



# Outdoor Classroom Project Plan:

## Materials List & Budget for **RAIN GARDEN**

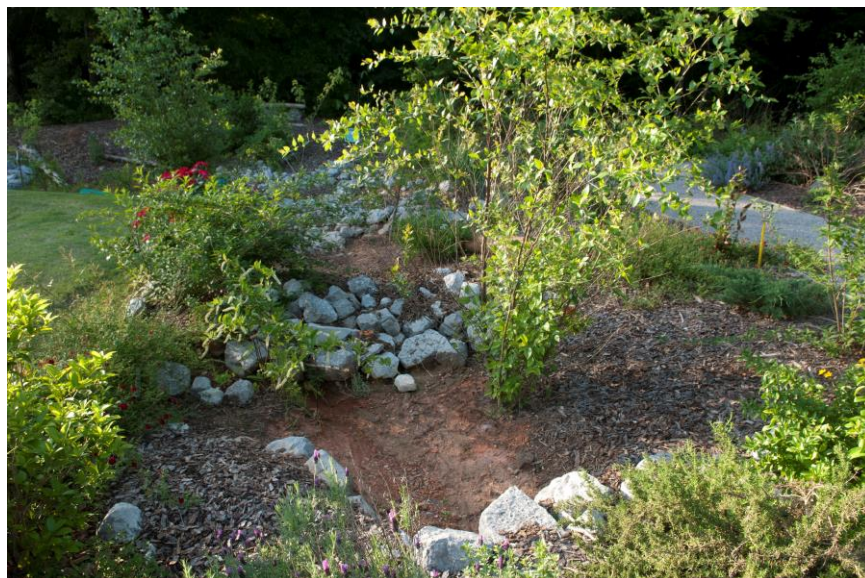
A **Rain Garden**, essentially, is a miniature watershed. At the low point of a dry creek bed or spillway, capturing runoff from hard surfaces (roof, driveway, concrete, asphalt, etc.), a rain garden slows flow and allows rain water to be absorbed into the soil close to where the rain falls and helps to recharge groundwater instead of allowing the runoff to flow downhill to become a destructive force elsewhere. Often, stormwater overwhelms municipal sewer drains, picking up pollutants as it flows, and reaching streams and creeks where it causes more havoc such as erosion problems, sediment pollution, and nutrient pollution (nitrogen from fertilizers and from sewage). These things ultimately cause perils to our drinking water and to wildlife inhabiting the waterways.

Use this environmental concept to mitigate water issues in the schoolyard and create a wildlife habitat at the same time. Plant native plants that are specific to local riparian zones to act as filters, to serve a function of holding the soil in place, and the plants will also serve a greater purpose as the foundation of the food web for wildlife. Riparian plants for a rain gardens might include buttonbush, wax myrtle, elderberry, Virginia sweetspire, inkberry, swamp dogwood, juncus grass, sedges and rushes, cinnamon fern, Joe Pye weed, ironweed, swamp sunflower, golden Alexander, cardinal flower, and rose mallow.

### ❖ **Location Choice Suggestions:**

- Low-lying, Moist Area OR Near a Spigot, Downspout, Parking Lot, or Drainage Area** (so that you can divert water into the rain garden or water the garden during low rain level)
- Flat, Horizontal Area along or at the bottom of a spillway** (to slow flow of runoff during rain)
- Area Approved for Digging** (must not have any utility lines in the area)
- Full Sun or Full Shade** (be sure to choose the appropriate plants based on your sunlight conditions)

### ❖ **Example Rain Garden:**





# OC Project Plan: Rain Garden Materials List & Budget

## ❖ Estimated Costs:

- ❑ Small Rain Garden (5 ft x 8 ft → ~40 cu ft): \$1,155
- ❑ Medium Rain Garden (8 ft x 11 ft → ~75 cu ft): \$1,405
- ❑ Large Rain Garden (11 ft x 18 ft → ~165 cu ft): \$2,010

