

### Materials

- Garden Gloves
- Lettuce Seed
- Yardsticks
- Trowels
- Plant Labels
- Tub Trug(s)
- Compost

### Preparation

- Fill tub trug(s) with compost for class.
- Prepare the bed(s) for class by placing a trowel every one to two feet along the length of the bed. These trowels mark where six (or twelve) rows will run across the width of the garden bed. You can further mark the rows using yardsticks.

## PROCEDURE

### Part 1: Demonstrate

- In the garden classroom, demonstrate all the steps of seeding lettuce for the whole group: tilling the soil with a trowel, adding compost and breaking down any big clods, and seeding. With each step, emphasize the importance of only working on part of the row, and then passing on the job to the next person on your team (you can use student volunteers to help demonstrate this).
- Emphasize the importance of spreading seeds evenly. “Everywhere we drop a seed, a plant will grow. If we drop all our seeds in the same place, what will happen? What will happen if we spread them out?”
- Once students are ready, you can pass out gloves and have each student put them on to get ready.

### Part 2: Students Seed Lettuce

- Walk the class in a line to the garden bed we will be working on. Divide the class evenly into six (or twelve) groups: one for each of the rows to be seeded in the garden, and have students line up in their groups, single-file in front of their group’s trowel.
- Have students take turns, one by one in each group, using the trowel to dig a line into the soil. The line should run straight across the width of the bed. Each student can dig a small section of the row (i.e. 1/4 of the way across), so that every student gets a turn. Encourage students to dig deep and twist the trowel as they dig, so that they are tilling the soil. As students finish their turn, they can return to the end of their group’s line.
- Next, have students take turns sprinkling compost over their group’s row. After students spread compost, they can use their hands to break up any large clumps and make sure the soil in their row is nice, flat and even.
- Finally, have students take off their gloves and give each student a pinch of lettuce seeds to hold on to. Have students sprinkle their lettuce seed like sprinkles evenly over their section of the row. Emphasize the importance that students use their seeds to evenly cover the whole row, and not drop all their seeds in one place.

Note: This lesson can be repeated for multiple classes by spacing six rows at 2ft. for the first class, and seeding six rows between those for the next class (so that in the end you have twelve rows at 1ft. spacing). You can also plant different seeds (radishes, turnips, carrots) in the different rows for each class.

Note: The yardsticks can help divide the students’ rows into 1/4s as they take turns. Yardsticks also help with spacing for the other seeds (like spinach or radishes).

### ENGAGE

“Today, we are going to plant lettuce. However, instead of relying on advanced machinery, we are going to use small hand tools to prepare our garden beds for planting. Since much of the food we eat is grown on large-scale farms, farmers have had to develop ways to successfully grow food over many acres of land. In order to save time and labor, farmers use machines to help them prepare the soil and plant their seeds. During this lesson, each of you will have the opportunity to work with one, simple labor-saving device—the trowel.”

### Objectives

- Students will understand and follow step-by-step instructions for growing plants from seed.
- Students will demonstrate their ability to write their own step-by-step how-to guide.
- Optional: students will compare the pros and cons of industrial and sustainable agriculture

### EXPLAIN

#### Industrial vs. Sustainable Agriculture

*Labor and Productivity* – The development of specialized agricultural machinery replaced the need for human labor and made it possible for farmers to grow on increasingly larger plots of land. Nowadays, most industrial farms rely on machines to do basic agricultural tasks such as tilling, planting, and harvesting. While some sustainable farms may also use machines, many small-scale farmers use traditional hand tools and manual labor to get the job done. Basic farm tasks might be more physically taxing and take longer to complete, however, many farmers prefer such “old-school” methods for a variety of physical, emotional, and philosophical reasons. And some research suggests that small-scale farming uses less time and energy to create more food (especially after factoring in the cost of fossil fuels)!

*Nutrient Cycles* – Whereas industrial farmers often rely on synthetic chemical fertilizers to boost the soil’s nutrient content, organic farmers use a variety of natural methods to improve soil tilth and promote healthy nutrient cycles. Soil amendments such as compost, chicken manure, or worm castings are naturally nutrient-rich and help to sustain soil health over the long run. In contrast, industrial fertilizers often leech out of the soil and have to be re-applied yearly, at a great expense to the farmer and to the environment.

*Environmental Impact* – Naturally, larger plots of land yield larger harvests, enabling farmers to feed even larger numbers of people. However, productivity comes at a cost. Industrial agriculture is a chemical-intensive enterprise, requiring numerous external inputs, such as chemical fertilizers and petroleum. Sustainable farmers, however, seek to work in harmony with the environment by mimicking the closed nutrient systems found in nature.

### ADDITIONAL CONTENT INTEGRATION *(see previous page)*

There are many varieties of lettuce (and other greens), each with their own texture and flavor, as well as with their own unique nutritional profile. Try growing a variety of greens in your garden: arugula, spinach, mizuna, baby swiss chard, baby kale, frisee, endive, oak lettuce, romaine, etc. Grow some lettuce close together for leaf-lettuce, grow other lettuce spaced far apart and let them grow into full heads.

### Additional Materials

- Access to seed catalogs and a diverse variety of lettuce seeds and other greens.

### EVALUATE

**Journal prompt:** Write step-by-step, how-to instructions for seeding lettuce in the garden. What will happen