

THE **EDIBLE**
SCHOOLYARD
PROJECT

**INDIGENOUS AGRICULTURE:
INTERCROPPING**

Summary: One example of Indigenous agriculture is *intercropping*, where two or more crops are planted together in order to help each other grow. In this lesson, students will engage with a text about the “Three Sisters” method of intercropping beans, corn, and squash. Then students will have the option to plant a three sisters garden.

We suggest taking time with your class to acknowledge the Indigenous lands your program is situated on. In the “Reference” section of this lesson, you will find a list of resources for creating land acknowledgments and resources for discussing settler colonialism.

Time: 30-60 Minutes

Materials

- Device to read/watch the texts
- Something to write with
- Chart paper (optional)

Teacher Notes:

- This is a text-heavy lesson and asks students to complete a close reading. We recommend that you print the reading for students and assign the reading in small groups. Then have students share out and discuss as a larger group.



SECTION TITLE INDIGENOUS AGRICULTURE:

Teacher Notes:

- The “READ” section of this lesson may feel a little dense to some students without the proper support. We suggest the following strategies for supporting students to engage fully with the text:
 - Instruct students to find a quiet place to sit and encourage them to observe their surroundings before and after they read. This helps them engage with their surroundings in a different way and can also support their engagement with the text.
 - Assign sections of the reading as a [jigsaw](#): Assign small groups a different topic each, and then have groups report back to one another after they have finished reading with their topic in mind.
 - Remind students that the [Talk to the Text](#) or [T4 strategy](#) can be used when reading texts to help track their thoughts, questions, and reactions to a text. In these strategies, students write notes and ask questions in the margins, underline words, and use symbols to react to the text.
 - Read the article aloud and have students take notes as they listen. It might be helpful to stop frequently as you read to write down keywords, phrases, or ideas on chart paper. Take your time through the reading and ask your students their thoughts along the way.
- This lesson is primary text based. Check out the lesson, [Making Sense of What You Read](#) for helpful suggestions for textual analysis.
- The “REFLECT” section of this lesson can serve as guiding questions for an open discussion in the garden. Consider expanding on these questions and having students do a [Think, Pair, Share](#).
- The “OPTIONAL” section of this lesson offers some great ways to integrate research and analysis into the lesson.
- You may notice that the term “Indigenous” is capitalized throughout this and other lessons in the curriculum. Learn more about our decision to use “Indigenous” instead of “indigenous” [here](#).
- This lesson was developed for Edible Schoolyard Project’s [Understanding Organic](#) curriculum and is part of the extension inquiries.



SECTION TITLE INDIGENOUS AGRICULTURE:

READ: Spend some time reading the excerpt from the chapter *The Three Sisters* from *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge and the Teachings of Plants* by Robin Wall Kimmerer (the excerpt can be found on pages 3 and 4).

The first time you read the text, just focus on the overall topic. Ask yourself *What is this text about?*

Reread the text and see if you can pull out more specific details. Use the questions below to prompt your reflection:

- How did the Indigenous methods of planting differ from the methods used by the colonists? Cite evidence from the text.
- Which of the Three Sisters begins growing first? What triggers it to begin sprouting? What shape are its leaves? What are its other physical characteristics?
- Which of the Three Sisters begins growing second? What does it look like? How does it compare to the first Sister?
- Which of the Three Sisters grows third? How does this Sister look?
- What role do each of the Three Sisters play in their relationship? How do they help one another grow?

DRAW: Illustrate the process of the Three Sisters growing. Refer to information in the text to fill in the **Three Sisters Storyboard** (attached below).

REFLECT AND ANSWER: Individually or with your class, reflect on these questions.

- What can the practice of growing plants together (also known as *intercropping*, or *companion planting*) offer? Why is this method used in agriculture?
- Do you see any connections between the Three Sisters method and organic agricultural practices in general? Explain your answer.
- In the text, Kimmerer says, “The way of the Three Sisters reminds me of one of the basic teachings of our people.” What does she mean? Explain your answer.
- What questions do you still have about the Three Sisters method or intercropping?

OPTIONAL: Want to learn more about intercropping and Three Sisters? Consider engaging with the following activities:

- **LEARN MORE:** Watch [this video](#) of Gail Danforth, an Oneida elder or read [this article](#) by Katie Pace at the [Sustainable Food Center](#) to learn more about Three Sisters planting.

