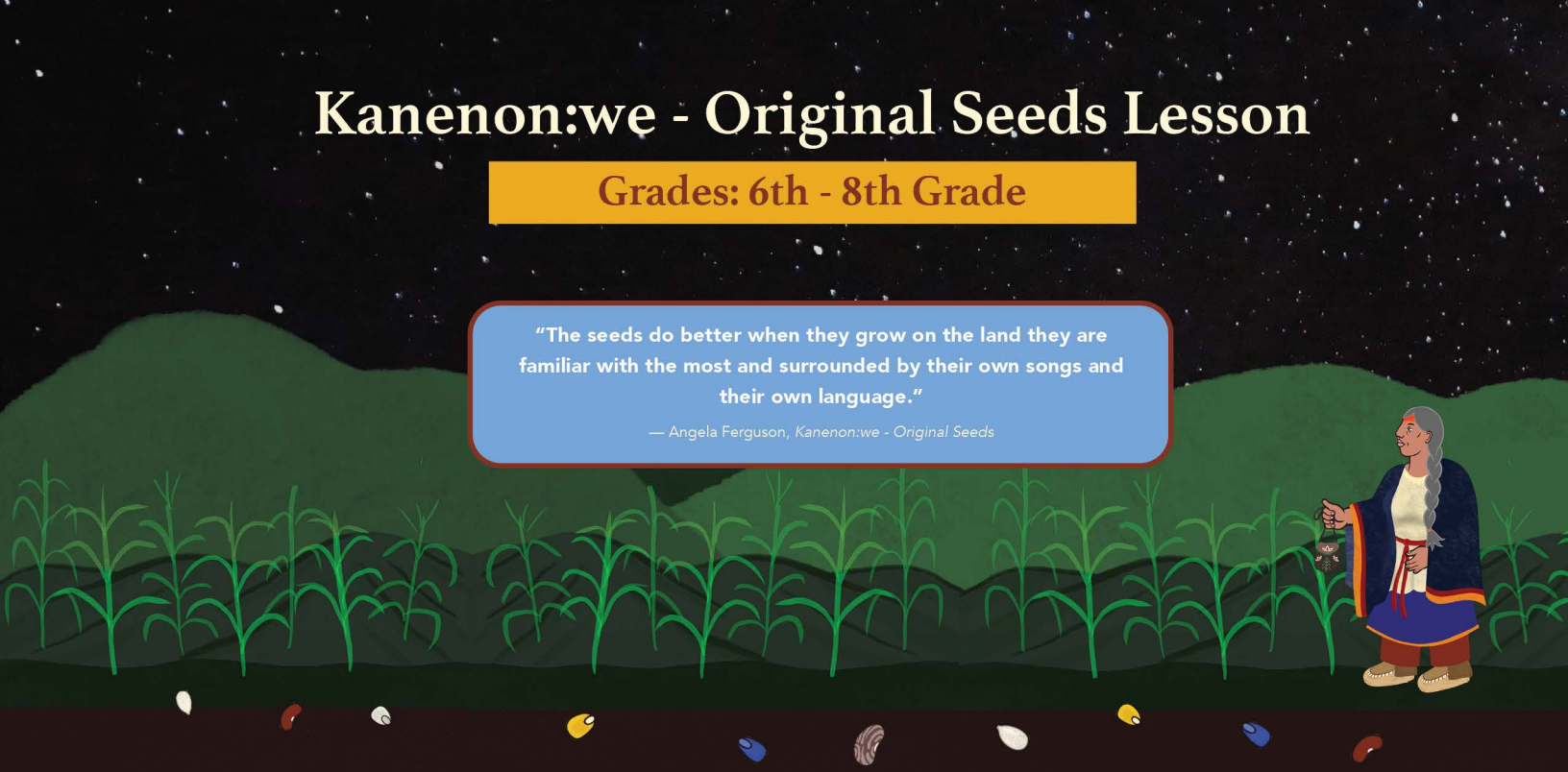
Kanenon:we - Original Seeds Lesson

Grades: 6th - 8th Grade

> **"The seeds do better when they grow on the land they are familiar with the most and surrounded by their own songs and their own language."**
>
> — Angela Ferguson, *Kanenon:we - Original Seeds*



Lesson Overview

Angela Ferguson shares in ***Kanenon:we - Original Seeds***, "One of the biggest struggles for all Indigenous farmers is how do we protect our open-pollinated foods. I always tell everyone, 'You should know every farmer within a six-mile radius that corn pollen flies, and you should know what they are doing.' The corn that they plant can contaminate our heirloom seeds here."