## ❖ Materials & Supplies Lists with Estimated Budgets:

Example 5 ft x 8 ft x 10 in (~40 cubic ft.) Rain Garden				
Station	Materials & Supplies	Est. Cost	Example Materials	Final Cost
Sm. Rain Garden	(1) Can of Rust-Oleum Professional White Water-based Marking Paint @ ~\$9.98 ea	\$10	Lowe's Item #429750	
Sm. Rain Garden	(1) 6'x50' Sta-Green Professional Landscape Fabric (weed barrier) (16' used for this garden) @~\$33.98 ea	\$35	Lowe's Item #510606	
Sm. Rain Garden	(12) 1 CF/32 Qt Bags of Evergreen Organic Top Soil @~\$2.18 each	\$25 total	Lowe's Item #648834	
Sm. Rain Garden	(33) 0.5 CF Bags of All Purpose Sand @~\$5.18 ea	\$170 total	Lowe's Item #104898	
Sm. Rain Garden	(3) 1 CF Bags of Evergreen Organic Compost and Manure @~\$3.68 ea	\$10 total	Lowe's Item #380606	
Sm. Rain Garden	(1) 2 CF Bags of Evergreen Organic Drainage and Aeration Soil Conditioner @~\$4.58 ea	\$5	Lowe's Item #648829	
Sm. Bog	(1) 3/8-in x 25-ft-Element Kink Free Rubber Black Soaker Hose @ ~\$15.98 ea	\$15	Lowe's Item #2626704	
Sm. Rain Garden	(1) 50-gallon RTS Home Accents Flat Back Brown Rain Barrel (*optional – helps slow flow of rain water and holds water for future watering) @ ~\$209.00 ea	\$210	Lowe's Item #4057929	
Sm. Rain Garden	(1) RTS Home Accents Black Rain Barrel Stand - (*optional – helps elevate spigot to increase water flow out of barrel and allow for room for buckets to catch water coming out of barrel) @ ~\$72.98 ea	\$75	Lowe's Item #4057926	
Sm. Rain Garden	(1) 5/8-in x 6-ft FLEXON Light-Duty Vinyl Green Hose @ ~\$11.98 ea	\$10	Lowe's Item #812743	
Sm. Bog	(1) Universal Diverter System (EarthMinded FlexiFit) (to divert downspout water into rain barrel) @~\$35.95 ea	\$35	<a href="https://www.therainbarreldepot.com/earthminded-universal-diverter-system/">https://www.therainbarreldepot.com/earthminded-universal-diverter-system/</a>	
Sm. Rain Garden	(12) Rain Garden Plants (3 different species with 4 of each species) @ ~\$7 ea	\$85 total	Nursery via OC Consultant	
Sm. Rain Garden	(1) Part of One Ton Pallet of Large Landscape Rock for border (shared with rain garden and frog and toad habitat)	\$350	Hardware Store via OC Consultant	





## OC Project Plan: Rain Garden Materials List & Budget

### ❖ Materials & Supplies Lists with Estimated Budgets (cont.):

Sm. Rain Garden	(3) Plant ID Signs (one for each plant species) @~\$6 ea	\$20 total	<a href="https://www.alabamawildlife.org/oc-dig-into-plants/">https://www.alabamawildlife.org/oc-dig-into-plants/</a> for details	
Sm. Rain Garden	(3) Biomarkers to hold Plant ID signs (13" stake with a 2" x 4" plate) @ ~\$3 ea (includes S&H)	\$10 total	AWF OC Consultant or <a href="https://mcgbiomarkers.com/shop/">https://mcgbiomarkers.com/shop/</a>	
Sm. Rain Garden	(1) 18" x 24" .80 Aluminum Sign (with educational information about rain gardens)	\$75	Ask OC Consultant about <a href="https://www.alabamawildlife.org/oc-signs/">https://www.alabamawildlife.org/oc-signs/</a>	
Sm. Rain Garden	(1) 6 ft. U-Post for Fence (for educational sign) @~\$10.69 ea	\$10	Lowe's Item #493054	
Sm. Rain Garden	(1) Hillman 1/4-in x 1-1/2 in Zinc-Plated Coarse Thread Hex Bolt (2-count) @~\$0.88 ea	\$5 total	Lowe's Item #137634	
Sm. Rain Garden	(2) Hillman 1/4-in x 20 Zinc-Plated Steel Hex Nut @~\$0.10 ea		Lowe's Item #63301	
Sm. Rain Garden	(2) Hillman 1/4-in Zinc-Plated Standard Flat Washer @~\$0.15 ea		Lowe's Item #63306	
<b>TOTAL ESTIMATED COST: \$1,155</b>				

