



## Outdoor Learning Station Project Plan: Materials Budget and Construction Instructions for

# Woodland Wildflower Garden (4-sided)

A Woodland Wildflower Garden includes a variety of native wildflowers and native ferns that live in the woods (often near streams) in the southeastern United States. Most wildflowers thrive in areas where they receive at least six hours of sunlight each day, but our native woodland wildflowers actually thrive in the shade of a forest. These plants bloom early in the spring before the tree canopy fills in and provide critical early-season nectar to pollinators.

The woodland provides nutrient-rich soils from the decay of last falls' leaves, and the tree canopy helps keep the soil moist for these unique and rare wildflowers. We also like to include native ferns in these gardens to provide students the opportunity to study these ancient plants that use spores instead of flowers and seeds to reproduce.

### ❖ Habitat Requirements:


- Part to Full-shade with only one or two hours of direct sunlight / Dappled sunlight is best
- Nutrient-rich soil with organic matter from the decay of dead leaves in a woodland
- Moist soils (water retention can be enhanced by using peat moss and a little sand in the soil of the garden)

### ❖ Example Woodland Wildflower Garden Pictures & Educational Sign:




## Welcome to our Woodland Wildflower Garden


Most flowers thrive in sunny areas, but our native woodland wildflowers need the shade of a forest. The woodland provides nutrient-rich soils from the decay of last falls' leaves, and the tree canopy helps keep the soil moist for these unique and rare wildflowers.




Wild Columbine




Solomon's seal



Fire Pink




Trillium



Wild Blue Phlox

Keep a look out for these beautiful flowers in the spring before they disappear again until the following year.



Scan this QR Code to learn more about our wildflowers.  
Enjoy nature's beauty!  
Protect it from litter and vandalism!





## Project Plan for Woodland Wildflower Garden (4-sided)

### ❖ Materials List with Estimated Budget

*\*Listed prices are as of December 2024. They are subject to change.*

<b>Example 4-sided Woodland Wildflower Garden</b>				
(Actual Size: 4 ft 8 in (W) x 13 ft 8 in (L) x 6" (D) 4-sided raised bed garden → ~20 CF)				
Station	Materials & Supplies	Estimated Cost	Example Source	Final Cost
4-sided Wood. Wldflwr	(1) Can of Rust-Oleum Professional White Water-based Marking Paint (for laying out garden) @~\$9.98 ea	\$10	Lowe's Item# 429750	
4-sided Wood. Wldflwr	(70) 4" x 12" Retaining Wall Blocks (to create three sides of raised bed against school building) @~\$3.28 ea ...OR... (70) 2-3" tall & 12-18" long & 4-6" wide Natural Landscape Rock (to create three sides with natural-looking border)	\$200 total	Lowe's Item #477088 ...OR... Local Landscape Company	
4-sided Wood. Wldflwr	(1) 6'x50' Sta-Green Professional Landscape Fabric (weed barrier) (16' used for this garden) @~\$33.98 ea	\$35	Lowe's Item# 510606	
4-sided Wood. Wldflwr	(4) 32-Quart (1CF) Bags of Evergreen Organic Potting Soil Mix @~\$6.38 ea (for garden)	\$25 total	Lowe's Item #380608	
4-sided Wood. Wldflwr	(10) 1 CF/32 Qt Bags of Evergreen Organic Top Soil (for garden) @~\$2.18 each	\$20 total	Lowe's Item# 648834	
4-sided Wood. Wldflwr	(1) 1 CF Bags of Evergreen Organic Compost and Manure (for garden) @~\$3.68 ea	\$5	Lowe's Item #380606	
4-sided Wood. Wldflwr	(19) 8 qt. bag of Sta-Green Organic Coconut Coir @~\$6.98 ea	\$135 total	Lowe's Item #876255	
4-sided Wood. Wldflwr	(1) 0.5 CF Bags of All-purpose Sand @~\$5.18 ea	\$5	Lowe's Item #104898	
4-sided Wood. Wldflwr	(3) 2 CF Bags of Natural Dark Brown Pine Bark Mulch (for garden) @~\$3.48 ea <b>**do NOT get black mulch as it gets hot and kills plants**</b>	\$10 total	Lowe's Item# 92118	
4-sided Wood. Wldflwr	(1) Package of 40 6" Black Plastic Landscape Edging Pieces (18 to create (2) 3 ft dividers between the three plant species to make plant ID & weeding easier) @~\$21.98 ea	\$20	Lowe's Item# 379805	
4-sided Wood. Wldflwr	(20) Native Perennial Host Plants (4 different species, 5 plants per species @~\$7 ea *See planting diagram on pg 6.	\$140 total	Nursery via HLL Specialist	
4-sided Wood. Wldflwr	(4) Plant ID Signs (one for each plant species) @~\$6 ea	\$25 total	Ask HLL Specialist	
4-sided Wood. Wldflwr	(4) Biomarkers to hold Plant ID signs (13" stake with a 2" x 4" plate) @ ~\$3 ea (includes S&H)	\$10 total	HLL Specialist or <a href="https://mcgbiomarkers.com/shop/">https://mcgbiomarkers.com/shop/</a>	



