HAYES FARM
TRAVELLING GARDEN TOOL KIT

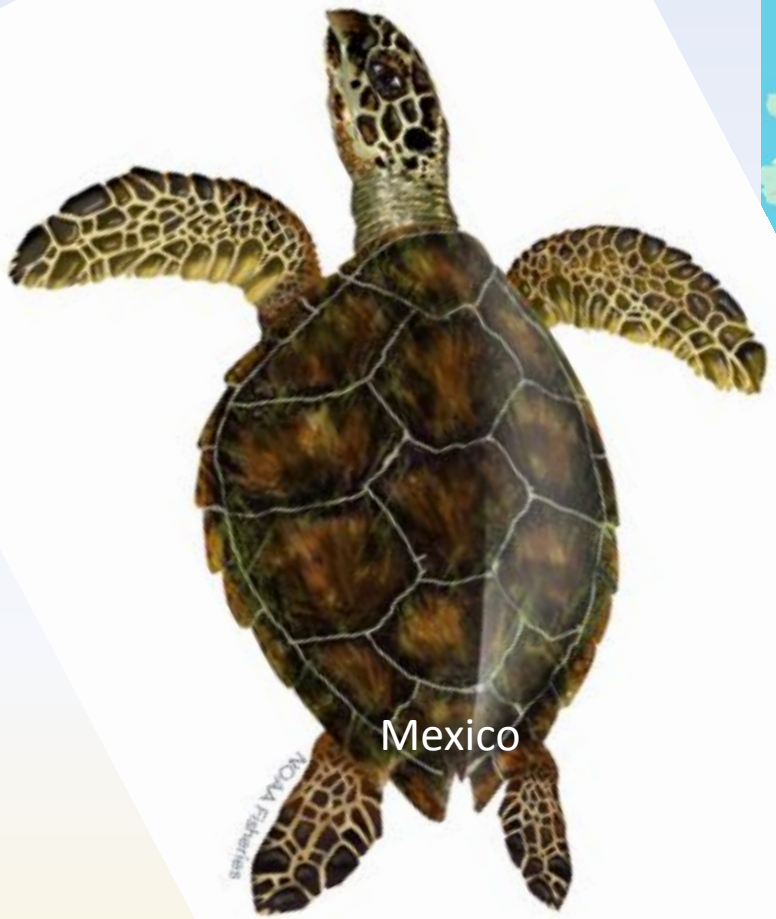
THE THREES SISTERS AND INDIGENOUS GARDENING

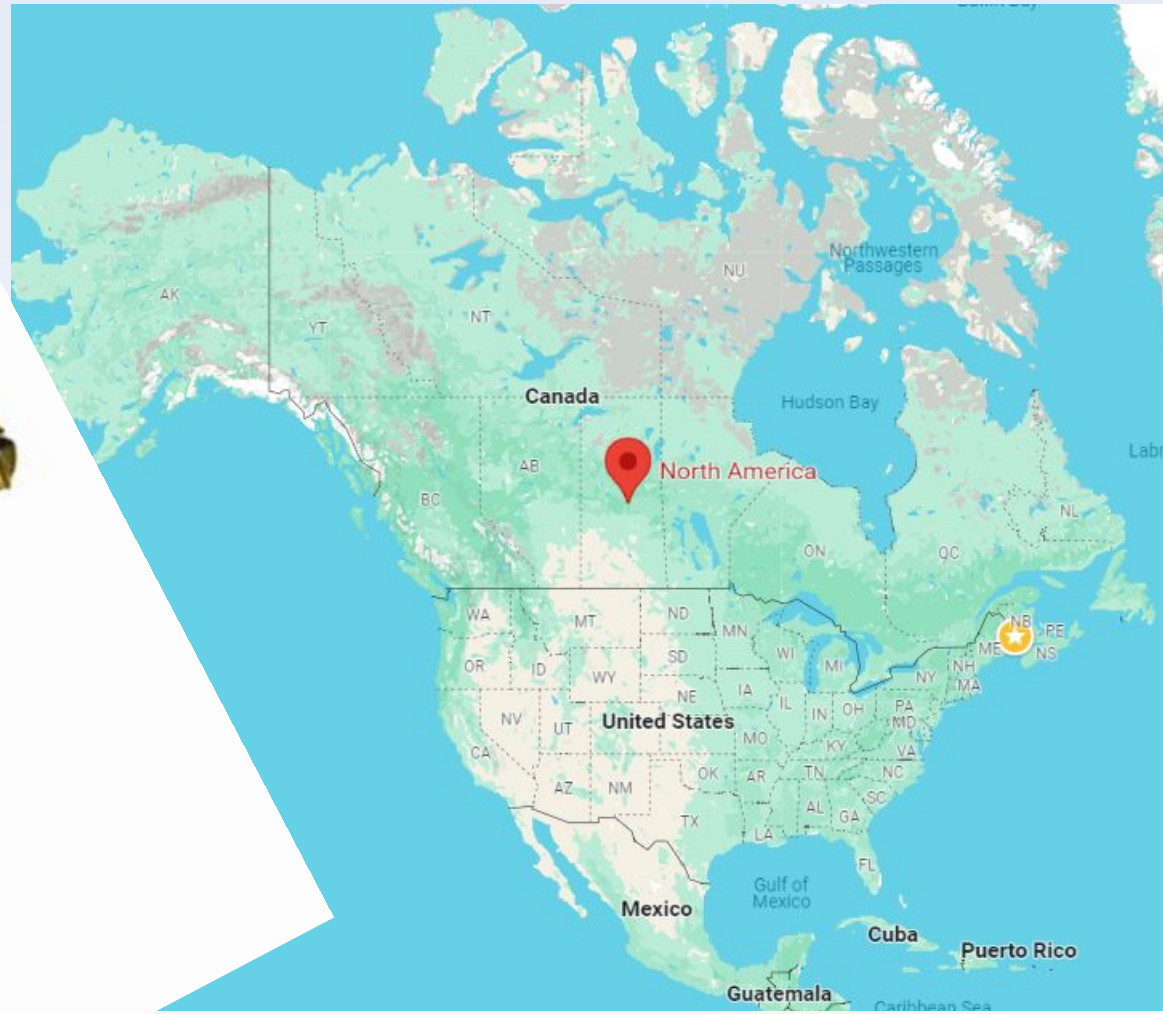
GRADES 3 - 5

Today we will learn about

The story of the Three Sisters
What companion planting is
What plants need to grow
How beans can take food from the air!
What pollinators are
How vegetables change over time
How to plant a Three Sisters Garden

Arctic Islands





This story comes to us from the Indigenous (First) People

Indigenous People lived in the place that some of us call North America, but they called it Turtle Island.

Photos: National Oceanic and Atmospheric Administration and Google Maps

The Story of the Three Sisters

There was a time, a long time ago, when no rain came. The plants didn’t grow and people were hungry.

The people asked The Creator to “Please make the rain come!”

The Creator said, “I will help you, but you must prove that you are serious.”

Photo: PerChance AI image generator

Three Sisters came forward and said that together they would help everyone.