### Example 8 ft x 11 ft x 10 in (~75 cubic ft.) Rain Garden

Station	Materials & Supplies	Est. Cost	Example Materials	Final Cost
Md. Rain Garden	(1) Can of Rust-Oleum Professional White Water-based Marking Paint @ ~\$9.98 ea	\$10	Lowe's Item #429750	
Md. Rain Garden	(1) 6'x50' Sta-Green Professional Landscape Fabric (weed barrier) (16' used for this garden) @~\$33.98 ea	\$35	Lowe's Item #510606	
Md. Rain Garden	(26) 1 CF/32 Qt Bags of Evergreen Organic Top Soil @~\$2.18 each	\$55 total	Lowe's Item #648834	
Md. Rain Garden	(64) 0.5 CF Bags of All Purpose Sand @~\$5.18 ea	\$330 total	Lowe's Item #104898	
Md. Rain Garden	(7) 1 CF Bags of Evergreen Organic Compost and Manure @~\$3.68 ea	\$25 total	Lowe's Item #380606	
Md. Rain Garden	(4) 2 CF Bags of Evergreen Organic Drainage and Aeration Soil Conditioner @~\$4.58 ea	\$20 total	Lowe's Item #648829	
Md. Rain Garden	(1) 50-gallon RTS Home Accents Flat Back Brown Rain Barrel (*optional – helps slow flow of rain water and holds water for future watering) @ ~\$209.00 ea	\$210	Lowe's Item #4057929	
Md. Rain Garden	(1) RTS Home Accents Black Rain Barrel Stand - (*optional – helps elevate spigot to increase water flow out of barrel and allow for room for buckets to catch water coming out of barrel) @ ~\$72.98 ea	\$75	Lowe's Item #4057926	





## OC Project Plan: Rain Garden Materials List & Budget

### ❖ Materials & Supplies Lists with Estimated Budgets (cont.):

Md. Rain Garden	(1) 5/8-in x 6-ft FLEXON Light-Duty Vinyl Green Hose @ ~\$11.98 ea	\$10	Lowe's Item #812743	
Md. Rain Garden	(1) Universal Diverter System (EarthMinded FlexiFit) <i>(to divert downspout water into rain barrel)</i> @~\$35.95 ea	\$35	<a href="https://www.therainbarreldepot.com/earthminded-universal-diverter-system/">https://www.therainbarreldepot.com/earthminded-universal-diverter-system/</a>	
Md. Rain Garden	<b>(18) Rain Garden Plants</b> (3 different species with 6 of each species) @ ~\$7 ea	\$130 total	Nursery via OC Consultant	
Md. Rain Garden	(1) Part of One Ton Pallet of Large Landscape Rock for border (shared with rain garden and frog and toad habitat)	\$350	Hardware Store via OC Consultant	
Md. Rain Garden	(3) Plant ID Signs (one for each plant species) @~\$6 ea	\$20 total	<a href="https://www.alabamawildlife.org/oc-dig-into-plants/">https://www.alabamawildlife.org/oc-dig-into-plants/</a> for details	
Md. Rain Garden	(3) Biomarkers to hold Plant ID signs (13" stake with a 2" x 4" plate) @ ~\$3 ea <i>(includes S&amp;H)</i>	\$10 total	AWF OC Consultant or <a href="https://mcgbiomarkers.com/shop/">https://mcgbiomarkers.com/shop/</a>	
Md. Rain Garden	(1) 18" x 24" .80 Aluminum Sign <i>(with educational information about rain gardens)</i>	\$75	Ask OC Consultant about <a href="https://www.alabamawildlife.org/oc-signs/">https://www.alabamawildlife.org/oc-signs/</a>	
Md. Rain Garden	(1) 6 ft. U-Post for Fence <i>(for educational sign)</i> @~\$10.69 ea	\$10	Lowe's Item #493054	
Md. Rain Garden	(1) Hillman 1/4-in x 1-1/2 in Zinc-Plated Coarse Thread Hex Bolt (2-count) @~\$0.88 ea	\$5 total	Lowe's Item #137634	
Md. Rain Garden	(2) Hillman 1/4-in x 20 Zinc-Plated Steel Hex Nut @~\$0.10 ea		Lowe's Item #63301	
Md. Rain Garden	(2) Hillman 1/4-in Zinc-Plated Standard Flat Washer @~\$0.15 ea		Lowe's Item #63306	
<b>TOTAL ESTIMATED COST: \$1,405</b>				