Rowen White goes on to explain that "Genetically modified seeds are ones of dependence. You can't save those seeds from generation to generation, so you are always reliant on those corporations and those companies to go back and buy those seeds again, and again, and again so it disrupts that sovereignty that we have. They also breed them so they are resistant to certain chemicals and fertilizers. The biggest issue is that a lot of the seeds are dependent on chemicals that poison the earth and poison our bodies."

As we learn in the documentary "Four agrochemical companies control 60 percent of seed sales globally." These include Bayer (including Monsanto), Corteva (formerly DuPont), ChemChina (including Syngenta), and BASF. During the last century seed diversity has declined by 75% and we could lose another 30% in the coming decades. Three Haudenosaunee* women are fighting to prevent this as they reclaim their ancient role as seed keepers, regenerating, protecting, and rematriating sacred and endangered heirloom seeds for future generations.

**The Haudenosaunee Confederacy (also referred to as Iroquois) was originally made up of five nations: the Mohawk, Oneida, Onondaga, Cayuga, and Seneca. The Tuscarora joined the confederacy in the early 1700s, making it six nations in total.*

We understand that one goal of the Indigenous food sovereignty work of seed saving is to help our communities [Indigenous] be more confident in how to use our Indigenous foods Elvira Sargent, the executive director of the Friends of the Akwesasne School, has said "If we can grow our own food, we have sovereignty."

In this lesson students will be introduced to the Indigenous food sovereignty movement and understand its importance through watching the short documentary ***Kanenon:we - Original Seeds***.

Esssential Questions

- What is Indigenous food sovereignty?
- What role do seed saving and rematriation play in Indigenous food sovereignty?
- How are heirloom seeds more resistant to climate change?
- What are the differences between genetically modified seeds, hybrid seeds, and heirloom seeds?
- What are the challenges to Indigenous food sovereignty today?

Activity

Length

2 - 3 days, with an extended lesson assignment

Standards

Refer to the Educator Handbook for a complete listing of Next Gen Science and Common Core Standards for ELA/Social Studies.

Materials

- Film: ***Kanenon:we - Original Seeds***
- Film Note-taking Sheet
- Match Game Cards (Youth Gardening Curriculum - Dream of Wild Health)

Day One

1) Introduce students to the short documentary, ***Kanenon:we - Original Seeds*** (pronounced Ga nah-seed, ooh we-original) by sharing this overview:

> *Before European contact, there was a rich and vibrant diversity of foods, with women primarily responsible for the caretaking of the seeds. Genocidal practices including, boarding schools, land theft, forced relocation, imposed religion and even food warfare contributed to a disconnection from our traditional foods and seeds.* ***Kanenon:we - Original Seeds*** *features three Haudenosaunee women who are stepping back into their sacred responsibility as seed keepers. These women honor the work of our ancestors by regenerating and rematriating sacred seeds for future generations.*
>
> *This documentary short tells the stories of three Haudenosaunee women as they reclaim their ancient role as seed keepers, regenerating, protecting, and rematriating sacred and endangered heirloom seeds for future generations. The film offers an opportunity to listen and learn from Indigenous women sharing their practices of seed stewardship and their work of reclaiming Indigenous food sovereignty and restoring ecosystems that sustain our food systems.*

2) Hand out the Film Note-taking Sheet and explain directions.

3) Watch ***Kanenon:we - Original Seeds*** *(runtime: 27 minutes)*

2) Debrief the story and discuss student answers from the handout.

Check for understanding of these terms: Refer to the Educator Handbook.

- Food sovereignty
- Genetically modified organisms (GMO)
- Heirloom Seeds
- Rematriation

Day Two

We learned from three seedkeepers in the documentary, Rowen, Becky, and Angela that each of us has a responsibility to care for not only the seeds but also the traditional knowledge that comes with using these seeds as food or in ceremony, just like our ancestors did.