## Project Plan for Woodland Wildflower Garden (4-sided)

### Materials List with Estimated Budget (continued):

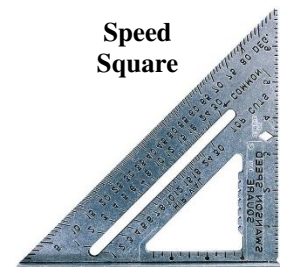
4-sided Wood. Wldflwr	(1) Gorilla Clear 3.75-fl oz Liquid Extreme Condition Waterproof, Quick Dry, Multipurpose Adhesive @~\$9.28 ea (to attach Plant ID signs to stakes)	\$10	Lowe's Item# 955829	
4-sided Wood. Wldflwr	(1) 6 ft. U-Post for Fence ( <i>for educational sign</i> ) @~\$10.69 ea	\$10	Lowe's Item# 493054	
4-sided Wood. Wldflwr	Educational Sign	\$75	Ask HLL Specialist	
4-sided Wood. Wldflwr	(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	
4-sided Wood. Wldflwr	(2) Hillman 1/4-in x 20 Zinc-Plated Steel Hex Nut @~\$0.10 ea		Lowes Item# 63301	
4-sided Wood. Wldflwr	(2) Hillman 1/4-in Zinc-Plated Standard Flat Washer @~\$0.15 ea		Lowe's Item# 63306	
<b>Estimated Total Cost for Garden Materials (with signage &amp; plants): \$740</b>				

### ❖ Construction Tools:

- (1) 20 ft Measuring Tape
- (1) Speed Square for measuring angles
- (4-6) Shovels (2-3 for adults; 2-3 for children)
- (1-2) Wheelbarrows for moving grass clumps, soil & mulch
- (24-30) 1-gallon milk jugs (with tops cut off but handles remaining) for students to move dirt, sand, soil, etc.
- 24-inch I-beam Level
- (4-6) Hand-held Trowels (for stirring soil amendments together)
- Water hose for watering plants at the end of day
- Drill for attaching signs to posts
- Twine (40 ft long)
- (4) Garden Stakes or Flags



