Outdoor Learning Station Project Plan:
Materials Budget and Construction Instructions for
Medium Pitcher Plant 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 a sunny bog habitat you can find carnivorous, insect–eating plants such as pitcher plants, sundews, and bladderworts as well as unique plants like bog orchids, sphagnum moss, and many more!

❖ Location Requirements:

- ❒ **Low-lying, Moist Area OR Near a Spigot or Downspout** (so that you can divert water into the bog area or fill the bog during low rain level…DO NOT choose a low spot, however, that experiences fast-flowing water during heavy rains because these rains could wash out the coco coir and sand in your bog.)
- ❒ **Flat Area** (so the coco coir and sand will not flow out of the bog in a heavy rain)
- ❒ **Area Approved for Digging** (must not have any utility lines under the area)
- ❒ **Full to Part Shade** (be sure to choose the appropriate plants based on your sunlight conditions)

❖ Example Pitcher Plant Garden Pictures & Educational Sign:

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❖ Materials List with Estimated Budget:

**Listed prices are as of June 2025. They are subject to change.*

Example Medium Pitcher Plant Garden Materials Budget 8-ft x 11-ft x 1-ft bog → 88CF				
Station	**Materials & Supplies**	**Estimated Cost**	**Source of Materials**	**Final Cost**
Required Habitat Materials, Signage & Plants				
Md. Pitcher	(1) Can of Rust-Oleum Professional White Water-based Marking Paint @ ~$9.98 ea	$10	Lowe's Item #429750	
Md. Pitcher	(42) 11-in L x 4-in H x 6-in D Flagstone Concrete Retaining Wall Blocks (trapezoid-shaped to create 38' border) @ ~$2.98 ea …OR… 1-ton pallet of stackable, flat natural stone @~$350/ton	$125-350 total	Lowe's Item #477095 …OR… Local Landscape Materials Company	
Md. Pitcher	(1) Smartpond 13-ft x 10-ft (600-Gallon) Black PVC Pond Liner (~14.5 mil thick) @ ~$84.98 ea	$85	Lowe's Item #2415	
Md. Pitcher	(1) 3/8-in x 25-ft-Element Kink Free Rubber Black Soaker Hose @ ~$15.98 ea	$15	Lowe's Item #2626704	
Md. Pitcher	(8) 3 CF Bag of Fafard Sphagnum Peat Moss Organic Moisture Control (1 bag expands to 6 CF, need 44CF – 7.3 bags) @ ~$21.99 ea	$175 total	Lowe's Item #674760	
Md. Pitcher	(44) .5 CF/50 Lb Bags of American Countryside All-purpose Sand @ ~$5.18 ea	$230 total	Lowe's Item# 104898	
Md. Pitcher	(6) Bags Horticultural 4 Cubic Feet Perlite Drainage and aeration (use 5.5 bags) @~$39.59 ea	$240 total	Lowe's Item #6009087	
Md. Pitcher	(2) bales of pine straw (to spread around bog after planting @ ~$4.57 ea	$10	Lowe's Item # 128653	
Md. Pitcher	(18) Bog Plants (3 different species with 6 of each species) @ ~$7 ea	$130 total	Via HLL Specialist	
Md. Pitcher	(3) Plant ID Signs @ ~$6 ea	$20 total	Ask HLL Specialist	
Md. Pitcher	(3) Biomarkers to hold Plant ID signs (13" stake with a 2" x 4" plate) @ ~$3 ea (*includes S&H*)	$10 total	Via HLL Specialist or mcgbiomarkers.com/shop/	
Md. Pitcher	(1) Gorilla Clear 3.75-fl oz Liquid Extreme Condition Waterproof, Quick Dry, Multipurpose Adhesive @~$9.28 ea (to attach Plant ID signs to stakes	$10	Lowe's Item# 955829	
Md. Pitcher	Educational Sign about Bogs and Carnivorous Plants	$75	Ask HLL Specialist	

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❖ Materials List with Estimated Budget (continued):

Md. Pitcher	(1) 6 ft. U-Post for Fence (*for educational sign*) @~$10.69 ea	$10	Lowe's Item #493054	
Md. Pitcher	(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. Pitcher	(2) Hillman 1/4-in x 20 Zinc-Plated Steel Hex Nut @~$0.10 ea		Lowe's Item #63301	
Md. Pitcher	(2) Hillman 1/4-in Zinc-plated Standard Flat Washer @~$0.15 ea		Lowe's Item #63306	
Estimated Total Cost for Materials (with signage & plants): **$1,150-1,375**				