### Example 11 ft x 18 ft x 10 in (~165 cubic ft.) Rain Garden

Station	Materials & Supplies	Est. Cost	Example Materials	Final Cost
Lg. Rain Garden	(1) Can of Rust-Oleum Professional White Water-based Marking Paint @ ~\$9.98 ea	\$10	Lowe's Item #429750	
Lg. Rain Garden	(1) 6'x50' Sta-Green Professional Landscape Fabric (weed barrier) <i>(16' used for this garden)</i> @~\$33.98 ea	\$35	Lowe's Item #510606	
Lg. Rain Garden	(58) 1 CF/32 Qt Bags of Evergreen Organic Top Soil @~\$2.18 each	\$125 total	Lowe's Item #648834	
Lg. Rain Garden	(148) 0.5 CF Bags of All Purpose Sand @~\$5.18 ea	\$765 total	Lowe's Item #104898	
Lg. Rain Garden	(15) 1 CF Bags of Evergreen Organic Compost and Manure @~\$3.68 ea	\$55 total	Lowe's Item #380606	





## OC Project Plan: Rain Garden Materials List & Budget

### ❖ Materials & Supplies Lists with Estimated Budgets (cont.):

Lg. Rain Garden	(9) 2 CF Bags of Evergreen Organic Drainage and Aeration Soil Conditioner @~\$4.58 ea	\$40 total	Lowe's Item #648829	
Lg. Rain Garden	(1) 50-gallon RTS Home Accents Flat Back Brown Rain Barrel (*optional – helps slow flow of rain water and holds water for future watering) @ ~\$209.00 ea	\$210	Lowe's Item #4057929	
Lg. Rain Garden	(1) RTS Home Accents Black Rain Barrel Stand - (*optional – helps elevate spigot to increase water flow out of barrel and allow for room for buckets to catch water coming out of barrel) @ ~\$72.98 ea	\$75	Lowe's Item #4057926	
Lg. Rain Garden	(1) 5/8-in x 6-ft FLEXON Light-Duty Vinyl Green Hose @ ~\$11.98 ea	\$10	Lowe's Item #812743	
Lg. Rain Garden	(1) Universal Diverter System (EarthMinded FlexiFit) (to divert downspout water into rain barrel) @~\$35.95 ea	\$35	<a href="https://www.therainbarreldepot.com/earthminded-universal-diverter-system/">https://www.therainbarreldepot.com/earthminded-universal-diverter-system/</a>	
Lg. Rain Garden	(24) Rain Garden Plants (4 different species with 6 of each species) @ ~\$7 ea	\$170 total	Nursery via OC Consultant	
Lg. Rain Garden	(1) Part of One Ton Pallet of Large Landscape Rock for border (shared with rain garden and frog and toad habitat)	\$350	Hardware Store via OC Consultant	
Lg. Rain Garden	(4) Plant ID Signs (one for each plant species) @~\$6 ea	\$25 total	<a href="https://www.alabamawildlife.org/oc-dig-into-plants/">https://www.alabamawildlife.org/oc-dig-into-plants/</a> for details	
Lg. Rain Garden	(4) Biomarkers to hold Plant ID signs (13" stake with a 2" x 4" plate) @ ~\$3 ea (includes S&H)	\$15 total	AWF OC Consultant or <a href="https://mcgbiomarkers.com/show/">https://mcgbiomarkers.com/show/</a>	
Lg. Rain Garden	(1) 18" x 24" .80 Aluminum Sign (with educational information about rain gardens)	\$75	Ask OC Consultant about <a href="https://www.alabamawildlife.org/oc-signs/">https://www.alabamawildlife.org/oc-signs/</a>	
