The Three Sisters

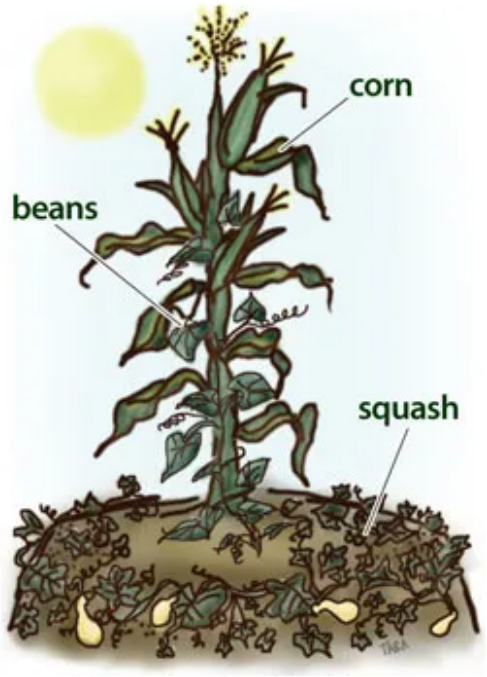
Learning Objectives:

- Learn how corn, bean, and squash grow well together.
- Learn how Indigenous peoples cultivated the Three Sisters.

Prep Time: 10 minutes
Duration: 30 Minutes

Learning content:

Corn, beans, and squash make up the Three Sisters. From the Northeast to the Southeast, from the Plains to the Southwest and into Middle America, many Indigenous communities grow varieties of this trio. The name, the "Three Sisters," comes from the Haudenosaunee (Iroquois). Different communities have stories; the common thread is that the three sisters are very close – stronger together than apart.
The three are one form of companion planting – an agricultural technique where two or more crops are planted together in a single plot. The three function as a unit to provide higher crop yield; they help each other grow by creating a fertile soil that resists damage from diseases and insects that would normally consume and destroy them.



Corn stalks provide a pole for the beans to wrap themselves around and help to stabilize the corn in wind. Beans provide nitrogen to fertilize the soil. The large, spiny squash leaves provide shade, help the soil retain moisture, prevent weed growth, and discourages insects from invading. Each of the three attracts beneficial insects that prey on those that are destructive.

When eaten together, corn, beans and squash are a complete and balanced meal. Corn is low in protein but provides carbohydrates. Beans are a rich source of protein and have amino acids missing in corn. Squash provides different vitamins and minerals than corn or beans. All three can be dried and used for food year-round.
(Indian Pueblo Cultural Center 2021)

Supplies:

- Dry corn kernels
- Dry beans

Set Up:

- In a bowl, mix together beans, corn kernels, and squash seeds.

- Squash seeds
- Photos of beans, corn and squash prior to harvest
- Various other seeds and photos of plants for comparison
- Optional: fresh squash, string beans, and corn on the cob
- Optional: the *Three Sisters* book by Michelle Corneau
- Mix other seeds representing different colors, shapes, and sizes, in the bowl to make comparisons (sunflower seeds, bitterroot seeds, avocado pits…)
- Place photos of the plants (or actual vegetables) nearby

Activity:

1. **Introduce** the activity: What do you notice about the different materials in this bowl? What kinds of plants do you think might grow out of them?
2. Invite students to **make observations** and experiment with the seeds. Invite the students to match the seeds to images of plants.
3. **Show** students the photos (or actual vegetables) of the Three Sisters. Describe the plants and how they grow together. Do you think there are other plants and animals that grow symbiotically? What are things that people do to help plants grow?
4. **Read** The Three Sisters book and discuss the stories. Have you ever grown these plants before? Do you think beans, corn, and squash taste good together?
5. **Reflect.** Invite students to think about or share what plants and foods are important to their families and friends.

Extension:

- Invite students to grow their own Three Sisters garden at home.
- Make Three Sisters soup together or in advance to try as a group.
- Dissect the seeds and make observations.
- Using art supplies like pipe cleaners and beads, invite students to create small models or key chains of corn, beans, and squash to take home.

spectrUM Pedagogy:

Inspire Curiosity: Ask open-ended questions and encourage creative thinking.
Encourage Growth Mindset: Encourage students to continue to guess and use critical thinking skills when matching photos of plants to their seeds. Praise their patience and be available to help when invited. Do not give away the answer right away.
Make Meaning: Create personal connections between science and students by asking them about their relationship with plants and food.
Navigate Your Future: Let students know about resources and opportunities for them to continue to pursue an interest in botany, such as classes, clubs, camps, and higher education.

Collaborate With Communities: spectrUM has collaborated with many tribal representatives to connect science with Indigenous traditions. These resources can be found on spectrUM's website, umt.edu/spectrUM.
Try It: Encourage student autonomy by providing them the opportunity to build their pollinators and problem-solve independently.