1) Share this question with students: **How are seeds like people?**

2) Have students discuss in pairs/small groups and ask for groups to share. Here are some prompts to guide their conversation if helpful:

- What characteristics do seeds and humans share?
- Do seeds come from certain places? Is that similar to people?
- Does geography and climate change affect seeds and people in any similar ways?
- Do seeds have a life cycle?
- Can seeds be reproduced? Genetically altered? Can people?

3) Introduce Heirloom, Hybrid, GMO as new vocabulary words by sharing/projecting this infographic from Why You Should Grow Heirloom Seeds - EcoWatch. Have students discuss their definitions and check for understanding.

4) Discuss and clarify any questions. Return to the question How are seeds like people? Ask students if they have any new insights into this question.

5) Transition: Tell students that they are now going to learn about seeds from nations around North America by playing a Seed Match Game.

Why You Should Grow

HEIRLOOM SEEDS

What is Heirloom?

Heirloom seeds come from open-pollinated plants that pass on similar characteristics to the offspring plants. Depending on how they are grown, heirloom plants can be organic or non-organic.

vs. GMO & Hybrid

HYBRID

When different varieties of plants are cross-pollinated to create offspring plants that ideally obtain the desired characteristics from each parent plant.

Although hybrids do offer many benefits, they don't breed true, which means the offspring plant may not be identical to the parent plant.

GMO

When the seeds are genetically modified using unnautral methods like gene-splicing to ensure resulting plants are displaying desired traits.

Gardeners are unable to save GMO seeds after harvest and must buy new seeds every year from companies like Monsanto.

Benefits of Heirloom

Along with the benefit of being able to save your own seeds, heirloom plants also provide the following benefits.

Better Taste & Flavor

More Nutritious

Less Expensive

Where to find them

Preserve the genetic diversity of our plant species today by growing heirloom seeds. Here are a few places where you may be able to get them locally.

Seed Exchanges

Local Farms

Botanical Gardens

Credits

Check out OrganicLesson.com for more gardening tips and tricks.

http://blog.seedsavers.org/blog/open-pollinated-heirloom-and-hybrid-seeds
http://foodsecurity.uchicago.edu/research/preserving-seed-diversity/
http://www.motherearthnews.com/organic-gardening/heirloom-vegetable-advantages.aspx
http://gardening.about.com/od/vegetable1/f/Heirlooms.htm

Day Two cont'd

6) Give the students time to play the game. Some may wish to play more than once.

- What can we deduce about the seeds based on where they come from?
- How much water do you think they need?
- What can you determine about their growing season?
- How might the seed have traveled this far?

7) Ask students to share something they learned from playing the match game.

- What was an interesting fact they learned?
- Are any of these seeds from their region?
- How can we find out if any of these seeds have ever been grown in their region?

Teaching Tip

Prep these cards ahead of time and print them on heavy paper or glued to cardstock before handing them out to students.

Instructions:

- There are twelve cards with photos and twelve matching cards that describe the plants and how each plant is used.
- Students will pair up and play the game together.

Day Three (or Extended Learning)

1) Have students get into pairs and pick who will be a Hopi Black Dyed Sunflower, and who will be Glass Gem Corn from yesterday's match game.

2) Once chosen, direct students to this website: Seed Diaries Project, and locate their seed in the listing. Have students read through the story of their. For example, if I chose the Hopi Black Dyed Sunflower, I would locate the listing in the Seed Diaries Project here.

3) Write this sentence on the board: **Every seed has a story, a place, and a history.** Based on their seeds diary, what they learned from watching ***Kanenon:we - Original Seeds***, additional research, have students write a short story (no more than two pages) about their seed based on all this background information (and their imagination).

4) Start the assignment in class and assign students to finish it at home. Tomorrow they will be doing a peer-review of their story and continue to revise the story. Depending on grade and time allotted for the assignment, set aside a class in the coming week to have a story share where each student will share their seed story.

Dig In: Three Sisters

Use this note-taking sheet to write down new information and insights to answer these essential questions for the lesson:

- What is Indigenous food sovereignty?
- Why are seed saving and seek banks important?
- What are genetically modified seeds?
- What are the challenges to Indigenous food sovereignty today?