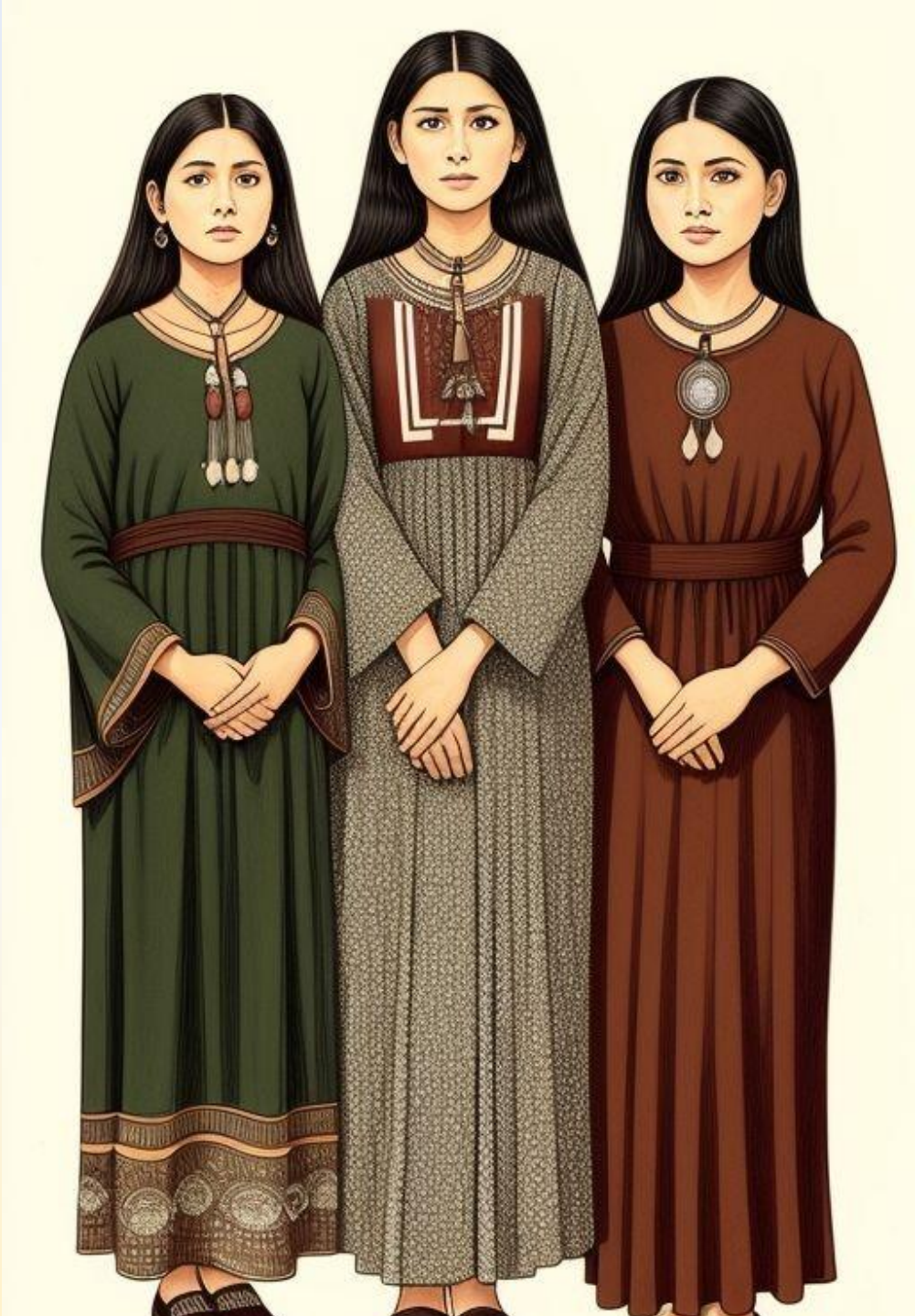


Photo: PerChance AI image generator

The oldest sister was tall and strong, she supported her younger sisters. She became corn.

The middle sister was very generous, she made food for her other sisters by taking nutrients from the air and putting them into the soil. She became beans.

The youngest sister was very protective. She gave the ground under her older sister shade to hold water. She became squash.

The Creator was so happy to see the sisters come to save the people that rain came down and everyone had food again.

Today we plant the Three Sisters together because they always want to work together to help the people. They remind us that we can help people too.

