid unnecessary disturbances.

Technical considerations

Use un-treated materials, or those without chemicals.

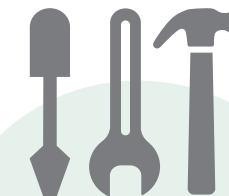
Legal considerations

Health and safety requirements (installing elements at height and using ladders) for fixing bat and bird boxes at height.



labour and skills

You may need woodworking skills to build boxes or hotels with untreated materials.



maintenance and lifespan

Carry out annual checks to ensure that boxes and insect hotels remain secure and in good condition.

Add fresh nesting material to insect hotels as required.



further ideas

Place these habitats in already planted areas, or create a wild meadow nearby that can provide food and shelter for the animals.

Bird, bat boxes and insect hotels



Here, the school installed bird boxes under the roof edge to minimise disturbance to the nesting birds. The pupils have decorated the bird boxes as part of a class project.



In this garden, a DIY bird box is added near the top of the roof – out of students' reach, but still visible.



In this example, a school builds a bug hotel to attract insects – and potentially frogs and hedgehogs – to support the local biodiversity. Bug hotels provide a safe space for bugs to shelter, hide from predators and raise their young. Pupils can observe the insects and small creatures, and learn about them as part of their curriculum.

Image credits and acknowledgements

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Page 2, 16 (bottom), 17, 24 (bottom): Architecture and Design Scotland

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Costings note: Please note that all pricing information contained within these design guidance reflects estimates based on market conditions as of the 2024-2025 period. Due to the dynamic nature of industry costs, including material fluctuations and evolving labour rates, these prices are subject to change.

Explore our other resources related to design elements for school grounds

This resource is part of a series of six documents looking at design elements for school grounds. Each document focuses on different parts of our school grounds and provides design ideas on how to enhance them for activities and learning. Other topics are:

- enhancing surfaces
- food growing
- furniture and shelter
- rain gardens
- play and outdoor learning

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