What is Indigenous food sovereignty?	**What are examples of food sovereignty that you learn in the film?**
What are seed banks?	**Give examples from the documentary.**
Who were the seedkeepers?	**What did you learn about why seed keeping is important?**
What is rematriation?	**What are examples from the documentary?**
What are genetically modified seeds (GMO)?	**What are the challenges of GMOs?**

Striking deep purple dry beans. **Blue Shackamaxon Pole Beans** are named for a Lenape meeting and fishing place along the Delaware river, which is now known as the Kensington, Fishtown, and Port Richmond neighborhoods of Philadelphia. It is said to be a pre-1800 Lenape pole bean that was preserved by Quaker farmers in the area - and is said to have been cooked in black mush - a polenta made with blue or black cornmeal.

Also known as Lenape Blue Bread Beans, dry **Purple Kingsessing Beans** have a delicious meaty flavor and are used for stews and baking into bread. Six foot vines yield an abundance of purple pods filled with dark purple seeds. . Kingsessing is derived from the Lenape word "Chingsessing," meaning “a place where there is a meadow.”

These seeds were originally grown by the Arikara tribe. **Arikara Sunflowers** are very sturdy and plants grow 10 to 12 feet tall. The seeds were traditionally parched in a clay pot and then pounded to make sunflower meal. The meal was then formed into sunflower seed balls that warriors would carry with them, wrapped in buffalo heart skin, and eat as an energy food when they felt weak or tired.

The growing season in North Dakota is short, from June to September. The Mandan style is like a checkerboard, with a hill of two corn plants 4 feet apart, beans between them, and squash edging one familys plot from the other. **Mandan Red Clay Corn** plants reach only 4 feet high and bears 6-8-inch ears; it can be ground into flour and cornmeal, and the kernels can be "parched", or roasted in a dry skillet.

Gete-okosomin is a large, orange-skinned squash originally grown in the area now known as Wisconsin. It was believed to be extinct - the seeds were found in 2008 during an archaeological dig on the Menominee reservation near Green Bay, in an old clay pot. These containers were often used for seed storage. The pot was carbon-dated to about 850 years old and when the seeds inside were planted, they still grew!

Glass Gem Corn is flint or popcorn that comes in an endless range of colors. The translucent kernels really do shine like glass — on the cob they resemble strands of glass beads! It makes firm little morsels when popped; it can also be parched, ground into meal, and more. The seeds were bred from a number of Native varieties by Carl "White Eagle" Barnes, the famous Cherokee corn collector who preserved and shared so many Native corn varieties.

The **Seminole Pumpkin** is a squash with a rich sweet flavor. This variety has varying shapes; each squash averages about 3-10 pounds and has tan skin. The sweet flesh is deep orange, dry and of good quality. The productive vines are resistant to insects and disease. An original squash variety of the Creek, Calusa and Miccosukee Native American tribes, it can now only be found wild in remote parts of the Everglades.

A brilliant obsidian-black seeded sunflower, the **Hopi Black Dye Sunflower** is used for making natural dye. It has been used for dying cotton, wool and other fibers used to make the iconic Hopi basketry. These medium to large sunflower heads will yield stellar shades from dove grey to deep purple depending on the technique and other materials used. A multipurpose variety, the food and fodder merits of this beautiful variety should not be overlooked.

The Zapotec people are native to Mexico, near Oaxaca, and have a rich history in the country as a strong culture and nation. They were the original cultivators of **Oaxacan Green Dent Corn**, which they used to make a corn flour for green tortillas. It was also used for animal feed. This heirloom corn has continued to be a popular food crop both for its unique green kernels and deep corn flavor.

The **Iroquois Cornbread Bean** is a mottled, deep reddish bean with light pods. They were originally received from an elder Tuscarora woman who said that the beans were special and to grow them and to not let them ever go unplanted. They are specifically used by Tuscaroras for one of their staple dishes, bean bread, which is made by boiling a mix of corn flour and beans.

Hidatsa Shield Figure Beans are described in Buffalo Bird Woman's Garden (1917). This large, white bean has a brown saddle. It can be harvested throughout the growing season - green beans early in the season, followed by shellies (shelled out while the bean is formed but still soft), and, at the end of the season, as dry beans for long-term storage! It is grown in the Three Sisters Garden, allowing it to vine on the corn.

Hopi Red Dye Amaranth is a showy display of dark purple-green leaves, solid purple stems, and long, draping deep purple-red inflorescences. The Hopi people make a natural scarlet food dye from the flower bracts to color piki bread.

Kanenon:we - Original Seeds

kanenonweoriginalseeds.com

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