

THREE SISTERS GARDEN

Grade 4-6 | 1 Class Period



OVERVIEW

In this lesson, students will explore the traditional practice of planting beans, corn, and squash together—a method used for hundreds of years by the Cherokee, Haudenosaunee, and other Indigenous peoples. They will discover how the growth patterns and biology of these three plants mutually support one another and provide nutritional benefits, and will plant a Three Sisters Garden.

ESSENTIAL QUESTIONS

- What is a “symbiotic relationship”?
- How do corn, beans, and squash work together in mutual support?
- How do corn, beans and squash nourish the body?
- What are some other relationships that work in interdependent ways like the 3 sisters plants?

MA STATE FRAMEWORKS

Nutrition and Balanced Eating [3.1.NE]

1. Identify principles of balanced eating (i.e., moderation, eating a variety of fruits and vegetables, consuming nutrient-rich foods, limiting processed foods and foods high in added sugar, drinking water, limiting sugary beverages) when making nutrition-related decisions.
4. Describe how cultivation, trade routes, and regions affect food supply, and how food production affects nutrition-related decisions.

MATERIALS

Handouts, one per student or small group

To plant a Three Sisters Garden, you will need:

- Seeds: corn or maize, pole beans, winter squash or pumpkins
- Garden tools for planting
- Tools to measure such as rulers, yardsticks, or tape measures

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PROCEDURE

Before you begin this lesson, consider building a partnership with your local Native and Indigenous communities. This collaboration supports cultural accuracy and shows respect to the keepers of a sacred tradition who are the best sources for teaching about the 3 Sisters. One print resource for your classroom we recommend is Judy Dow's, "Building a Three Sisters Garden: A Gedakina Teacher's Training Manual," available for purchase at www.gedakina.org. The book is step-by-step guide to building, cultivating, and learning from a Three Sisters Garden for teachers, parents, caregivers, students, gardeners, lovers of plants, and curious people seeking to braid Indigenous knowledge and Western science and contains stories and knowledge around traditional Indigenous values and storytelling and cultivating techniques with a how-to on designing, building, tending and making full use of a Three Sisters Garden.

This lesson assumes available outdoor space to grow a Three Sisters Garden.

Warm Up

Tell students that in this lesson they will explore an example of a "**sympiotic relationship**" in nature. A "sympiotic relationship" in nature is a close, long-term interaction between two different species.

There are three main types: **mutualism** when both species benefit, like bees pollinating flowers while getting nectar, **commensalism** when one species benefits while the other is unaffected, like barnacles on whales getting transportation without harming the whale, and **parasitism** when one species benefits at the expense of another, like ticks feeding on mammals or mistletoe draining nutrients from trees.

Tell students that this lesson will focus on **mutualism**. An example of this type of **sympiotic relationship** might be milkweed and monarch caterpillars. Monarchs rely on milkweed for their entire larval stage, while milkweed benefits from monarch butterflies by being pollinated. Another could be squirrels who eat nuts from trees and then disperse those seeds from their scat. Ask students for their ideas and create a master list of these relationships on the board.

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PROCEDURE, Cont.

Main Activity

As a class, read the handout about corn and the Three Sisters Garden and then discuss. Some discussion questions to get the group started are: How do corn, beans, and squash work together in mutual support? How do corn, beans and squash nourish the body? What are some other relationships that work in interdependent ways like the Three Sisters plants? Are humans interdependent beings? Show students the Three Sisters diagram and allow them time to play the matching game.

Find a location for your Three Sisters Garden bed. You'll want to plant it in a place that receives direct sunlight most of the day. There are different design options for your bed, but a common practice is to build a 3-foot round mound that contains four corn plants, two bean plants, and one squash plant on the outside. If you have a large class, you might create smaller groups and create multiple mounds. If you are teaching this lesson to more than one class and have limited space, each group within a class can plant one sister crop in the mound.

Planting more than one type of crop together is called interplanting. Plant corn seeds first to establish the height above their companions. Wait until corn reaches several inches tall before sowing the bean seeds. This important timing ensures the corn stalks are strong enough to support climbing bean vines. A week after the bean seedlings emerge, plant the squash seeds.

