Planting Garlic

Description
Students plant garlic seeds in the fall and discuss the life cycle

Guiding Question
What will happen when a clove of garlic is planted in the fall?

Big Idea
A plant’s unique characteristics are contained within its seed.

Learning Objectives:
➔ Students learn that like produces like
➔ Students learn about growing cycles

Vocabulary:
Garlic - A strong-smelling pungent-tasting bulb, used as an ingredient in cooking and in herbal medicine
Clove – A segment of the bulb that holds the energy for a new plant to grow
Bulb - A rounded underground storage organ present in some plants. Also known as a head of garlic once harvested.

Materials:
☐ About 4 intact whole heads of garlic, enough to yield 30 individual cloves.
☐ Six, 6” long pieces of string.
☐ Six popsicle sticks marked at 2 inch depth.
☐ Garden bed space, roughly 6 feet by 4 feet.
☐ Chopped garlic + serving spoon
☐ Hay or straw
☐ Pencil and paper

Engage (5 mins)
Walk and Talk: Have students make two lines and talk to partner on the walk to the garden: Do you like to eat garlic? How do you like to eat it? OR Have them take 1-2 minutes in the garden to talk to partner about this question.

Explain (5 mins)
Hold up garlic plant and ask them to identify it.

Review plant parts. What plant part stores the energy to grow a new plant? (seed) Plants grow from seeds. Ask students to predict which part of the garlic plant is the seed. After students have had a chance to guess, confirm that the garlic head provides the seeds. Break one clove from a head of garlic, and show students the clove. Explain that each clove is a garlic seed. Ask, “If we plant this seed, what kind of plant will we get?” After students answer, ask, “What would grow if we planted a sunflower seed?” “What if we planted a pumpkin seed?” Help students understand that like produces like. A seed can only make the same kind of plant that it came from.

Hold up the garlic head from which you broke one clove. Have students identify the roots and the stem. Show students how each clove also has a root end and a pointy end. Ask which end they think should point up when they plant the clove into the ground. Confirm that the pointy end should point upward.

Review harvest cycles. Remind students that foods from plants are harvested at different times of the year. Ask students to guess when they think garlic is harvested. Confirm or explain that garlic is actually ready to harvest in the late spring/early summer. Gardeners plant garlic seeds in the fall, and garlic grows
underground during the winter. Point out that it is fall now, and that school will last until spring, so the students can plant some garlic and watch it grow until it is time to harvest.

Engage (30 mins)

Station 1: Planting (8-10 mins)
Each student will plant one clove of garlic. They will measure the depth with a tongue depressor and the spacing with a piece of string. Volunteers will assist and make sure the root side is going down, pointy side up. Arrange children into teams to help each other measure and plant so multiple people are working at the same time.

Demonstrate how to plant the garlic:
Gently loosen the soil for planting. Make a hole with the Popsicle stick 2 inches deep. Plant garlic cloves one at a time, pointy end up and root end down in the hole. Cover the clove with 2 inches of soil. Gently pat down the soil. Use the string to measure six inches to a place to plant the next clove. Cover garlic with mulch hay. Tell students you just put the garlic to sleep so they have to be very quiet not to wake it up.

Station 2: Observing and Tasting (8-10 mins)
Students will observe the garlic clove with all their senses:
Tell students you will be observing the garlic together. Ask them to remind you how we observe things (five senses). Name each sense and practice observing and describing through that sense. Ex: Smell, Look (white, curved, half moon), Touch (smooth, flaky), Taste (spicy, savory), (can’t listen to garlic… maybe the crinkle if you rub it in your fingers)

Volunteer will explain health benefits of garlic (anti-bacterial, anti-viral – makes you not get sick. If you have a cold – eat garlic). Tell them tale: if you rub garlic on the bottom of your feet before bed you will smell it on your breath in the morning.

3rd-5th grade: Write a poem about garlic through the five senses.

Stations 3: Measuring (8-10 mins)
Show students how to use a ruler. Measure length of garlic clove. Record what each student measures on a master sheet. Measure the length of whole plant with the group. Show that something small will grow into something big.

3rd -5th grade: Have students order the lengths of the cloves and figure out mean, median, and mode of their data.

Evaluate (5 mins)
Conduct informal assessments of your students’ knowledge by asking them some or all of the following:

→ What did we plant today?
→ What will grow from what we planted today?
→ If we planted a pumpkin seed, what would grow?
→ How long does it take for a garlic seed to grow into something we can eat?
→ In what ways is garlic good for you?

Curriculum Connections

- 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 3.LS4.3 Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all
- Science 3.LS3-1 Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms
Science 1.LS3.1 Make observations to construct and evidence-based account that young plants and animals are like, but not exactly like, their parents
Math K.CC.4 Understand the relationship between numbers and quantities; connect counting to cardinality
Math 3.MD.4 Generate measurement data by measuring lengths using rules marked halves and fourths of an inch.
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