Measuring Tape



Speed Square

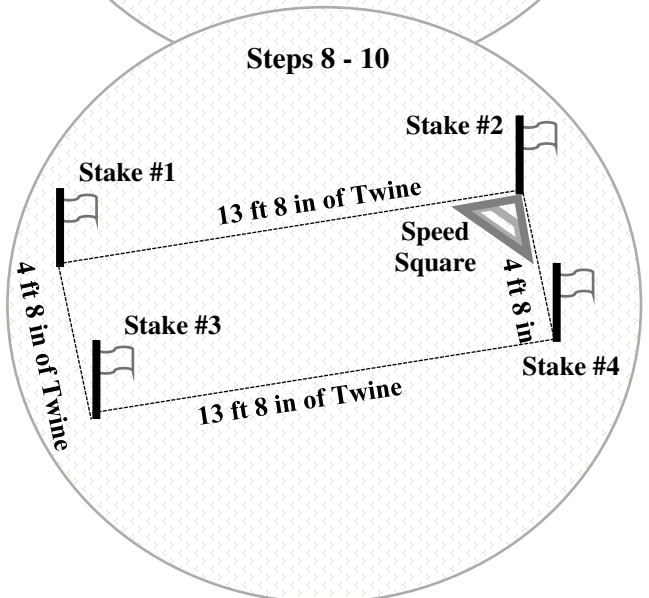
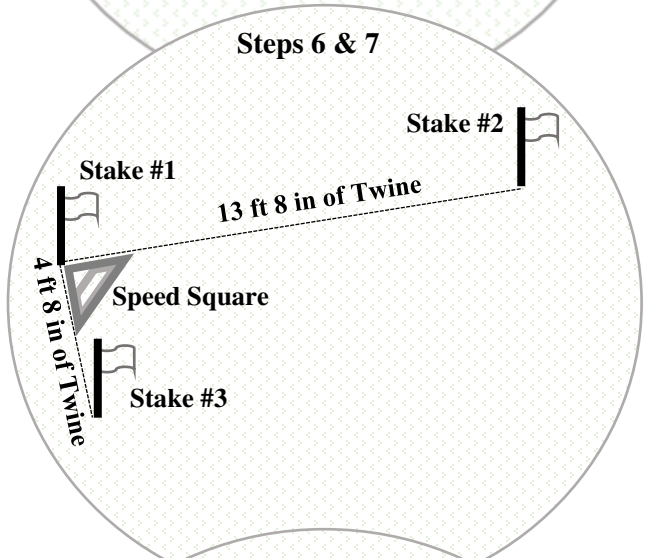
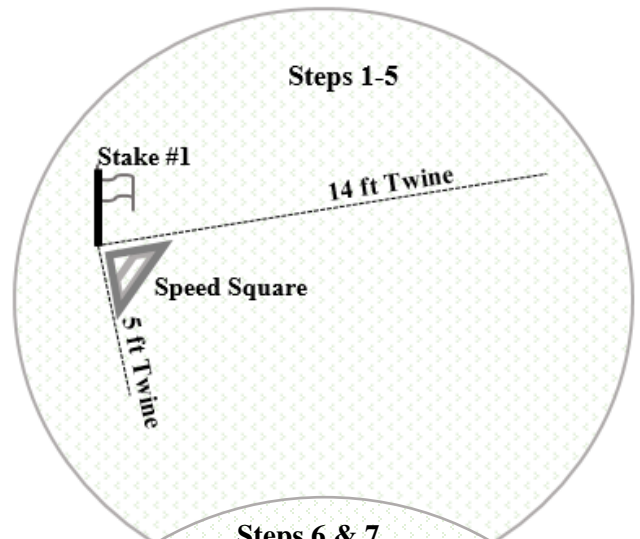


I-beam Level

## Project Plan for Woodland Wildflower Garden (4-sided)

### ❖ Construction Instructions for Woodland Wildflower Garden

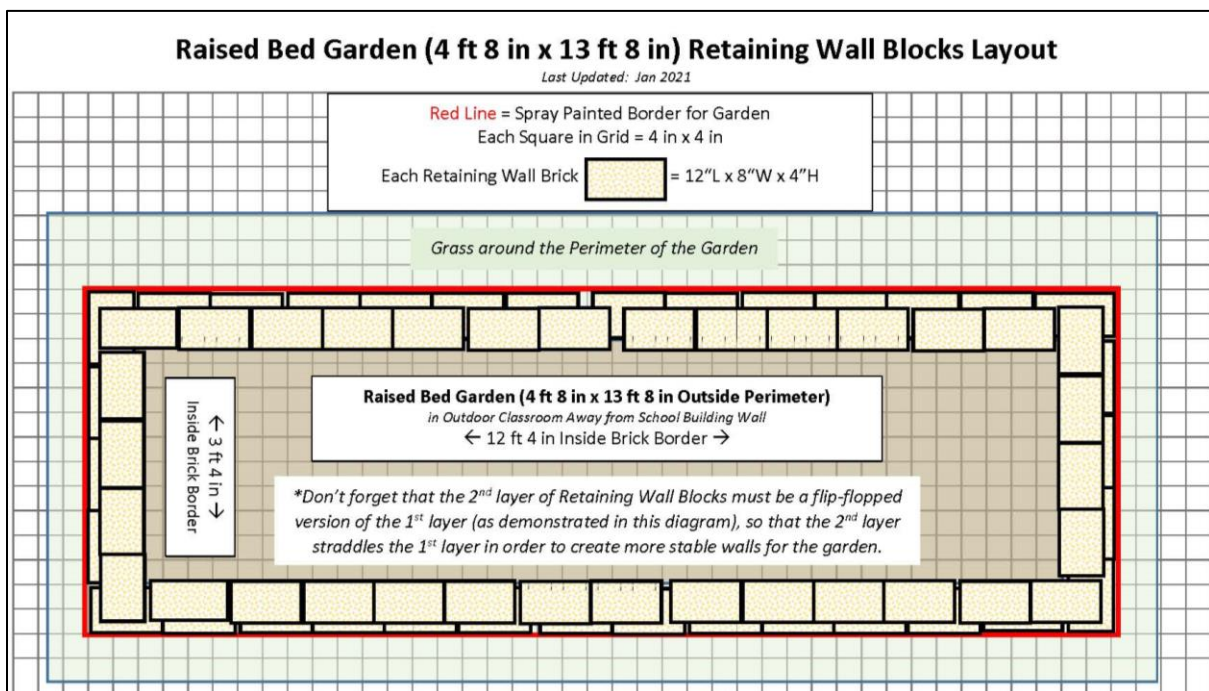
- 1) Gather construction tools and purchase supplies to have them on-hand for the construction day.
- 2) To create the perimeter of your garden, begin by placing **Stake #1 (or flag)** in the ground where you want the first corner to be located.
- 3) Place the **speed square** on the ground to measure the 90-degree angle needed for the inside of the first corner of your garden.
- 4) Cut the **twine** into two pieces that are 5 ft long and two pieces that are 14 ft long.
- 5) Tie the end of a 5 ft piece of twine and the end of a 14 ft piece of twine to Stake #1.
- 6) Place the end of the **measuring tape** at Stake #1, and follow the edge of the speed square as you measure out 13 ft 8 in to create the first long-side of the garden. Place **Stake #2** in the ground to mark the second corner. Make sure that the measuring tape stays straight and follows the outer edge of the speed square, so that the first corner forms a 90-degree angle. Pull the 14 ft long piece of twine from Stake #1 to Stake #2, and tie the end of it to Stake #2 to create a straight line.
- 7) Place the end of the measuring tape at Stake #1 again, and then follow the opposite edge of the speed square as you measure out 4 ft 8 in. Place **Stake #3** in the ground to create the first short-side of the garden. Make sure that the measuring tape stays straight and follows the outer edge of the speed square, so that the first corner continues to form a 90-degree angle. Pull the 5 ft long piece of twine from Stake #1 to Stake #3, and tie the end of it to Stake #3 to create a straight line.
- 8) Next place the speed square on the ground by Stake #2 to determine the 90-degree angle needed for the inside of the second corner of your garden.