EXTENSIONS & VARIATIONS

For more information on configuration, explore the different designs from Native Seeds.

<https://www.nativeseeds.org/blogs/blog-news/how-to-grow-a-three-sisters-garden>.

Students can also do their own research on Three Sisters Gardens and create garden plans that would work in your outdoor space.

THREE SISTERS GARDEN

HANDOUT



The Three Sisters

What is the history of corn?

Corn, also known as maize, has a very long and interesting history. Around 9,000 years ago, humans began to work with a wild grass called "teosinte" in the Balsas River Valley in south-central Mexico. This teosinte grew naturally as a grass-like plant throughout Mexico, producing small grains encased in hard, protective shells that only released their seeds when fully mature. Teosinte had tiny, hard seeds that were difficult to eat and harvest. Skilled farmers began the slow and careful process of transforming teosinte. Generation after generation, they saved seeds from the best plants and gradually transformed this wild grass into the corn we recognize today. This process took thousands of years and shows the amazing agricultural knowledge these early farmers possessed.

As corn improved, it spread throughout North and South America through trade between different Indigenous groups. Each community developed their own varieties that worked best in their climate and met their specific needs. Some types of corn were perfect for grinding into flour, others were great for popping, and some varieties could be stored for months to get through winter. By the time Europeans arrived in the Americas in the 1400s and 1500s, Native Americans had already created hundreds of different corn varieties. Corn was so important to many Indigenous cultures that they considered it sacred and included it in their creation stories and ceremonies.

What is a Three Sisters Garden?

The Three Sisters Garden is a traditional practice of planting the three sisters: plants, corn, beans, and squash, together in mounded concentric circles so they can help each other thrive. This practice originated with the Haudenosaunee. The Haudenosaunee, also known as the Iroquois or Six Nations, historically lived in the Finger Lakes region and across New York State. The nations of the confederacy recognize themselves as Haudenosaunee from their own language meaning, "they made the house," symbolizing all the nations coming together as one. From east to west the original nations of the confederacy are Mohawk, Oneida, Onondaga, Cayuga and Seneca.

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HANDOUT

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The Three Sisters

In the Haudenosaunee planting method of a Three Sisters Garden, all three types of seeds are planted together in an elevated mound which helps with drainage, which is important in a region with abundant rainfall. Other native peoples designed their Three Sisters Gardens in different ways to work with the land and climate.

In a Three Sisters planting, each crop helps the others thrive. The tall height of corn provides a natural support for climbing bean vines and the height helps them to not be shaded out by the squash leaves. Beans, which are legumes, work with soil bacteria to "fix" nitrogen from the air, turning it into a form that plants can use and also helps secure the corn. This helps enrich the soil, especially for corn, which needs a lot of nitrogen to grow. The broad leaves of squash plants spread out widely across the ground, provide shade for the soil, help to maintain water, and discourage weeds and pests.

Beyond their agricultural benefits, the Three Sisters also support human health. Together, these crops provide a balanced diet, offering carbohydrates, proteins, and a range of vitamins and minerals. The Three Sisters also offer important nutritional value: when corn and beans are combined, they make a complete protein, and squash adds vitamins C and B, A from beta carotene as well as essential minerals like potassium, magnesium, and manganese. These three crops can also be dried to provide food year round.

Throughout Native communities, corn, beans, and squash hold deep significance as sacred gifts from the Creator. These three crops are a large part of Indigenous traditions and are the subject of stories, rituals and festivals. Celebrated as life sustaining, the Three Sisters continue to play a part in the diet and cultural heritage of Native peoples from coast to coast.