- ANSWER: Revisit your text to look for clues on how to plant a three sisters garden. Then see if you can answer the following questions. (Use your classmates, teacher, and the internet to fill any gaps).
 - How do you prepare the soil for a Three Sisters planting?
 - How deep should the seeds be planted?
 - In what order should corn, beans, and squash be planted?
 - How do you know when you can harvest each plant?
- PLANT: Gather some seeds, prepare your soil, and plant!
- COOK AND SHARE: Find some recipes that utilize the Three Sisters, prepare them, and share with your family, loved ones, and classmates.

References:

Jigsaw: Developing Community and Disseminating Knowledge (n.d). *Facing History*. Retrieved from <https://www.facinghistory.org/resource-library/teaching-strategies/jigsaw-developing-community-and-disseminating-knowledge>.

Resources:

- [Native Land Digital](#) provides a searchable database for Territory acknowledgements and provides resources for learning more about land acknowledgments.
- [Starting from the Heart: Going Beyond Land Acknowledgement](#). The Elementary Teachers' Federation of Ontario (ETFO) have put together a curriculum that engages teachers with creating land acknowledgements and lessons to do with your students.
- [This resource](#) compiled by the Native Governance Center provides important considerations when doing land acknowledgments.
- Learning for Justice's article, [What Is Settler-Colonialism?](#) Includes resources for discussing settler-colonialism.

Disclaimer: All videos, references and resources are used for educational purposes only. The Edible Schoolyard Project does not endorse any brands, labels, organizations, or businesses included in videos, references, or resources.



THE THREE SISTERS

The following reading is excerpted from the chapter [The Three Sisters](#) (pg. 128-141) from *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge and the Teachings of Plants* by Robin Wall Kimmerer

...Years ago, Awiakta, a Cherokee writer, pressed a small packet into my hand. It was a corn leaf, dry and folded into a pouch, tied with a bit of string. She smiled and warned, “Don’t open ’til spring.” In May I untie the packet and there is the gift: three seeds. I hold in my hand the genius of indigenous agriculture, the Three Sisters. Together these plants— corn, beans, and squash—feed the people, feed the land, and feed our imaginations, telling us how we might live.

For millennia, from Mexico to Montana, women have mounded up the earth and laid these three seeds in the ground, all in the same square foot of soil. When the colonists on the Massachusetts shore first saw indigenous gardens, they inferred that the savages did not know how to farm. To their minds, a garden meant straight rows of single species, not a three-dimensional sprawl of abundance. And yet they ate their fill and asked for more, and more again.

Once planted in the May-moist earth, the corn seed takes on water quickly, its seed coat thin and its starchy contents, the endosperm, drawing water to it. The moisture triggers enzymes under the skin that cleave the starch into sugars, fueling the growth of the corn embryo that is nestled in the point of the seed. Thus, corn is the first to emerge from the ground, a slender white spike that greens within hours of finding the light. A single leaf unfurls, and then another. Corn is all alone at first, while the others are getting ready.

The corn is the firstborn and grows straight and stiff; it is a stem with a lofty goal. Laddering upward, leaf by long-ribbed leaf, it must grow tall quickly. Making a strong stem is its highest priority at first. It needs to be there for its younger sister, the bean. Beans put out a pair of heart-shaped leaves on just a stub of a stem, then another pair, and another, all low to the ground. The bean focuses on leaf growth while the corn concentrates on height...

Meanwhile, the squash, the late bloomer of the family, is steadily extending herself over the ground, moving away from the corn and beans, setting up broad lobed leaves. The leaves and vines are distinctly bristly, giving second thoughts to nibbling caterpillars. As the leaves grow wider, they shelter the soil at the base of the corn and beans, keeping moisture in, and other plants out...

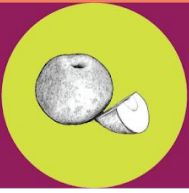
The sisters cooperate above ground with the placement of their leaves, carefully avoiding one another's space. The same is true below ground. They share the soil by the same techniques that they share the light, leaving enough for everyone. But there is one thing they all need that is always in short supply: nitrogen. Beans are members of the legume family, which has the remarkable ability to take nitrogen from the atmosphere and turn it into usable nutrients. They create nitrogen fertilizer that enters the soil and fuels the growth of the corn and the squash, too...