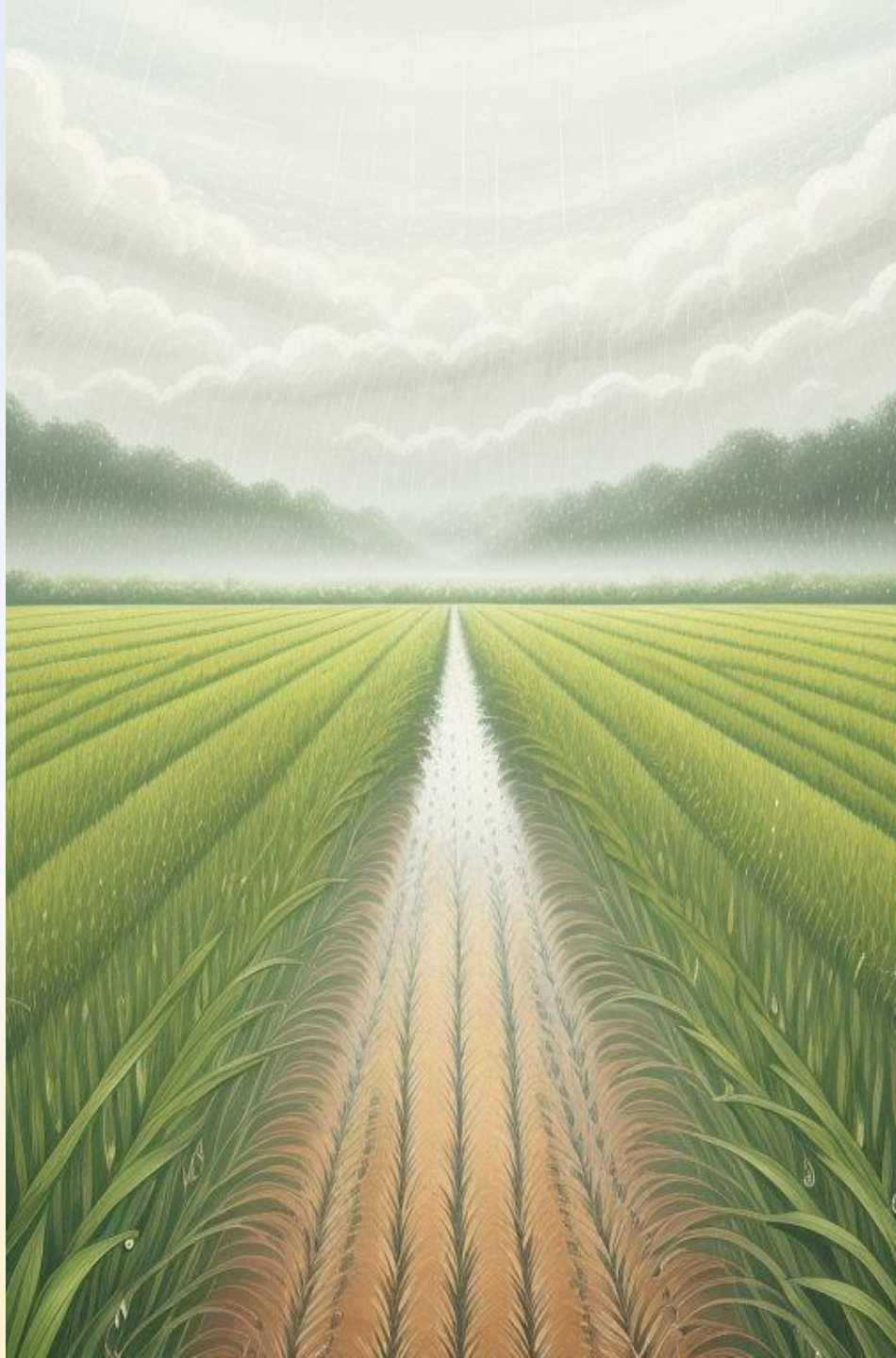


Photo: PerChance AI image generator

How *exactly* do the three sisters work together?

Photo: theallotmentgarden.co.uk

Corn is quite strong, especially traditional types of corn. Corn likes heat and sun, but it can dry out quite fast and get weeds underneath. The corn builds the “ladder” for the beans. Corn gets pollinated by the wind and needs to be up high and free in the air.

Beans take a nutrient/ food called Nitrogen from the air. They take this nitrogen into little nodules/ balls on their roots. This Nitrogen makes food for the beans, the corn and the squash. Beans need to climb. If they grow on the ground they often get too wet and mouldy, so they climb corn like a ladder. They love the air!

Squash also likes sun and heat. Since the corn grows up straight it doesn’t make too much shade for squash. The squash captures sunlight, and shades the ground. When the ground is shaded it stays wet longer and there are less weeds.

Altogether, the Sisters make what we call *companion planting*.

Companion planting

Another word for *companion* is friend, and friends work together.

Each companion provides a function that helps it's friends.

Here is another example:

If you plant lettuce underneath tomato plants

1. the tomato will lend shade which helps the lettuce stay cooler. Lettuce doesn't grow well in the hot sun or on dry ground.
2. The lettuce will keep moisture in the soil and steal sunlight away from weeds.

Nitrogen nodules and beans

- Bacteria in the soil are needed to build the nodules.
- These nodules only grow in soil that is very healthy (for good bacteria), which is why we need to give our soil lots of compost and keep chemicals away from it.
- When soil is healthy, if you cut a Nitrogen nodule open it will be pink/ red inside!
- All legumes can grow these, including peas and chickpeas.

Wow! Nature is so clever!

