



**GROWING A WILD NYC
“Stepping Up” Classroom Activity**

Overview: We need more native plants in our schoolyard gardens and parks. Native plants flower, which allow bees to thrive. Bees make our food and also help plants make seeds, food for birds! As part of the Growing a Wild NYC program, students help restore native plants to New York City’s environment by growing them and planting them. Students begin by visiting their local national park, Gateway National Recreation Area. There, assisted by National Park Rangers and Student Conservation Association interns, they collect and clean native seeds of pollinator-friendly plants (see species list below). In January, classes place cleaned seeds into wet soil in seed trays, cover the trays, and put them outside in the cold for three to six weeks to simulate winter. At the end of February, classes bring their trays into their classrooms and place the trays under grow lights. The seedlings germinate and – after a few weeks - need to be moved into individual pots or cells so that each plant has room to grow. This process is called “stepping up.”

SPECIES	COMMON NAME
Apocynum cannabinum	Dogbane
Asclepias incarnata	Swamp Milkweed
Asclepias syriaca	Common Milkweed
Asclepias tuberosa	Butterfly Milkweed
Eupatorium hyssopifolium	Rough Boneset
Juncus greenei	Greene’s Rush
Lespedeza capitata	Bush Clover
Oenothera biennis	Evening Primrose
Opuntia humifusa	Prickly Pear Cactus
Prunus maritima	Beach Plum
Rhus copallinum	Winged Sumac
Rhus typhina	Staghorn Sumac
Solidago canadensis	Canada Goldenrod
Solidago bicolor	White Goldenrod
Solidago sempervirens	Seaside Goldenrod
Symphotrichum novae-angliae	New England Aster
Verbena hastata	Purple Vervain

Introduction to Step Up: Seeds do not germinate for many reasons; often out of fifty germinating milkweed seeds, only fifteen seeds will germinate into plants. As the milkweed plants grow, they begin to need deep soil so that they can establish strong roots. Plants growing from small seeds do better, sprouting in large numbers, but when they sprout they grow in a tangled clump and cannot grow well unless they are moved into their own individual pot. Just like growing kids, plants need room to grow. These plants are babies, so like babies they must be treated very gently when they are being moved into their new “room.” Plants that are handled with care and “stepped up” into pots can be planted in late Spring/early Summer (May/June) and grow into flowering plants for bees.

Materials:

- Four seed trays with cells spaced in rows 12 x 6
- Two pencils with pointed end for each child
- Potting soil for four seed trays



- Labels for four trays
- Four spray bottles

Group Activity:

All class demonstration (7 Minutes total):

The teacher will have the students sit together and learn about why stepping up is important; the teacher will demonstrate these steps:

- 1) Put soil in each cell of the 12 X 6 seed tray. Make sure that there is plenty of air in the soil by loosening the soil with your pencil in the tray. **Do not pack in the soil, roots need air!**
- 2) Using a pencil make a one inch deep hole in the center of a cell.
- 3) Break off a small clump of soil and seeds from the seed tray. Place this clump onto a paper towel.
- 4) Using the pointed end of two pencils, gently loosen the soil around the roots of a seedling. When the seedling appears to be loose, gently lift the seedling up with one hand by the stem, making sure not to squeeze the stem.
- 5) Hold the plant in front of you and with the pointed end of the pencil, gently remove some of the soil around the roots.
- 6) Lower the roots of the plant into the hole, using the pointed end of a pencil to guide the roots into the hole.
- 7) Use two fingers to gently pinch the soil around the seedling.
- 8) Using the spray bottle, make sure the soil is moist around the plant.
- 9) When you have filled the 12X6 trays, be sure to place a label on the tray with the plant species name.

Student Activity (40 minutes):

Students divide into groups of six to eight. Each group will work on two plastic trays. The plastic growth trays have holes in the bottom, so teachers may want to put newspaper on the work tables. For younger grades, students will work with an adult to prepare the first several seedlings.

For large seeds, such as wild bean and milkweed: record how many seeds were planted, and count how many grew into seedlings. Save this data!

- 2) Put soil in each cell of the 12 X 6 trays. Make sure that there is plenty of air in the soil but loosening the soil with your pencil in the tray. Do not pack in the soil, roots need air!
- 3) Using a pencil make a one-inch deep hole in the center of each cell.



Step 3



Step 4



Step 5

- 4) Break off a small clump of soil and seeds from the seed tray.
- 5) Using the pointed end of two pencils, gently loosen the soil around the roots of a seedling. When the seedling appears to be loose, gently lift the seedling up with one hand by the stem, making sure not to squeeze the stem.



- 6) Hold the plant in front of you and with the pointed end of the pencil, gently remove some of the soil around the roots.
- 7) Lower the roots of the plant into the hole, using the pointed end of a pencil to guide the roots into the hole.
- 8) Use two fingers to gently pinch the soil around the seedling.
- 9) Using the spray bottle, make sure the soil is moist around the plant.
- 10) When you have filled the 12 X 6 tray, be sure to place a label on the tray with the plant species name.



Step 9

Teacher Conclusion: Like babies growing into toddlers, plants have to be brought outside slowly to prepare them for life outdoors. When your plants are three inches tall, they need to be gently petted every two or three days to simulate wind. By petting the tops of the plants back and fourth with either your hand or a fan, you strengthen the stems. On days when the air temperature reaches fifty degrees or above, the trays of young plants should be taken outside and **placed in the shade** for two hours. This process is called “hardening up” and will help you plants thrive once they are planted.