There were certainly bugs and weeds back when these valleys were Three Sisters gardens, and yet they flourished without insecticides. Polycultures—fields with many species of plants—are less susceptible to pest outbreaks than monocultures. The diversity of plant forms provides habitats for a wide array of insects. Some, like corn worms and bean beetles and squash borers, are there with the intent of feeding on the crop. But the diversity of plants also creates habitat for insects who eat the crop eaters. Predatory beetles and parasitic wasps coexist with the garden and keep the crop eaters under control. More than people are fed by this garden, but there is enough to go around.

The way of the Three Sisters reminds me of one of the basic teachings of our people. The most important thing each of us can know is our unique gift and how to use it in the world. Individuality is cherished and nurtured, because, in order for the whole to flourish, each of us has to be strong in who we are and carry our gifts with conviction, so they can be shared with others. Being among the sisters provides a visible example of what a community can become when its members understand and share their gifts. In reciprocity, we fill our spirits as well as our bellies.

See Kimmerer (2020) To read the full chapter.

Reference: Kimmerer, R. W. (2020). Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge, and the Teachings of Plants (Illustrated ed.). Milkweed Editions.

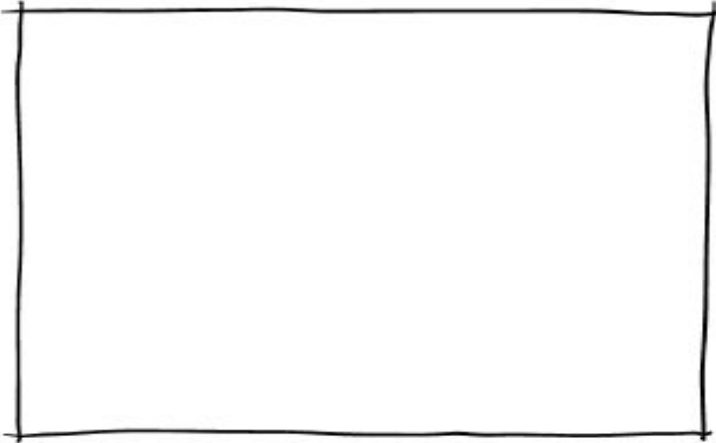


THREE SISTERS STORYBOARD

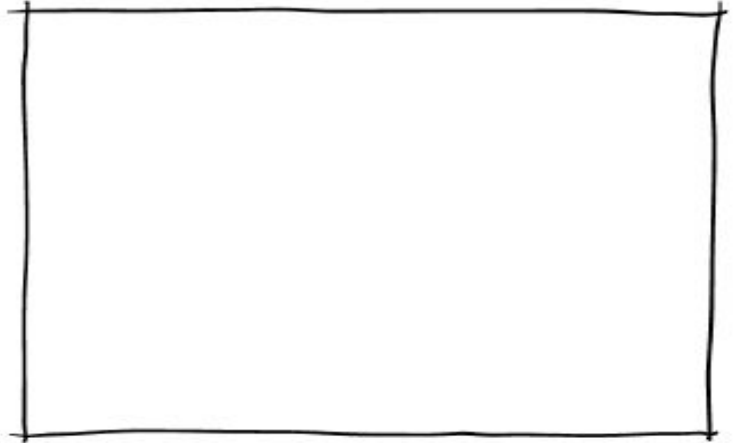
[STUDENT WORKSHEET]

