Pumpkin Learn and Play

Seed Viewer Lesson Plan

Key Concepts:
- **Seeds grow into new plants**
- **Seeds are a lunchbox for the new plant (they are a source of energy for the new plant)**
- **Seeds need water and warm temperatures to sprout**
- **Roots grow first followed by the stem and leaves**

Overview: Plant pumpkin seeds (or beans) in clear plastic cups to allow students to watch seeds sprout.

Materials:
- Plastic cups (can be washed and reused)
- Construction paper
- Paper towels
- Pumpkin seeds or dried beans
- Water

Instructions:

Prep Work: Cut pieces of construction paper into rectangular strips to line the plastic cups.

1. Help students place a piece of construction paper inside a plastic cup so that it lines the entire side of the cup.

2. Ball up a few pieces of paper towels and place them inside the construction paper liner until the cup is full.

3. Let students pick out 3 to 4 pumpkin seeds or dried soup beans (avoid using any seeds/beans that are broken or split) and place them in the cup between the side of the cup and the construction paper liner.

4. Gently water the paper towels until saturated.

5. Place the cups on a shelf or windowsill and watch them grow. First you will notice the seed coat expanding (wrinkling) as the seed absorbs water and then the root will start to grow in 2 to 3 days. Water as necessary to keep the paper towel and seeds continually moist. Seed germination can be impacted if the temperatures are too cold (if you are comfortable, most likely your seeds will be too).

6. After the roots emerge, the stem and leaves will begin to appear. You can continue to grow your plant as long as you want for observation, however generally seeds that have been sprouted this way do not transplant well out into the garden and they will not be able to grow to maturity in the cup.

Activity Extension:

You can extend your lesson by experimenting with temperature and water availability. Try placing a couple of the seed viewers in a refrigerator and also see what happens if you do not add water. You can use this as a way to talk to students about the conditions seeds need to grow.

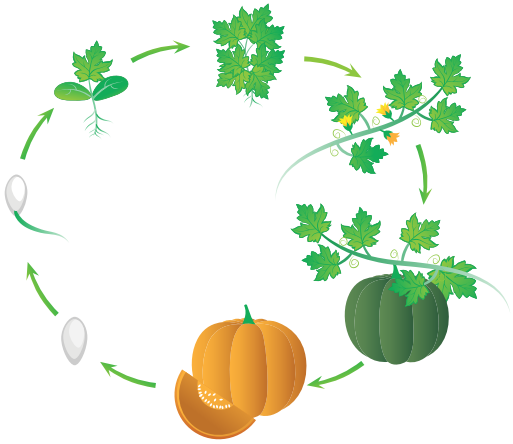
Additionally, you may want to pair this activity with seed planting outdoors so you can watch plants go fully from seed to seed.

Discovery Station Ideas:

- Set up a bin of dry beans and seeds for kids to explore on their own. Add measuring cups, spoons and other containers to allow them to measure and sort them. Encourage them to compare textures, colors, sizes and shapes. You can also chart your findings.
- Make seed art. Allow students to make mosaics using seeds and beans, glue and paper.

Related Books:

- Pumpkin Circle by George Levenson
- Jack and the Beanstalk (many versions available)
- Sunflower House by Eve Bunting
- A Seed is Sleepy by Dianna Aston



Pumpkin Play Ideas

Float your Pumpkin Boat

Pumpkins can grow to enormous sizes! The record for the world's heaviest pumpkin, 2,703 lbs., was established in Italy in 2021. But no matter the size, all pumpkins float thanks to their low density. At the West Coast Giant Pumpkin Regatta, an annual event in Tualatin, Oregon, people race across a lake in boats made of 1,000+ pound pumpkins!

Using pumpkins to discuss weight versus density can be a fun physics investigation with kids. Weigh something dense like a river stone, and then weigh a pumpkin larger than the stone. Discuss why a larger object is not always heavier due to density. Have kids guess if the stone and pumpkin will sink or float in water. Using a water table, sink, bath. or container filled with water, conduct a sink or float test. Explain that things denser than water sink and those less dense, like pumpkins, float!

Take your investigation one step further by turning your pumpkin into a boat! Carefully cut a large circle around the stem of the pumpkin, remove the top, and scoop out the insides. Toothpicks, wooden skewers, or chop sticks with paper attached make for great pumpkin sails. Kids can have fun designing and decorating their sails, and then experiment with how much weight their boat can hold before it goes under the surface. If you have a body of water nearby you could even set your pumpkin boats out to sail!

Pumpkin Potions

Foster imaginative play by setting up a pumpkin potion-making station. Scooped out pumpkins can transform into cauldrons, stew pots, volcanoes, lab beakers, and more. Provide kids with an emptied pumpkin, something to stir with, vinegar, and a variety of “ingredients” that fit your theme. Allow kids to concoct their potion in the pumpkin and then let them sprinkle baking soda into the potion to watch the exciting reaction that results.

Tips: Adding food coloring to your vinegar adds a visual element of fun, and putting vinegar into slow-pour vessels like condiment containers or narrow-necked bottles helps to prolong the fun for kids who like to pour everything in right away. Scented ingredients like dried lavender, cinnamon sticks, and cloves add another sensory element to the activity. Having kids collect their own “ingredients” in natural spaces is a great way to encourage observation and focus (and save some money).

NOTE: This activity can become quite messy, so pick a location that is conducive to messy play.

Pumpkin Planters

For kids who are eager to plant in the fall, pumpkins can be a fun (albeit temporary) container for gardening:

- Cut the top off of the pumpkin and scoop out all seeds and pulp.
- Fill the pumpkin about 1/2 of the way full with pre-moistened potting soil if using nursery plants.
- Flowers, herbs and even succulents are great in pumpkins.
- Remove plants from their containers, massaging the root balls and placing them in the pumpkin. Then, fill in the space around the plant with more potting soil and give the plant a light watering.
- If using seeds, fill the whole pumpkin with pre-moistened potting soil and sew fast-sprouting seeds like beans, wheat grass, marigolds, nasturtiums… or pumpkins!
- Once the pumpkin begins to fade, plant the whole pumpkin in soil and it will fertilize your plants as it decomposes.

Additional Resources:
For information on how gardening activities align with Head Start Program Performance Standards and the Early Learning Outcomes Framework, download the National Farm to School Network’s excellent resource - Growing Head Start Success with Farm to Early Care and Education available at: http://www.farmtoschool.org/resources-main/growing-head-start-success-with-farm-to-early-care-and-education

More gardening resources for early childhood educators are available at https://kidsgardening.org/ece-resources/