Additional *Optional* Medium Pitcher Plant Garden Materials, Signage & Plants				
Md. Pitcher	(1) 50-gallon RTS Home Accents Flat Back Brown Rain Barrel @ ~$209.00 ea *if you do not have a spigot near the bog, you will need a rain barrel to help slow flow of rain water and store water for future watering	$210	Lowe's Item #4057929	
Md. Pitcher	(1) RTS Home Accents Black Rain Barrel Stand @ ~$72.98 ea (*optional – helps elevate spigot to increase water flow out of barrel and allow for room for buckets to catch water coming out of barrel)	$75	Lowe's Item #4057926	
Md. Pitcher	(1) EarthMinded FlexiFit Universal Diverter System @ ~$35.95 ea *needed if you are connecting rain barrel to downspout* (to divert downspout water into rain barrel or to the hose that links to the buried soaker hose)	$35	https://www.therainbarreldepot.com/earthminded-universal-diverter-system/	
Md. Pitcher	(1) 5/8-in x 6-ft FLEXON Light-Duty Vinyl Green Hose (to connect soaker hose to rain barrel) @ ~$11.98 ea	$10	Lowe's Item #812743	

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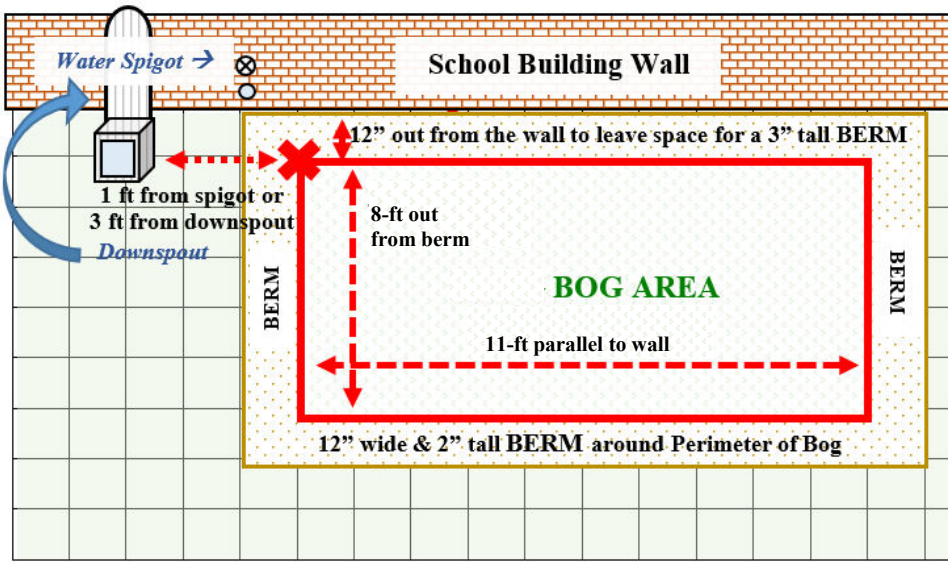
❖ Construction Tools:

- ❒ (4) Spade Shovels for digging
- ❒ (1) pick ax for removal of large stones if necessary
- ❒ (2) Wheelbarrows for moving dirt, sand & mulch
- ❒ (4-6) 1-gallon milk jugs (with tops cut off but handles remaining) for students to move dirt, peat moss, sand, etc. if they are in piles rather than bags
- ❒ (1) 24 or 48-inch Box Beam or I-beam Level
- ❒ Scissors or box cutter
- ❒ Water hose for filling bog and pond and for watering plants at the end of day

❖ Construction Instructions for Medium Pitcher Plant Garden

1. Procure tools, materials & supplies, and have them on-hand for the construction da.
2. Choose a location where some of the water from a nearby downspout OR a water spigot can be diverted into the bog. Measure along the wall 1 foot from the spigot (or 3 feet from the downspout to allow room for a 50-gallon rain barrel that is 2 ft in diameter) and 1 foot out from the wall (for berm between bog and school building), and spray paint an ✖ to mark the spot (***See diagram below***). This will be the corner of your bog closest to the water source (spigot or downspout).
3. Then spray paint the perimeter for your bog on the ground – 8 ft out from the back berm and 11 ft long parallel to the wall. ***See diagram below.***



4. Next measure out 12" from the perimeter of the bog to create a 12" wide berm around the **WHOLE** border of the bog. You can spray paint this perimeter with dashes so you know where to build your berm. ***See the BERM around the Bog Area in the diagram above and the spray paint example photo on right.***

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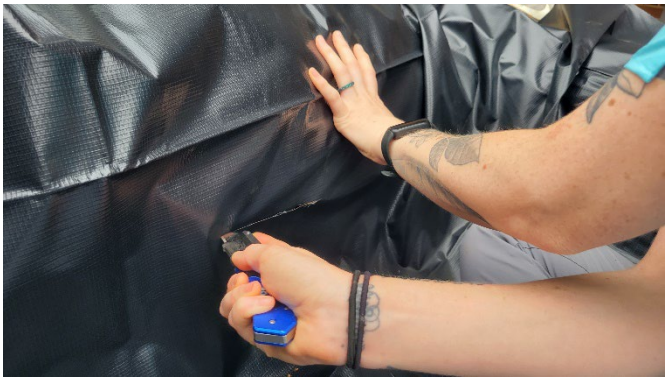
❖ Construction Instructions (continued):