Lg. Rain Garden	(1) 6 ft. U-Post for Fence (for educational sign) @~\$10.69 ea	\$10	Lowe's Item #493054	
Lg. Rain Garden	(1) Hillman 1/4-in x 1-1/2 in Zinc-Plated Coarse Thread Hex Bolt (2-count) @~\$0.88 ea	\$5 total	Lowe's Item #137634	
Lg. Rain Garden	(2) Hillman 1/4-in x 20 Zinc-Plated Steel Hex Nut @~\$0.10 ea		Lowe's Item #63301	
Lg. Rain Garden	(2) Hillman 1/4-in Zinc-Plated Standard Flat Washer @~\$0.15 ea		Lowe's Item #63306	
<b>TOTAL ESTIMATED COST: \$2,010</b>				



## OC Project Plan: Rain Garden Materials List & Budget

### ❖ Rain Garden Plant suggestions:

Customized plant identification signs with unique QR Codes that you can scan to open plant species' webpages on AWF's website are available for the **bolded species below**. The webpages provide specific information about that plant species including a description of the plant, the ecological benefits that species provides, maintenance tips, and photos of the plant including its leaves, flowers & seeds.

Rain Garden Plants	 <b>Ferns, Swamp Sunflower, and Black-eyed Susan</b>	Rain Garden Plants
<b>Bee balm</b>		
Blue flag iris		Wax Myrtle
<b>Blue lobelia</b>		Virginia Sweetspire
Ironweed		Inkberry
<b>Cardinal Flower</b>		Elderberry
Jewelweed		Swamp Dogwood
<b>Joe Pye weed</b>		<b>Spicebush</b>
Swamp Sunflower		Pawpaw
Golden Alexander		Cinnamon Fern
Rose Mallow		Sedges and Rushes
<b>Swamp milkweed</b>		Juncus Grass

### ❖ Tools, Materials & Supplies:

- ❖ (8) Shovels (4 for adults & 4 for children)
- ❖ (1) Pick ax for removal of large stones if necessary
- ❖ (2-4) Wheelbarrows for moving dirt, coco coir and sand
- ❖ (30) ½ gal – 1 gal Buckets or Milk jugs with handles for students to move dirt out of excavated bog area and to put coco coir and sand into the bog garden

### ❖ Construction Instructions:

- 1) Procure the tools, materials & supplies, and have them on-hand the morning of your “Build a Rain Garden (or Outdoor Classroom) Day”.
- 2) Measure 11 ft x 18 ft rectangle for large rain garden, (or 8ft x 11 ft for medium or 5 ft x 8 ft for small) and mark boundaries of rectangle with landscaping spray paint; then draw shape of Rain Garden that fits within the rectangle using the landscaping spray paint.
- 3) Dig a shallow depression (6” – 10,” or a series of depressions up to 18”) **inside** the spray-painted rain garden retention area. Move the excavated soil to the perimeter to build a berm.
- 4) Connect a sloping channel for incoming water. Run water through the spillway with a hose to make sure the grade of the channel is right and that rain will reach the retention area.