Red color of open nodule shows healthy rhizobia

Old corn and new corn

- Many seeds are changed over time by people. We select types that we like because, for instance they grow sweeter or bigger vegetables.
- The downside is that these new seeds sometimes need more care, more watering, more weeding to produce more.
- Have a look at traditional indigenous corn (dent corn/ flint corn) and newer sweet corn.
- Traditional seeds are a very important part of indigenous cultures.
- Traditional corn, beans and squash are better in a Three Sisters Garden.

Photo: Hayes Farm 2021

Photo: University of Nebraska Lincoln

Does anyone know what plants need to be healthy?

You guessed right! Plants need:

1. Water
2. Warmth
3. Sunlight – to make food (photosynthesis)
4. Soil or something to hold roots in place
5. Pollinators (insects, wind) – in many cases, but not all

Does anyone know what pollination is?

Photo: Ingo Arndt, A wild bee in Germany

Pollination

- Pollinators are generally insects that move from plant to plant looking for food (nectar). As they move around they get covered in pollen which is a powder that is need for plants to produce “baby” plants.
- Pollen can also travel on wind (like corn), water or bird feathers.
- Bees aren’t the only pollinators; butterflies, wasps and hornets, bats, flies, moths, etc. all help out.
- Neat fact – fossilized pollen is often used to learn which kinds of plants were growing long ago and what the weather and environment would have been like.

The Other Sisters and Brothers

The family can sometimes grow even bigger! There are some other plants that serve similar structural functions that can be companions.

A tall plant that supports vines like corn does is the Sunflower. The seeds can be eaten or provide a healthy oil when pressed.

Photo: Amy Floyd

Photo: Amy Floyd

Jerusalem Artichokes

Also called J-chokes or sunchokes have a tuber under the ground (like a potato) that can be eaten.

They are in the sunflower family.

Unlike the sunflowers that we are used to, they grow naturally in New Brunswick.

These sunchokes are growing on the Wolastoq River near Grand Falls.

Photo: The Spruce (only_Fabrizio)

Ground cherries

Ground cover plants shade the soil and keep it moist.
Ground cherries are like a tasty yellow cherry wrapped up in a little package! These fruits are annual, so they need to be planted each year. The seeds are tiny and sometimes they will self-seed. They are a sweet treat.

Photo: Incredible Seed Company

Nutrition

The Three Sisters provide everything that a community needs - complete protein, carbohydrates for energy, vitamins and minerals

- Beans are abundant in **proteins and vitamins**
- Corn provides **carbohydrates** (starches) and the amino acids. Long chains of amino acids are the building blocks for proteins.
- Squash provides **vitamins** and **minerals**
- Omega 3/6 oils come from sunflower oil and seeds

What can be grown together can be eaten together!

You will get to take home a recipe for **Three Sisters Soup** that you can make with your family

Activity

Let’s make some seed pouches!

1. We will fold wax paper and staple it together to make a bag to hold seeds
2. Each bags gets:
   - 4 corn seeds
   - 6 bean seeds
   - 2 squash seeds

3. We will put a sticker to label seed kit and hold bag shut
4. We will get a sheet about how to grow the Three Sisters garden and how to make Three Sisters Soup to take home to our family.

Vocabulary

Companion planting – When plants are planted together because they serve a function to help other plants they are near.

Pollinators – Pollinators are generally insects that move from plant to plant looking for food. As they move around they get covered in pollen which is a powder that is need for plants to produce “baby” plants. Pollen can also travel on wind, water or bird feathers.

Three Sisters Garden – Corn, beans and squash companion planted together. Based on indigenous legends from throughout Turtle Island and the world.

Additional Resources:
How to get your space ready for a Three Sisters Garden

It is okay if you only have a small space to start with. You can use seeds or seedlings that you start in the classroom to speed the process up.

1. In spring, prepare the soil by weeding, and by adding fish scraps (traditional) or compost to increase fertility.

2. Make a mound of soil about 30 cm high and 125 cm in diameter. Additional mounds can be made at about 1.5 meters from the center of each mound.

3. Plant 3-5 corn seeds in a circle in the center (or sunflowers). When corn is about 10 cm tall, plant 4-6 pole bean seeds around the corn plants.

- Plant 2-3 squash seeds or plants around the edge of the mound, evenly spaced. Train squash to vine away from the corn and beans to fill in all spaces. Squash will need a good amount of heat and water to take off