5. Dig out 4” inches of the dirt and grass inside of the spray-painted **Bog Area** and MOVE the excavated soil & grass to the pre-determined dumping zone. **Make sure none of the grass is remaining in the bog area.**
6. Dig out another 8” of dirt from the **Bog Area** and use the excavated soil to create a 12” wide, 2” tall **flat berm** around the whole perimeter of the **Bog Area**. If you have more excavated dirt then is needed to build the berm, move it to the pre-determined dumping zone. If the bog is against a school building wall, use the dirt to make the 12” wide **flat berm** 3” tall (rather than 2”) behind the bog (along the wall of the building) to prevent water from accumulating at the back of the bog and leaking into the school building. Your hole for the bog will be 14” deep total → 12” dug into the ground plus 2” of berm built around the perimeter. ***See example photos below.***

7. Place the 13-ft x 10-ft pond liner inside the bog area and mold it to the bottom and sides of the hole you dug. Place the remaining pond liner on top of the flat berm, and then cut away any excess pond liner. ***See example photo below*.**
8. Cut 6-inch long horizontal slits in the left, front and right sides of the pond liner about 6 inches up from the bottom of the bog. This will allow water to seep into the ground after heavy rains and it will prohibit the top level of the bog from washing away. ***See example photo below*.**



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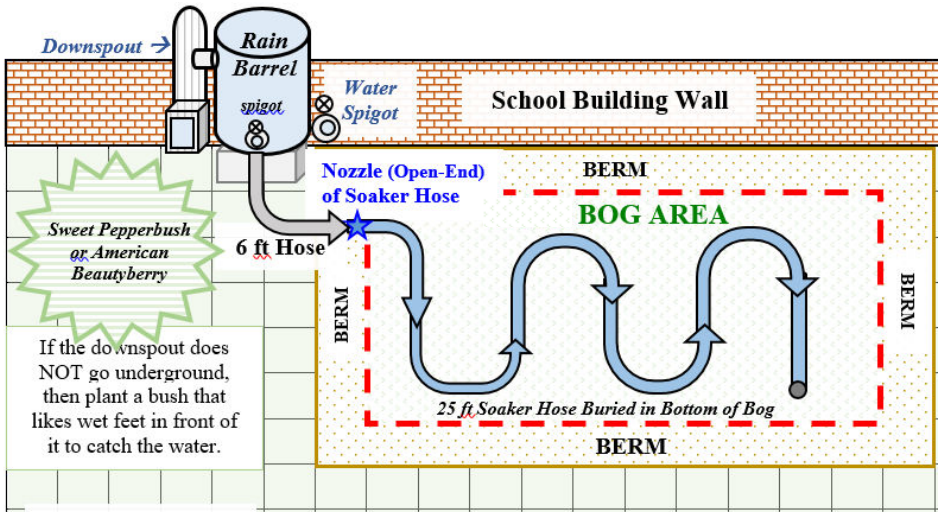
❖ Construction Instructions (continued):

9. Place a soaker hose in the bottom of the bog with the nozzle (open-end ★) sticking up out of the back corner of the bog that is closest to the spigot or rain barrel so that you can fill the bog with water if you have no rain for 5-7 days. Put rocks or bricks on top of the soaker hose if needed to hold it down until you have enough soil & sand on it to hold it in place. ***See diagram and example photo below.*** **Note: If you enter the bog to accomplish this, remove your shoes as to not carry any grass seeds into the bog.*



10. Fill the bog with the sand, peat moss, and perlite. You can layer these in like a lasagna if you need help mixing them.

11. Attach a water hose to the nozzle (open-end) of the 25-ft soaker hose that is sticking out in the back corner of the bog. ***See example photo on right.*** Turn on the spigot to fill up the bog with water. The water level should thoroughly soak the soil but you should not have standing water. Once the soil is soggy, students (3-4 at a time) can take off their socks and shoes and stomp around in the bog to help mix the components even more. If the students are unable to mix the ingredients with their feet, then use trowels again to help mix all of the ingredients. Your goal is to have ALL of the peat moss be saturated with water.

12. Place a single layer of retaining wall blocks or natural, flat stones on top of the berm to hold the liner in place, all the way around the bog. Add an additional ring of blocks around your pond if you'd like to. ***See example photo on right.***
13. Give the bog a day or two to settle and drain. Once it feels somewhat firm, when the substrate feels moist but there is not standing water, plant it. Spread pine straw in bog around plants.
14. Attach Plant ID signs to stakes using adhesive. Sink the stakes a few inches into the ground in front of the appropriate plant species grouping or bush.
15. Insert the educational sign post (u-post) in the ground near the garden and attached the educational sign to it using the nuts, bolts, and washers.