



OUTDOOR CLASSROOM PROJECT PLAN: **BOG GARDEN**



Make extra copies of the Project Plan worksheet as needed...page 1 of 4.

- Bog Garden** – A bog is a type of wetland in a low lying area where water collects, often times depositing dead, decaying plant matter. Thus, the soil becomes high in organic matter and quite acidic. Flora and fauna that thrive in a bog area must like a moist environment, but do not require standing water (like a pond, marsh or swamp) unless the bog area recently experienced heavy rains and has not yet drained. In some bog habitats you can find carnivorous, insect –eating plants such as Sundews, Pitcher plants, or Venus’ Flytraps along with wildflowers such as trillium, jack-in-the-pulpit, and joe pye weed.

- Location Requirements:**
 - Low-lying, Moist Area or Near a Spigot** (so that you can divert water into the bog area or fill the bog during low rain levels)
 - Flat Area** (so the peat moss will not flow out of the bog in a heavy 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 Bog Garden:**



Locust Fork High, Blount County
(Example Bog – app 12 ft x 12 ft)

- Estimated Costs:**
 - Large Bog Garden (11 ft x 18 ft → ~165 cu ft): \$700 - \$1,100
 - Medium Bog Garden (8 ft x 11 ft → ~75 cu ft): \$340 - \$600
 - Small Bog Garden (5 ft x 8 ft → ~40 cu ft): \$210 - \$340



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☐ 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, peat moss and sand
- (30) ½ gal – 1 gal buckets w handles for students to move dirt out of excavated bog area and to put peat moss and sand into the bog garden

Materials & Supplies		Estimated Cost	Source of Materials (via Committee Member)	Monetary/Item Donation
Large Bog – Approximately 11 ft x 18 ft x 10 in (~165 cubic ft.)		EST COST: \$700 / \$1,100 (w/ Rock Border & Signs)		
Lg Bog	(1) Can of Landscape Spray Paint	\$10		
Lg Bog	(1) 13'x20' Pond Liner (~8 mil thick)	\$100		
Lg Bog	(25) 3.8 CF bags of Peat Moss	\$250 total		
Lg Bog	(6) 5 CF bags of Sand	\$20 total		
Lg Bog	(6) 39 Gal bags of leaf litter/mulch	\$0		
Lg Bog	(2) 50 ft Soaker Hoses	\$20 total		
Lg Bog	Bog plants (see page 3 for list)	\$300 total		
Medium Bog – Approximately 8 ft x 11 ft x 10 in (~75 cubic ft.)		EST COST: \$340 / \$600 (w/ Rock Border & Signs)		
Md Bog	(1) Can of Landscape Spray Paint	\$10		
Md Bog	(1) 10'x13' Pond Liner (~8 mil thick)	\$60		
Md Bog	(10) 3.8 CF bags of Peat Moss	\$100 total		
Md Bog	(4) 5 CF bags of Sand	\$10 total		
Md Bog	(3) 39 Gal bags of leaf litter/mulch	\$0		
Md Bog	(1) 50 ft Soaker Hoses	\$10		
Md Bog	Bog plants (see page 3 for list)	\$150 total		
Small Bog – Approximately 5 ft x 8 ft x 10 in (~40 cubic ft.)		EST COST: \$210 / \$340 (w/ Rock Border & Signs)		
Sm Bog	(1) Can of Landscape Spray Paint	\$10		
Sm Bog	(1) 7'x10' Pond Liner (~8 mil thick)	\$40		
Sm Bog	(4) 3.8 CF bags of Peat Moss	\$40 total		
Sm Bog	(2) 5 CF bags of Sand	\$10 total		
Sm Bog	(1) 39 Gal bags of leaf litter/mulch	\$0		
Sm Bog	(1) 50 ft Soaker Hoses	\$10		
Sm Bog	Bog plants (see page 3 for list)	\$100 total		
Bog	River Rock Border around Bog <i>(use part of a 1 ton pallet if possible)</i>	\$100-300 total		
Bog	Plant ID Signs & Educational Sign	\$30-100	http://www.forestry-suppliers.com or http://www.davidarthur.us/	



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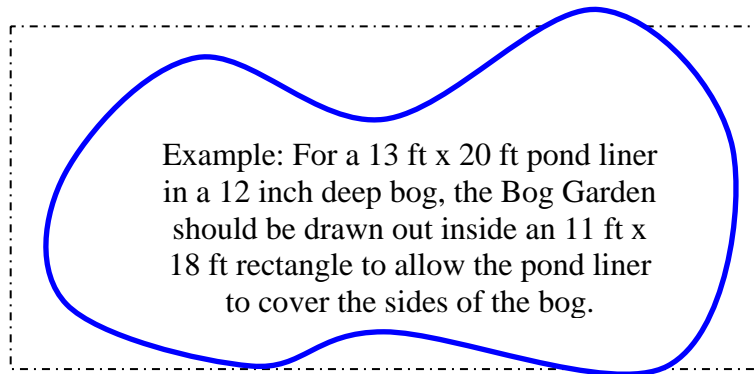


❑ Bog Plant Suggestions:

Common Bog Plants	Jack-in-the-pulpit	Swamp milkweed	Bushes
Bee balm	Jewelweed		Buttonbush
Blue flag iris	Joe Pye weed	Carnivorous Plants	Elderberry
Blue lobelia	Ladies Hatpin	Purple pitcher plant	Pawpaw
Butterwort	Marsh pink	Sundews	Spicebush
Cardinal Flower	Seashore mallow	Yellow pitcher plant	St. Johns Wort
Common milkweed	Swamp Sunflower	Venus Flytrap	Virginia Sweet Spire

❑ Construction Instructions (with time estimates for the Bog Garden Build Day assuming that you have at least the minimum number of adults & students present for each task):

- 1) Procure tools, materials & supplies, and have them on-hand for the Bog Garden Build Day.
- 2) Measure 11 ft x 18 ft rectangle for large bog, (or 8ft x 11 ft for medium bog, or 5 ft x 8 ft for small) and mark boundaries of rectangle with landscaping spray paint; then draw shape of Bog Garden that fits within the rectangle using the landscaping spray paint. (15 minutes for 1 adult & 3 students)



To calculate the dimensions of your bog:

Length=Length of pond liner –MINUS- Depth of your bog xMULTIPLIEDx 2

Width=Width of pond liner –MINUS- Depth of your bog xMULTIPLIEDx 2

This allows for your pond liner to cover the bottom and the sides of the bog.

- 3) Dig out dirt (12” deep for plants /18” deep for bushes) **inside** the spray-painted bog garden area. (2 hours for 4 adults and 4 students to dig small bog / 3 hours for 4 adults and 4 students to dig large bog) Note: Move the dirt that is excavated from the bog area to the raised bed gardens area or compost area.
- 4) Place the pond liner inside the bog garden area and mold it to the bottom and sides of the bog garden. (15 minutes for 4 adults & 4 students)
- 5) Place a soaker hose in the bottom of the bog with the nozzle sticking up out of the bog so that you can fill the bog with water as needed, and put rocks or bricks on top of soaker hose if needed. (5-15 minutes for 2 adults & 4 students, depending on size of soaker hose)
- 6) Cut 6-inch long horizontal holes around perimeter/sides of pond liner about 4 inches from surface to keep water from collecting above the peat/sand mixture of soil and washing away the top level of the bog. (5 minutes for 1 adult)
- 7) Add a peat/sand mixture (at 4:1 ratio) for soil to fill the garden. You can layer the peat moss and sand like a lasagna if you need help mixing the two. (30 minutes - 1 hour for 2 adults & 4 students, depending on the size of the bog)
- 8) Add organic material such as dried leaves, compost or mulch throughout the soil as fertilizer if possible. (5 minutes for 1 adult & 4 students)

- 9) Connect soaking hose to a regular hose to fill bog with water – water level should soak soil but you should not have standing water at any time. Sometimes it is helpful for students and volunteers to take their shoes off and walk around in the bog to help mix the peat moss, sand and water. *(1 hour to fill up bog with water)*
- 10) Cut away unneeded pond liner leaving 2-3 inches of liner out around bog garden as border (if needed), and place river rocks on top of liner as edging around bog. *(30 minutes for 2 adults & 4 students, depending on how large the bog is)*
- 11) After bog settles, add more peat/sand mixture (4:1 ratio) as needed to fill bog even with ground around it. *(15 minutes for 1 adult & 4 students)*
- 12) Plant bog plants after bog soil has settled and feels somewhat firm. You may need to wait a day or two before planting. *(30 minutes - 1 hour for 2 adults & 4 students to plant all of the plants, depending on how many plants there are)*
- 13) *Optional:* Install Rain Barrel on Downspout near the Bog Garden, and attach a soaker hose to the rain barrel to funnel rain water into the bog.

❑ Maintenance Instructions:

- ❑ Keep the bog garden watered (about once a week). Never let the bog soil become dry.
- ❑ Mulch in winter as needed. Trim back dead leaves to two inches above soil.
- ❑ Never fertilize and never add lime.

❑ Bog Garden Activity Ideas

- ❖ **Math:** Calculate the volume of your bog. Calculate how much rain is required to “fill” your bog by monitoring your rain gauge and the moisture levels in the top layer of soil in the bog.
- ❖ **Science:** Study the bog as an ecosystem including the unique flora and fauna found there such as pitcher plants. Study wetlands’ different soil types.
- ❖ **Language Arts:** Discuss the functions of a bog/wetland as a shelter and food source for wildlife, a storage unit to help prevent flooding, and a filter for water. Then show students a drawing of a house, a granola bar, a bowl and a coffee filter, and ask them how these items are metaphors for wetlands.
- ❖ **Social Studies/Geography:** Do research to find out where wetlands and bogs are located in Alabama. Is there a wetland area in conjunction with the watershed in your county? Visit “RiversOfAlabama.org.”
- ❖ **Art:** Draw and identify the different flora and fauna in a bog.
- ❖ **Conservation:** Study how wetlands help filter 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) & *A Frog in the Bog* by Karna Wilson (ISBN 10-1416927271)



Example Pitcher Plant Bog Garden at St James School in Montgomery