

Creating a Three Sisters Garden



Standard

SS4H1 The student will describe how early Native American cultures developed in North America.

- a. Locate where Native Americans settled with emphasis on the Arctic (Inuit), Northwest (Kwakiutl), Plateau (Nez Perce), Southwest (Hopi), Plains (Pawnee), and Southeast (Seminole).
- b. Describe how Native Americans used their environment to obtain food, clothing, and shelter.

Overview

Native peoples from different parts of North America have used a wide range of agricultural techniques. Perhaps the best known is the interplanting of corn, beans, and squash together -- a trio often referred to as the "three sisters."

Cultivating these companions in your school garden, a small patch near the building, a barrel, or even indoors, can inspire studies of Native American customs, nutrition, and folklore. As students dig in, investigations of plant growth and relationships will also flourish.



In a three sisters planting, the three partners benefit one another. Corn provides support for beans. Beans, like other legumes, have bacteria living on **School gardeners exploring in their site's three sister's garden** their roots that help them absorb nitrogen from the air and convert it to a form that plants can use. (Corn, which requires a lot of nitrogen to grow, benefits most.) The large, prickly squash leaves shade the soil, preventing weed growth, and deter animal pests. The three sisters also complement each other nutritionally.

It's hardly surprising that these crops -- considered by many to be special gifts from the creator -- played such an important role in the agriculture and nutrition of most of the Native people of the Americas. Because of the sisters' central role as "sustainers of life," a host of stories, customs, celebrations, and ceremonies are associated with them.

Materials

- soil preparation tools (e.g., spading forks, rakes)
- measurement tools (rulers, yardsticks, or tape measures)
- sticks (to mark mound locations)
- seeds*: corn, pole beans, winter squash or pumpkins

(*Find seeds that mature between your area's "frost-free" dates. The Resources page features links to sources of traditional Native seeds.)

Creating a Three Sisters Garden



Each Native culture that grew the three sisters had a unique planting system. Here we feature guidelines for one type of setup.

1. Plan and select a site. You'll want to plant your three sisters garden in late spring once the danger of frost has passed. Choose a site that has direct sunshine for most of the day and access to water. Once students have determined their site's dimensions, challenge them to plan their three sisters garden on paper. They can use the layout suggested below or research and try others.

2. Prepare the soil. First, break up and rake the soil. Next, build a mound about 12 inches high and between 18 inches and 3 feet in diameter. If you're in a dry area, flatten the top of the mound and make a shallow depression to keep water from running off. The number of mounds your students create depends on the size of your growing area. Mounds should be 3 to 4 feet apart in all directions.

3. Plant corn. Soak four to seven corn seeds overnight and then plant them about 6 inches apart in the center of each mound. (You'll eventually thin to three or four seedlings.) Many Native people honor the tradition of giving thanks to the "Four Directions" by orienting the corn seeds to the north, south, east, and west. By doing the same, students can learn to use compasses and observe the sun's movements.



4. Plant beans and squash. After a week or two, when the corn is at least 4 inches high, soak and then plant six pole bean seeds in a circle about 6 inches away from the corn. (You'll eventually thin to three or four bean seedlings.) At about the same time, plant four squash or pumpkin seeds next to the mound, about a foot away from the beans, eventually thinning to one. If you are planting a large area, you can also sow the squash in separate mounds (1 foot in diameter) between every few corn and bean mounds.

5. Consider other additions. Consider planting other traditional crops, such as sunflowers or jerusalem artichokes (a tuberous perennial sunflower), around at the edge of the three sisters garden. Put them on the north side so they won't shade your other plants. Potatoes, sweet potatoes, and other native crops are often planted in nearby plots. (Some of the many other indigenous plants used by native North, South, and Central Americans include melon, tobacco, chili pepper, cotton, blueberry, wild rice, and hazelnuts.) Let your students' creative juices flow as they create a unique scarecrow; a number of Native culture's gardens incorporate these familiar figures.



6. Maintain your traditional garden. As corn plants grow, weed gently around them and mound soil around the base of each stem for support. When the corn is knee-high and again when silks appear on the husks, "side-dress" by putting a high nitrogen fertilizer (such as aged manure or fish emulsion) on the soil surface near each plant. If beans aren't winding their way around the corn, youngsters can help by moving tendrils to the stalks. (Keen observers may notice a pattern in the direction in which the bean vines wind.) To allow room for corn and beans to grow, gently direct squash vines into walkways, garden edges, or between mounds. Once students observe young fruits, side-dress the squash plants with aged manure or compost. If you pinch off the tips of squash runners after several fruits have started to form, the plants will devote more energy to producing squash.

Raising Three Sisters in Containers

If your outdoor growing space is limited, you can create a mini three sisters garden in an outdoor container, such as a barrel, or even in the classroom. Although students won't likely see the crops grow to maturity, especially indoors, they should be able to observe the pole beans twine around the corn and the large squash leaves form a mat. To simulate this planting system, use a large container with holes or gravel in the bottom and fill it with potting mix (and compost if you're growing outdoors). Follow the above instructions, but plant only 3 corn seeds (and thin to 1), 2 bean seeds, and 1 mini pumpkin seed. Place the container where it will receive at least six hours of sunlight (or 12 hours of grow lights) each day.

Coming Full Cycle (Saving Seeds)

By saving and replanting some of the seeds from their three sisters gardens, Native cultures brought the cycle of life full circle. Your students may want to save some to replant or package and give to other gardeners. Below are some tips for gathering and preserving the seeds.

Corn

Leave several ears on the stalk until husks dry and turn brown. Remove and peel back the husks and hang them to dry, out of direct sun, for a month. Once they're dry, remove the individual kernels. Store them in an airtight container. (Note: If you save and replant seed from hybrid corn, the plants will not have their parents' good qualities.)

Beans

Leave several pods on a plant until they turn brown and brittle. Break open the pods and remove the seeds. Leave them on a flat surface or screen, out of direct sun, to air dry for a few days. Put them in an airtight, dark container protected from extreme heat and cold.

Squash

Scoop out the seeds with a spoon and rinse them with water in a colander. Follow the same instructions as listed for drying and storing beans.

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