

Planting Direction Sheet (3-5)

Starting Seeds:

The following are adapted directions from the trade book as to how to plant seeds so that the germination of seeds can be observed.

1. Using a clean glass jar (plastic will work as well), roll up a piece of black construction paper that is as tall as the jar and place it inside so that it sits up against the glass.
2. Fill the inside of the jar with potting soil. This will push the construction paper against the side of the jar.
3. Place a few bean seeds at intervals between the jar and the black construction paper. The seed should remain in that spot and will allow you to observe the germination and growth of the seed.
4. Water the soil so that it is wet but not saturated.
5. In a few days the bean seeds will start to germinate and grow. Make observations about what happens as they grow.

Transplanting plants:

Once the plants have grown several inches and reached the point to be transplanted into a different pot, they will be transferred to two different systems. One is a traditional soil based pot and the other is a hydroponic system.

1. Transplant the plants for each approach for growing – soil and hydroponics. For the traditional plant grown in soil continue to follow the directions in the activity outlined in the trade book by taking a large plant pot, filling it two thirds the way with potting soil, and transplanting the small plants into the larger pot.
2. Make sure you spread the small plants out evenly allowing space for their growth. Continue to make observations about the plant as it grows.
3. To transplant the plants to a hydroponic system, plants need to be supported with some type of anchor that keeps their roots in a water/nutrient mixture.
4. Teacher note: Teachers should mix up the water/nutrient mixture ahead of time which is a mixture of Plant Fertilizer such as MiracleGro All Purpose Water Soluble Plant Food (see internet connections) according to the package directions.

- Using clear plastic drinking glasses with plastic lids (see image below), place enough marbles to fill the bottom of the cup. These will serve as an anchor or support for roots as they start to grow but clearly do not contain nutrients.



- Fill each glass that will hold a plant with the water/nutrient mixture until the glass is about three quarters filled. (Safety note: Eye goggles, do not drink, latex gloves).
- Transfer some of the bean plants that had been started in the first activity to this new hydroponic system.
 - If using the domed type lid, the roots can carefully be worked through the opening. Enough of the plant should be worked through so that the roots touch the marbles in the bottom of the glass when the lid is placed on top.
 - If using the flat type lid, it is important to widen the opening by cutting the flaps off of the straw opening.

Place both the soil potted and hydroponic set up in the same sunny location in the classroom. If necessary, use bamboo skewers to support the plants as they grow. Continue to make observations and record on the student sheet.