

Start with a Book: River Rangers

# Design a Rain Garden



## Introduction

New construction in many towns and cities is increasing the amount of impervious surfaces — surfaces that don't allow water to be absorbed. Too many rooftops, driveways, and parking lots result in an increase of storm water runoff and a greater chance for pollution to enter our waterways through storm sewer systems. Kids can learn more about how to help stop runoff when they design a rain garden to help direct water through the soil.

## Supplies

- Books and guides to plants native to your region or materials from your local Cooperative Extension Service
- Database for native plants in your area: [epa.gov/watersense/what-plant](http://epa.gov/watersense/what-plant)
- Pencil and journal
- Tape measure
- **[OPTIONAL] IF YOU BUILD A RAIN GARDEN:**
- Soil mix: 50% sand, 30% compost, 20% topsoil
- Seeds, seedlings, or starter plants. Remember to choose native plants if possible, and plants that attract pollinators like butterflies and bees

## Get kids thinking ...

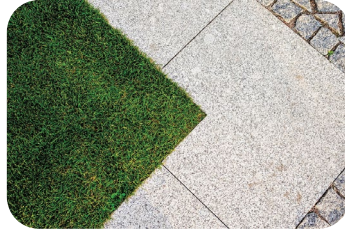
Get kids thinking back to what they've learned about the water cycle and your local watershed. Rain has to go somewhere. **ASK THE KIDS:** Where does it go when it can't soak into the soil? Have kids head outside and take notes about all the pervious and impervious surfaces they see. Have kids draw a picture (aerial view if possible) of the current space. Talk about where they see water collect or travel when it rains. Have them identify natural drainage patterns and talk about how rainwater could be filtered into the surrounding soil. **ASK THE KIDS:** Why is it important for rain to be directed to the soil rather than the storm drain?





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### PERVIOUS OR IMPERVIOUS?

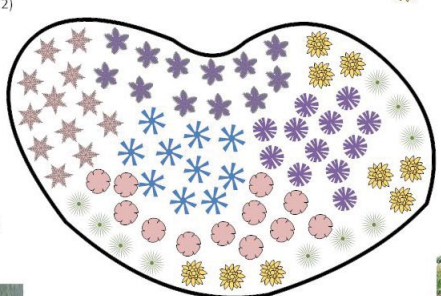
## Let's get started!


As kids see drainage patterns and how drainage could be improved, have them start mapping out their rain garden. Gardeners make and use maps to plan what, where, and when to plant. Together, you'll need to think, talk about, and investigate:

- If this is a real or imaginary garden (if you can't plant, it is still fun to imagine and plan)
- How much water your rain garden will drain
- What kind of soil you have (sandy, clay, loamy, or mixed)
- How much space you need for your rain garden (sandy soil, a rain garden should be 20-30% of the drainage area; or clay soil, a rain garden should be about 60% of the drainage area)
- What's already in or near the space (the house, patio, deck, paths, driveway, existing plants and lawn)
- Natural depressions in the landscape (a rain garden can be up to six inches deep)
- Native plants (plants that typically have deep root systems with water holding capacity)
- Where plants would find sun or shade


**Raingarden-in-a-Box**

Planting Plan #3:  
Sun - Bird & Butterfly







Ironweed (12)




Black-eyed Susan (12)




Prairie Blazingstar (12)




Marsh Milkweed (12)



Little Bluestem (10)



Blue Flag Iris (10)



Joe-Pye (12)

Photos and diagram © University of Nebraska Extension





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Encourage kids to take good notes as they research plants for their garden, keeping in mind what they've learned about soil types and availability of sun. Have kids develop garden plan details using their aerial view sketch.

To determine the size of the area that will drain into the rain garden, measure the amount of impervious surfaces surrounding the location of your rain garden. Use this formula:

$$\text{LENGTH (FT) X WIDTH (FT) = } \underline{\hspace{2cm}} \text{ SQUARE FEET (DRAINAGE AREA)}$$

If you are able to plant your rain garden, be sure you have accurate information about underground utilities before you start digging. Consider planting seeds or using seedlings grown in trays. It may take longer to fill in the space in the garden, but it will help keep costs down. And kids love to plant seeds!



As the garden grows, kids can continue to add details to their map such as birds, insects, and animals that have visited or plant growth charts. The links below offer detailed guides to building a rain garden.

