Pumpkins!

Description
Student will practice observation and math skills and learn about life cycles of pumpkins.

Guiding Question
What do we know about pumpkins?

Big Idea
Pumpkins are an important native plant.

Learning Objective:
➔ Students will learn about the importance of the pumpkin plant to Maine and its people
➔ Students will understand that it takes one seed to grow a new plant
➔ Students will understand a life cycle

Vocabulary:
Shell – The hard outer part of the pumpkin
Flesh – The thick layer under the shell
Pulp – The stringy substance inside the pumpkin
Seed – The small teardrop shaped unit inside the fruit that stores energy for a new plant
Stem – The green spiky handle that was once attached to the vine

Materials:
☐ Pumpkins
☐ Newspapers
☐ Knife
☐ Large spoons
☐ Paper plates
☐ Pumpkin life cycle cards (Appendix A)

3rd–5th grade
☐ Scale
☐ Tub of water
☐ Writing materials

Engage (5 mins)
Walk and Talk: Have students make two lines and talk to partner on the walk to the garden: What are your favorite ways to enjoy pumpkins? OR Have them take 1–2 minutes in the garden to talk to partner about this question.

Explain (5 mins)
Pumpkins are very important to us in Maine. This is because they grow well in our cooler climate and can be stored all winter and eaten. They have hard outer shells that protect them from rotting quickly. They are versatile and can be eaten in many different ways. This was extremely important before we had grocery stores or refrigerators. Pumpkins have been grown in this region for 9,000 years; Native Americans were the first to cultivate and eat pumpkins. Native Americans commonly planted pumpkins along with corn and beans, calling these crops the three sisters.

What do we do with pumpkins? (bake or boil the pumpkin flesh, toast the seeds, grind the seeds into flour or meal for making bread and gruel as well as drying the seeds for planting next year’s crop, jack-o-lanterns, painting, pie,
Why are they so important? (They grow in Maine, feed us through the winter, store well, and are nutritious.) Now that we know a little history, we are going to explore pumpkins in more depth.

Explore (30 mins)

Station 1: Observation Station (8-10 mins)
Students will observe pumpkins. Pass around whole pumpkin and have them describe the colors, textures, and other features. Pass around half a pumpkin and have students describe the textures and different elements of the inside of the pumpkin. Ask leading questions to make students think about how the pumpkin grew and all the parts that make up the pumpkin.

3rd-5th grade:
Have them guess the weight and then weigh it. Have them guess if it will float and why or why not. Put pumpkin in tub of water to test.

Station 2: Counting (8-10 mins)
Have each group count the seeds in a separate pumpkin. Have the students make piles of 10 to help them count. Count each pile out loud together to re-enforce counting skills. Record the data on a sheet for each group so we can compare the seed count in each pumpkin.

3rd-5th grade:
Have students chart the data for each pumpkin.

Station 3: Pumpkin Life Cycle Game (8-10 mins)

K-2nd grade:
Have students sit in a semi-circle facing you. Have all the life cycle cards showing. Together, put them in order from seed to mature pumpkin. At the end, show them that instead of a line, the cards can be in a circle, because the process starts over at seed after the fruit is mature. Ask for other examples of cycles.

3rd-5th grade:
Hand one card to each student. Have them self-arrange with no talking to order the cards correctly from seed to pumpkin. Enforce that they arrange themselves through hand motions, not talking. Lay cards down. Evaluate with group if they are correct or incorrect. Ask if there is a shape other than a line that better represents a cycle. Ask for other examples of cycles.

Evaluate (5 mins)
Report back seed count. Ask:
→ How many seeds do we need to grow a new pumpkin plant? (one)
→ If we have X amount of seeds in the pumpkin today, how many new plants could we grow? (X)
→ Why are pumpkins so important to us in Maine? (We can grow them in our climate and store them all winter as food)
→ Which parts of the pumpkin do we eat? (Seeds and flesh. Blossoms also can be eaten or put into soups.)

Curriculum Connections

- Science 4.LS1.1 Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior and reproduction
- Math K.CC.4 Understand the relationship between numbers and quantities; connect counting to cardinality
- Math K.CC.5 Count to answer “how many?” questions about as many was 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number form 1-20, count out that many objects
- Math K.OA.1 Represent addition and subtraction with objects, fingers, mental images, drawings, sounds, acting out situations, verbal explanations, expressions, or equations
- Science 3.LS1.1 Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death
• Science LS4.C For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all.
• Science 3.MD.A2 Measure and estimate liquid volumes and masses of objects using standard units of grams, kilograms, and liters.
• ELA Literacy.L.K.5.C-L.3.5.B Identify real-life connections between words and their use
• ELA. Literacy.L.3.3.A Choose words and phrases for effect
PUMPKIN LIFE CYCLE