



# FARM TO SCHOOL



## Week 5

### Sprouts and Microgreens

#### Lesson Objectives:

- Participants will identify the three main parts of a seed
- Participants will identify the difference between sprouts and microgreens
- Participants will learn how to grow their own microgreens
- Participants will learn how a seed goes from dormant to germinated

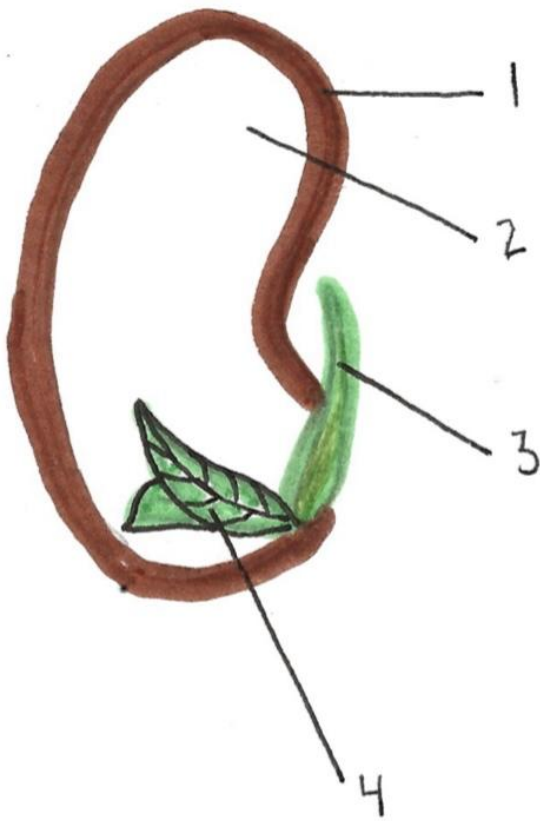
#### Key Words:

- **Sprouts:**
  - Both the seed and the seedling is consumed
  - Germinated in water and rinsed approximately twice per day
  - Harvested within 4-6 days
  - Types of sprouts: mung bean, lentil, alfalfa, radish, sunflower, pumpkin, wheat, chick pea, broccoli
- **Microgreens:**
  - Leaves and stem in the cotyledon growth stage are consumed (when the first two to four leaves appear)
  - Germinated in soil, more photosynthesis occurs
  - Harvested within approximately 1-2 weeks
  - Eat the stem and green only, not the seed, chop off at soil level
  - Types of microgreens: kale, arugula, beet greens, onions, radish greens, watercress, corn, chard, bok choy, cilantro, basil, chervil, parsley, chives
- **Dormancy:** a period of arrested plant growth, awaiting necessary environmental conditions such as temperature, moisture, and nutrient availability
- **Seed Coat:** the protective outer layer of a seed
- **Embryo:** the part of the seed that contains the earliest forms of the plant's roots, stem, and leaves
- **Cotyledon (Food Storage):** the first leaves produced by plants

## Activity 1: Identify the Parts of a Seed

### Activity Materials:

- Large picture of a seed, unlabeled
- Word bank:
  - Seed coat
  - Embryo
  - Radical (First root)
  - Cotyledon



### Activity Steps:

- Match the names of the parts of a seed from the word bank to the correct part label numbers 1-4

### How does a seed go into a plant?

- We know that we eat many seeds rather than putting them in the ground and growing them into plants, like sunflower seeds and peas. So why do we not have giant plants growing out of our trail mix or our stomachs after we ingest them? The answer is, every seed requires certain **environmental conditions** in order to grow into a plant, such as **temperature, moisture, and nutrient availability**. When these environmental conditions are not present, a seed cannot

develop into a plant. We call this state of inactivity **insert text: dormancy**. Some seeds can remain dormant for hundreds or even thousands of years.

- When a seed *does* have the necessary environmental conditions to grow, we call this **germination**.
- Explanation of germination: **Ask:** where do seeds come from? Seeds come from the flower or the fruit of a plant.
- Seeds come fromFirst, water is let into the seed coat, and then the embryo “wakes up” and begins utilizing the stored energy in the endosperm. The embryo continues to “eat” from the endosperm and grow until it cracks open the seed coat, thereafter putting out its first roots downward, looking for more food and water to feed the baby plant. Soon after the roots start growing, the seed puts out another shoot, this time growing upwards. Once the stem breaks through the soil and into fresh air, the first leaves, or **cotyledons** pop out of the stem. Now that the plant’s leaves are out, it can begin taking in sunlight and converting it into energy to continue growing taller and stronger until it produces flowers. These flowers will either be pollinated and develop into fruit or dry up and fall to the ground.
- Hey, wait a minute... where do seeds come from again? That’s right, flowers and fruit! Some plants produce just a few seeds, while others, like the prairie plant, **common mullein**, can produce over 100,000 seeds! And every one of those seeds has the potential to germinate and develop into a new plant and begin the plant life cycle over again.

## Activity 2: Starting Microgreens

### Activity Materials:

- Seeds: peas, corn, radish
- Various container options:
  - Plastic clamshell container
  - To go container
  - Cut in half milk jug or soda bottle
  - Cereal bowl
  - Get creative!
- Paper towels
- Spray bottle
- Scissors

### Activity Steps:

1. Select seed varieties
2. Soak seeds submerged in water
  - a. Peas: 6-12 hours
  - b. Corn: 2-4 hours
  - c. Radishes: no soak

3. Select growing container
4. Evenly spread soil in the container, breaking up any clumps as you go
5. Spread seeds evenly across surface of soil
6. Gently water with spray bottle
7. Place in a sunny window. Plastic dome coverings can be used as well over the seeds, but they must be removed once the microgreens sprout. These can be harvested at any time but preferably when they are 2-3 inches.
8. Everyday, check the soil to make sure it is wet to the touch, but not pooling if you push your finger into it

### **Bonus Activity: Pita with Beet Hummus and Sprouts**

#### **Ingredients**

- large (8-ounce) beet, peeled, cut into 3/4-inch cubes
- 1 cup drained canned garbanzo beans (chickpeas; from 15 1/2-ounce can)
- 3/4 cup extra-virgin olive oil plus more for chips
- 5 garlic cloves, peeled
- 1 1/2 tablespoons (or more) red wine vinegar
- Pita breads

#### **Directions**

1. Cook beet in medium saucepan of boiling salted water until tender, about 12 minutes. Drain; place in processor
2. Add garbanzo beans, 3/4 cup oil and garlic. Blend until smooth
3. Add 1 1/2 tablespoons red wine vinegar and blend well
4. Season to taste with salt, pepper, and additional vinegar, if desired. Transfer dip to medium bowl. Can be made 1 day ahead
5. Cover and chill. Bring to room temperature before serving
6. Add sprouts, sprinkle sea salt and pepper, enjoy!