## Project Plan for Woodland Wildflower Garden (4-sided)

### ❖ Construction Instructions (continued):

- 9) Place the end of the measuring tape at Stake #2, and follow the opposite edge of the speed square as you measure out 4 ft 8 in. Place **Stake #4** in the ground to mark the third corner. Make sure that the measuring tape stays straight, so that the second corner continues to form a 90-degree angle. Pull the 5 ft long piece of twine from Stake #2 to Stake #4, and tie the end of it to Stake #4 to create a straight line.
- 10) Next, tie one end of the remaining 14 ft piece of twine to Stake #4 and the other end to Stake #3. This should create 90-degree angles in the third and fourth corners, and you can use your speed square to confirm this.
- 11) Lastly spray paint straight lines along the ground following the **OUTSIDE** of the garden perimeter that was created by the twine. (*See diagram below*)

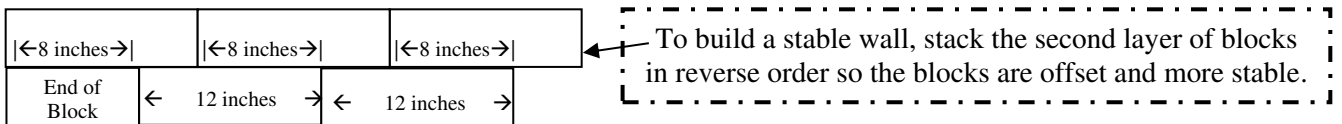


- 12) Dig and remove the grass in a path that is 1 inch deep and 8 inches wide along the **INSIDE** of the spray-painted garden perimeter to create a base on which to place the retaining wall blocks. Use your shovel/trowel to create a flat surface for the base to keep the retaining wall blocks level.
- 13) Place the first retaining wall block in a corner with the 12-inch length of the block starting along one of the long sides (13 ft 8 in long). Use your I-beam level to make sure the block is level from side-to-side and front-to-back. Add a little dirt or sand and use your trowel to level the base surface if needed. Place the next block directly next to the first one, and use your level to make sure that the second block is level with the first block. Continue adding blocks until you have placed and leveled thirteen blocks (13 ft) in a row. You should have 8 inches of base surface remaining without a block.
- 14) Place a retaining wall block at the end of your first side but place it perpendicular to the other blocks so that the 8-inch width of the new block fills in the final 8 inches of the first side of the garden. Use your I-beam level to make sure the new block is level and adjust it if needed. Continue adding blocks until you have placed and leveled four blocks (4 ft) in a row. You should have 8 inches remaining in the second side of your garden without a block.