Sources:

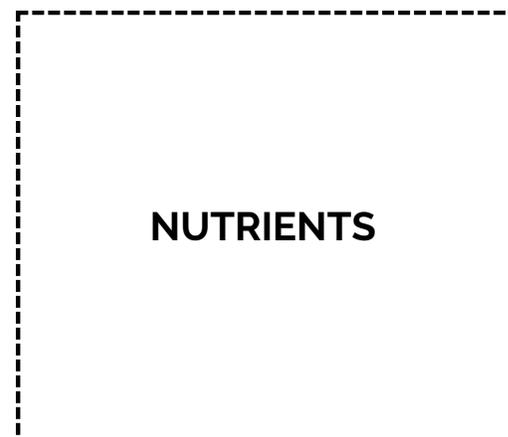
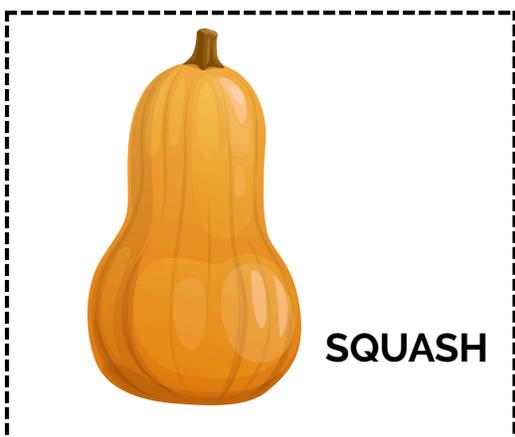
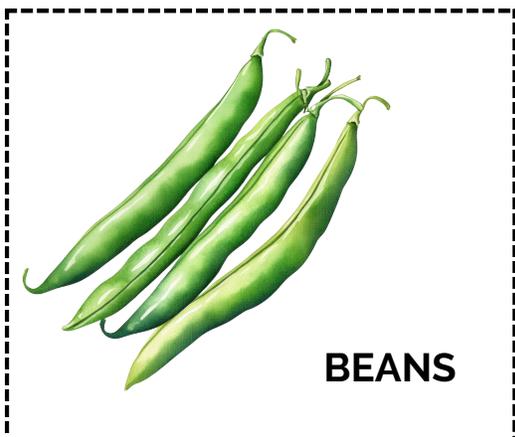
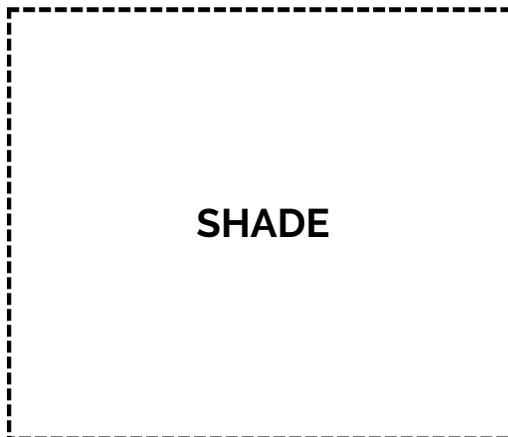
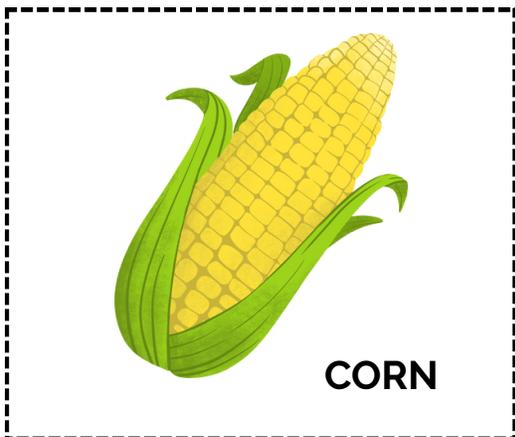
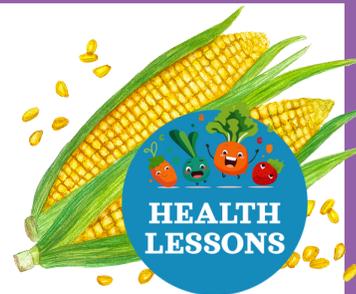
<https://nativeseeds.org/blogs/blog-news/how-to-grow-a-three-sisters-garden>

<https://www.haudenosauneeconfederacy.com/>

THREE SISTERS GARDEN

HANDOUT

Matching Game



THREE SISTERS GARDEN

HANDOUT

The Three Sisters



maize
CORN

beans

squash