### ❖ Construction Instructions (cont.):

5) Add sand, topsoil, and composted manure or leaves to retention site and to berm to amend the soil. Rake in and mix the soils well. Reserve some of the ingredients to make a soil mixture to add to holes when planting.

6) Add rocks or logs (optional) to create nooks and to help direct water flow and help stabilize plantings.

7) According to the needs of each plant, plant the plants high on the berm for dryer conditions, and in the depression for wetter conditions. Add soil mixture to each hole to improve soil for each planting. Top with the native soil (excavated soil from hole) and compact soil around each plant. Place plant identification signs in front of plants.

8) Top off the garden with composted leaves.

9) *Optional:* Install Rain Barrel on downspout near the Rain Garden, and attach a soaker hose to the rain barrel to funnel rain water into the garden. *See the Rain Barrel Project Plan under the Outdoor Classroom Learning Stations section on the Alabama Wildlife Federation's website (alabamawildlife.org) for details.*



### ❖ Maintenance Guidelines:

- Keep the Rain Garden watered (about once a week) to establish plantings.
- Mulch in winter as needed. Prune as needed in the winter months.
- Pull weeds in May when most of the flowers should be starting to bloom so that you can more easily identify the good plants you planted from the undesirable weeds.
- Each season, check the plant identification signs, and update signs that may be difficult to read.
- Never fertilize.
- Each season, update the Rain Garden Kiosk to let other classes know “What’s Growing On...” and to educate the students about the importance of riparian zones in our ecosystems.

### ❖ Rain Garden Activity Ideas:

- ❖ **Math:** Calculate the volume of your rain garden. Calculate how much rain is required to “fill” your rain garden by monitoring your rain gauge and the moisture levels in the top layer of soil in the rain garden.
- ❖ **Science:** Study the rain garden as an ecosystem including the unique flora and fauna found. Study watershed, riparian zones, streams, rivers, wetlands, and different soil types. Study causes of point source and non-point pollution, and associated perils to waterways and the wildlife that inhabit them.
- ❖ **Language Arts:** Discuss the functions of a waterways, wetlands, and riparian zones as shelter and food sources for wildlife. Discuss why a rain garden serves as a storage unit to help prevent flooding, and a filter for water. Engage students in creative and descriptive writing with emphasis on imaginative wordplay incorporating science vocabulary and poetry. Encourage a biological vocabulary.



## ❖ Rain Garden Activity Ideas (cont.):

- ❖ **Social Studies/Geography:** Study the rivers and associated watersheds of Alabama. Ask students to identify their watershed address. Visit the website [RiversOfAlabama.org](http://RiversOfAlabama.org) to find a watershed map of Alabama. Discuss land use and how using the natural function of a rain garden (mini watershed) may be used in new developments, and retrofitted in older developments to mitigate stormwater and runoff.
- ❖ **Art:** Engage students in creative expression through exploratory learning and creative thought with emphasis on observation and sensory awareness. Draw and identify the different flora and fauna and observed interrelations in the rain garden.
- ❖ **Conservation:** Study the importance of healthy ecosystems and watershed. Study the importance of riparian zones as buffers between the ever-encroaching housing, business, agriculture, and industrial developments. Study how plants in riparian zones and wetlands help stabilize soil and filter pollutants, affecting the health of ecosystems as well as our drinking water.
- ❖ **Literature Connections:** *The Book of Swamp and Bog: Trees, Shrubs and Wildflowers of the Eastern Freshwater Wetlands* by John Eastman (ISBN 0-8117-2518-9); and *A Frog in the Bog* by Karna Wilson (ISBN 10-1416927271);
- ❖ **APTV Discovering Alabama's Alabama Wetlands DVD:** [discoveringalabama.org](http://discoveringalabama.org)
- ❖ **Website Resources:** <http://www.al.nrcs.usda.gov/programs/wrp/index.html>

### Alabama Outdoor Classroom Program Partners



*Alabama Cooperative  
Extension System*



*Alabama Wildlife Federation*



*Alabama Department of  
Conservation & Natural Resources*