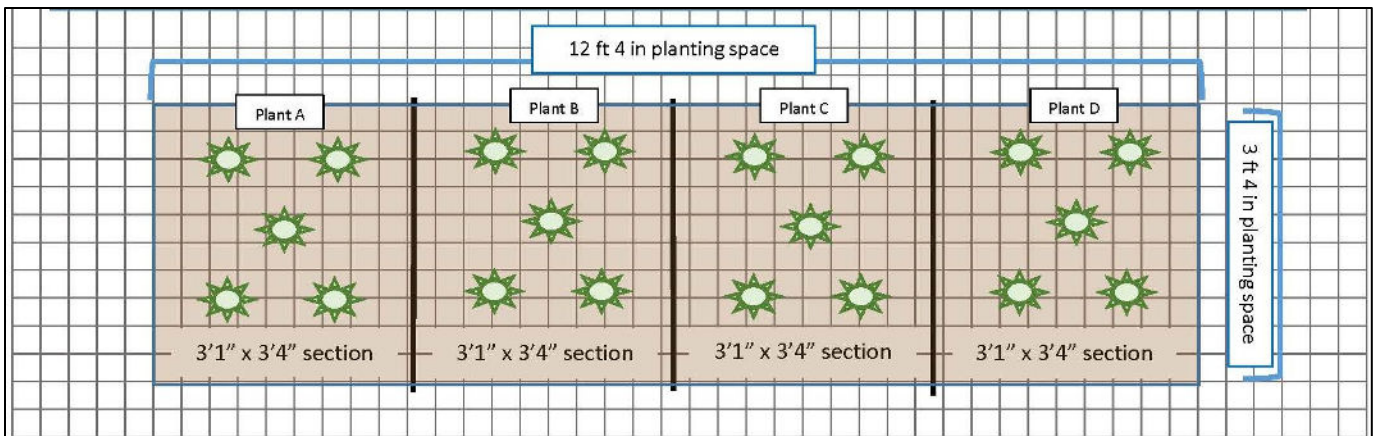
## Project Plan for Woodland Wildflower Garden (4-sided)

### ❖ Construction Instructions (continued):

- 15) Place a block perpendicularly at the end of the second side of your garden, so that the 8-inch width of the new block fills in the final 8 inches of the second side. Use your I-beam level to make sure the new block is level and adjust it if needed. Place and level twelve more blocks, leaving the remaining 8 inches of the third side of the garden without a block.
- 16) Lastly, place a block perpendicularly at the end of the third side of your garden, so that the 8-inch width of the new block fills in the final 8 inches of the third side. Use your I-beam level to make sure the new block is level and adjust it if needed. Place and level three more blocks to create the fourth and final side of the garden. The first level of your garden is completed.
- 17) Place the landscape fabric (weed barrier) on the grass inside the garden area, push the fabric against the insides of the retaining wall blocks, and lay the edges of the fabric on top of the blocks so that the fabric is sandwiched and held in place between the first and second layers of retaining wall blocks. If your fabric is not wide enough to cover the insides of the block and have the edge of the fabric lay on top of the block, then you need to make your garden a little smaller (less wide).
- 18) Next, start laying the second layer of blocks from the same corner that you started in for the first layer of blocks, but in reverse order (counter-clockwise). Lay the end of first block on 8 inches of the first block from the first layer, pointing it in other direction. The second layer of retaining wall blocks should straddle the first layer to create more stable walls for your garden. *(See diagram on page 5 and example drawing below.)*



- 19) Fill the bottom of the garden with top soil, add the compost and manure, and then add the coconut coir and sand. Use trowels to turn and mix the soils.
- 20) Install 3 ft dividers of the landscape edging inside the garden to create (2) 3 ft 1 in x 3 ft 4 in planting sections and (1) 3 6 ft 2 in x 3 ft 4 in planting section – each section for a different plant species. *(see the lines in the diagram below)*





## Project Plan for Woodland Wildflower Garden (4-sided)

### ❖ Construction Instructions (continued):

- 21) Plant the flowers, grouping each of the different species of plants together within each square.
- 22) Add 1 inch of mulch around the plantings throughout the garden, and water thoroughly.
- 23) Attach Plant ID signs to stakes using adhesive. Sink the stakes a few inches into the ground in front of the appropriate plant species.
- 24) 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.