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## More rain garden activities

### WHAT IS A RAIN GARDEN (WVCU CURIOUS KIDS, VIDEO)

[wvcucuriouskids.org/what-is-a-rain-garden/](http://wvcucuriouskids.org/what-is-a-rain-garden/)

### RAIN GARDEN DESIGNS (PRIOR LAKE – SPRING LAKE WATERSHED DISTRICT, MN)

[plslwd.org/2013/05/raingarden-in-a-box-designs/](http://plslwd.org/2013/05/raingarden-in-a-box-designs/)

### RAIN GARDENS (OREGON STATE UNIVERSITY EXTENSION SERVICE)

[extension.oregonstate.edu/stormwater/sites/default/files/Rain%20Gardens.pdf](http://extension.oregonstate.edu/stormwater/sites/default/files/Rain%20Gardens.pdf)

### BUILD A RAIN GARDEN (12,000 RAIN GARDENS)

[12000raingardens.org/build-a-rain-garden/](http://12000raingardens.org/build-a-rain-garden/)

### RAIN GARDEN IN A BOX (PORT OF VANCOUVER)

[portvanusa.com/assets/Grattix-how-to-flyer.pdf](http://portvanusa.com/assets/Grattix-how-to-flyer.pdf)





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### What Is a Rain Garden?

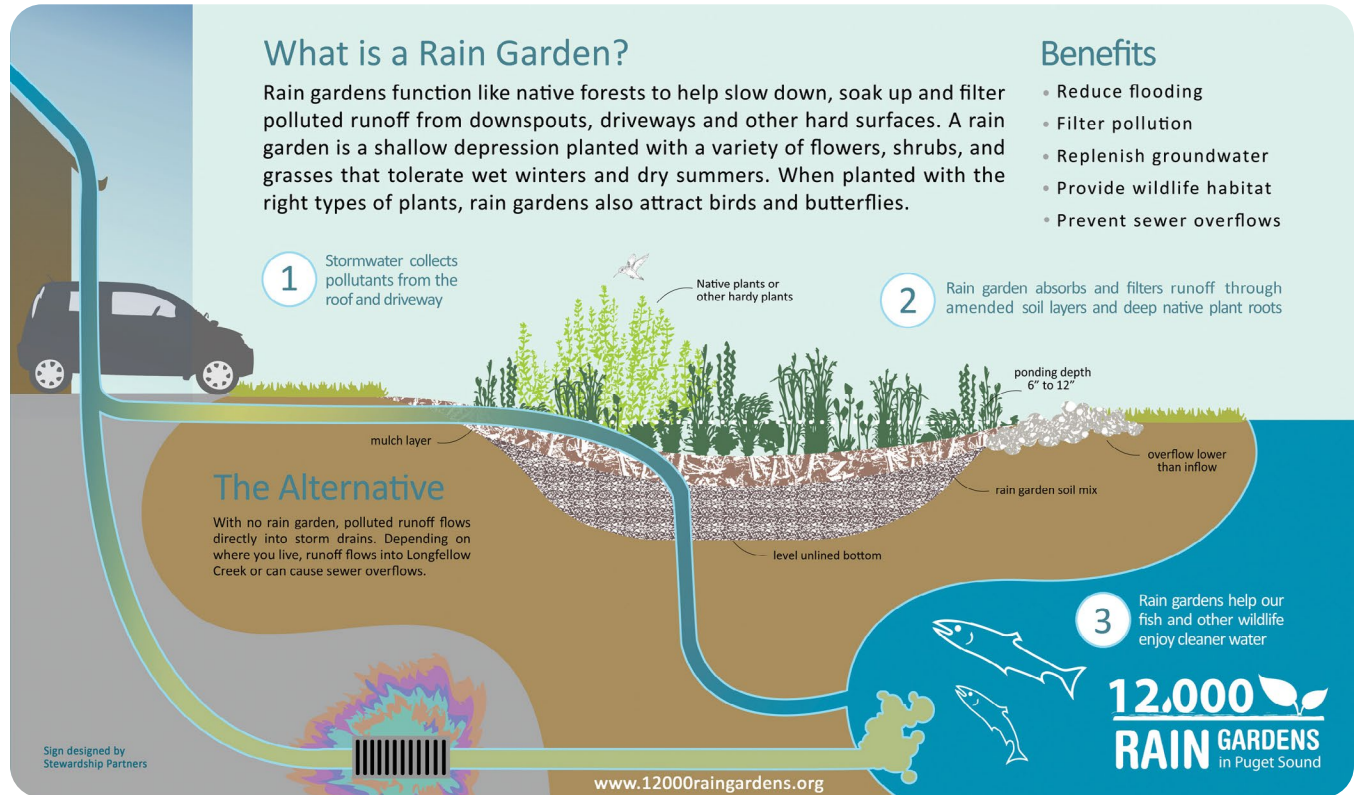


Diagram © 12,000 Rain Gardens

