Climate School 180

Rain Gardens/Managing Excess Water

Introduction

Creating a rain garden in your school grounds is a fantastic way of capturing rainwater that flows over impermeable surfaces, like tarmac, into the drainage system. Slowing down the amount of water that enters the system after heavy rain will help reduce the likelihood of flooding and retains water to use on your site when needed.

Rain gardens also offer fantastic benefits to wildlife, including pollinating insects, and can offer a solution when trying to address the boggy areas of your grounds or the green areas prone to flooding after heavy rain.

Suitable for pupils of all ages, a bog garden in your school grounds will:

- Support a wealth of biodiversity and play an important role in a balanced ecosystem.
- Reduce the risk of water run-off and subsequent flooding.
- Use an important resource carefully.
- Capture and store CO2, one of the key greenhouse gases.

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Making the change

- **Plan**

There are a variety of ways to capture and/or slow down the flow of rainwater within the school grounds. The solution you choose will depend on whether you have green space or not, the size of your grounds and your budget.

You can identify where water flows and use it on the ground, or you can redirect rainwater pipes into water butts, raised beds, planters or specific areas of the grounds.



If you have little or no greenspace:

Suitable for any school grounds, a green roof, rain garden planters and a water butt are practical examples of ways to capture rainwater.

Green roofs essentially comprise maintenance light planting on the hard surface of a flat building roof. Suitable plants, such as Sedum, can be purchased in rolls, which is laid out on the roof on top of a layer of waterproof membrane, a layer of root-proof felting and a layer of soil. Suitable plants can also be purchased ready planted in trays. Either way, some form of bracket (for example a wooden baton) will need to be attached around the

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edge of the roof to keep the new planting in place. Always check the flat roof of a tool shed, for example, can sustain the extra weight.

A rain garden planter is a raised bed located close to the building that captures rain from a downpipe. A combination of water-loving plant species, free-draining soil and a layer of gravel slow down the flow of water. As the water escapes over time, it is redirected from the planter into another planter, another water feature or a drain.



A water butt is usually made of hard plastic and can be sited against a building or shed wall to capture and store rainwater from a downpipe. Used for watering plants, it is good practice to site your water butt away from direct sunlight. Similarly, piercing a small hole in the base to allow water to slowly escape, as well as regularly emptying the contents, will help ensure the stored water does not stagnate.

If you have some or lots of greenspace:

If you have green space within your grounds tree planting, a bog garden and a rain garden are practical examples of ways to capture rainwater.



Tree planting is a great way to soak up rainfall, as well as supporting biodiversity, creating shade, reducing wind speed and improving air quality. There are several species of tree that grow well in wet conditions, for example Alder, Poplar and Willow. For a simple guide to tree planting in your school grounds, please see our tree planting guidance.

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Creating a pond in your school grounds is an excellent way of attracting and supporting biodiversity, but there are safety issues that need to be addressed around access and pupil management near open water. Creating a bog garden is a great alternative that offers valuable benefits for wildlife, is easy to maintain and can help make good use of a particularly wet area of the grounds after rain.



A rain garden is essentially a sunken area planted up with moisture-loving plants that collect and absorb water then allow the rest to drain away, therefore slowing down the rate at which excessive rainwater enters the drainage system. Unlike a bog garden that retains water, a rain garden can be either wet or dry depending on the weather, so plants that thrive in these gardens need to be able to grow in either condition. Rain gardens are best sited in green areas that retain water after prolonged rain, but water can also be diverted into the garden through, for example, a downpipe from a roof.

- **Prepare**

To create a basic rain garden, you will need the following resources:

- String or rope to mark out the size and shape of your garden
- Spades to dig out the soil
- A range of plants suitable for growing in a rain garden
- Trowels for planting
- Bark chippings
- Stones (if the water for your garden will come from a downpipe)

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A simple soil testing kit will determine what type of soil you have. This is important to know because the plants you select will be determined by your soil type. Pupils should be involved in this testing, and you should seek local advice.

- **Create**

Mark out the size and shape of your garden with string or rope.
Use spades to mark all the way round the edge of your garden, then remove the string or rope.

If you are digging into an area of grass, remove the turf from the marked-out shape first, then dig down 16- 20cms, mounding up the soil you remove around the lowest edges of your garden to help retain the water.



Plant up the garden with wet tolerant plant species (see useful resources section for examples) including grasses and rushes and then plant more drought tolerant species around the edges.

If water flows into your garden from a downpipe, add a layer of stones onto the soil surface around this area to avoid the soil being washed away.

You might like to consider including signage or plant labels, and adding a layer of bark chippings over the soil surface will support the retention of water and reduce weed growth over time.

- **Management and maintenance**

Rain gardens require relatively minimal maintenance over time.
If the weather is generally dry whilst the planting is establishing, water as required.

Top up bark chippings over time as required.

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Monitor the garden in the different seasons for signs of wildlife. This may include a variety of insect species, including dragonflies and butterflies, depending on what plants you have chosen.

Useful resources and sources of more information

- Advice, support and guidance from the Wildfowl and Wetlands Trust, including plant species and several short videos. https://www.wwt.org.uk/discover-wetlands/gardening-for-wetlands/how-to-make-a-rain-garden/

- Advice and support from the Royal Horticultural Society, including a list of suitable plant species. https://www.rhs.org.uk/garden-features/rain-gardens

- The 10,000 Raingardens for Scotland Campaign – lots of useful ideas including a free leaflet on rain gardens in school grounds. https://www.10kraingardens.scot/

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