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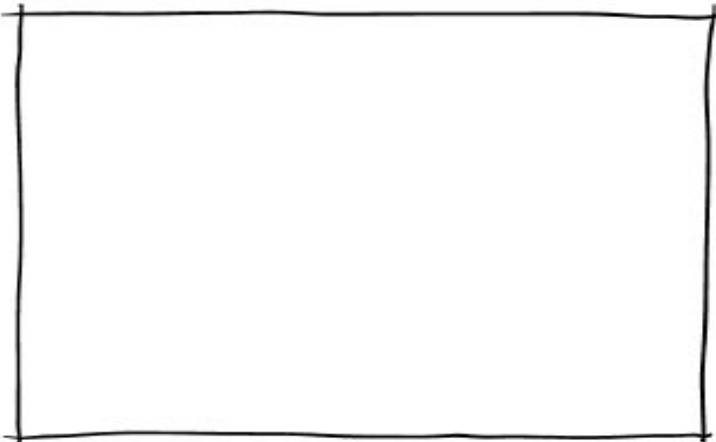
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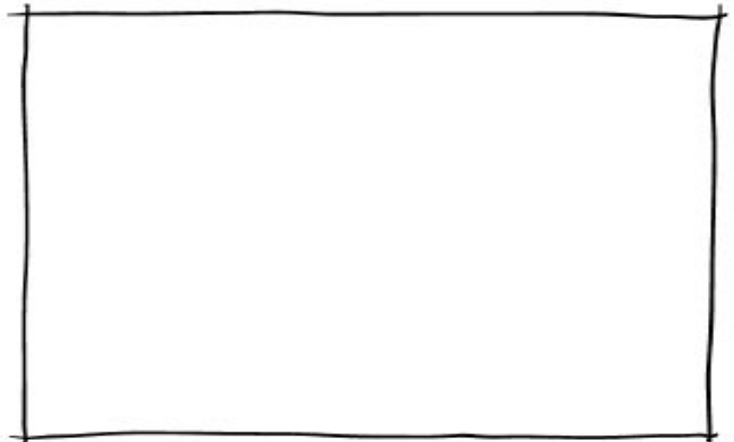
THE CORN SEED ABSORBS WATER AND GERMINATES (SPROUTS).



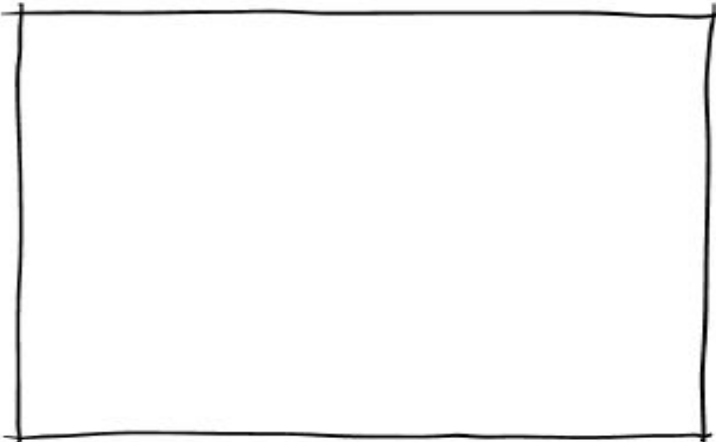
A CORN PLANT BEGINS TO GROW.



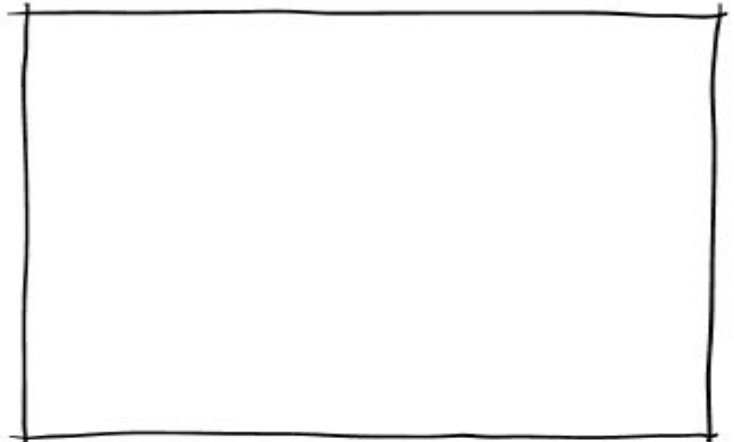
THE CORN KEEPS GROWING WHILE THE BEANS BEGIN TO GROW DOWN BELOW.



THE SQUASH BEGINS TO GROW WHILE THE CORN AND BEAN KEEP GROWING.



EACH OF THE SISTERS HAS A PART TO PLAY IN THIS RELATIONSHIP.



AND TOGETHER, THEY CREATE A RICH HABITAT THAT HAS NO NEED FOR SYNTHETIC PESTICIDES OR FERTILIZERS.