MN Harvest of the Month: Squash & Colonization of Food

Grade Levels

9 - 12

Purpose

Students will learn about squash, including where it comes from (including the crop's origins and the systems and people that produce it today), its production and consumption, its cultural and/or spiritual significance, and its role in human, planetary, and community health. They will also use it as a tool to explore colonization and the effect it has had and continues to have on food production and cultures.

Estimated Time

2 5 minute class periods

Materials Needed

Interest Approach:

In this lesson, students will learn about squash and explore the different values food can hold in individuals' lives. In addition, the history perspective of squash and its role in different cultures will be discussed as well as the connection that food can provide for people. To understand these concepts, students will use Leah Penniman's Soup Joumou story and prepare the meal described in the video.

- Paper and writing/drawing utensils
- Cutting board and knife
- Summer squash or zucchini
- Winter squash or pumpkin

Activity 1 part 1:

- Leah Penniman's Soup Joumou video

Activity 1 part 2:

- Oven (if available)
- Stove or hot plate or crock pot

- Knife
- Cutting board
- 2 half sheet pans or similar, for roasting
- Blender, food processor, or immersion blender
- Large stock pot
- 1 lb Kabocha squash or Caribbean pumpkin, peeled and chopped
- Olive oil or other cooking oil
- 8 cups water
- 4 cloves garlic, crushed
- 1 celery stalk, chopped
- 1 large onion, chopped
- 2 potatoes, chopped
- ½ lb cabbage, chopped
- 1 turnip, diced
- 2 carrots, chopped
- 2 leeks or scallions, chopped
- 1 cup sweet corn, fresh or canned
- 1 tbsp chopped parsley
- 1 whole scotch bonnet pepper or other spicy pepper
- 1 tbsp lime juice
- 2 whole cloves
- 1 can (12 oz) whole coconut milk
- Salt, pepper, and thyme to taste
- Dash of sweetener (optional)
- ¼ lb pasta (optional)

Activity 2:

Optional Activity:

Take a field trip to the MN Landscape Arboretum to see their fall squash display.

Essential Files (maps, charts, pictures, or documents)

Video: Leah Penniman's Soup Joumou

Video: The Soil Story from Kiss The Ground

Vocabulary Words

Food systems: include all processes and infrastructure involved in feeding a population: growing, harvesting, processing, packaging, transporting, marketing, consumption, distribution and disposal of food and food-related items.

Whole foods: foods that have not been processed, refined or had ingredients added to them

Indigenous: originating or occurring naturally in a particular place

Cucurbita: genus of herbaceous vines in the gourd family which yields varieties of winter squash and pumpkin

Colonization

Regeneration: the action or process of regenerating or being regenerated, in particular the formation of new animal or plant tissue

Regenerative agriculture a conservation and rehabilitation approach to food and farming systems. It focuses on topsoil regeneration, increasing biodiversity, improving the water cycle, enhancing ecosystem services, supporting biosequestration, increasing resilience to climate change, and strengthening the health and vitality of farm soil.

Did You Know? (Ag Facts)

- One acre of squash could produce about 10,800 – 11,000 squash! That amount of produce could last one person 30 years if they ate one a day
- There are two different types of squash depending on when they are harvested, either Winter or Summer. Winter squash Winter varieties grown in the U.S. include types of pumpkins, butternut, acorn, spaghetti, buttercup and Hubbard while summer squash includes zucchini, yellow and scallop
- The world's heaviest squash weighed 960.70 kg (2,118 lb) and was grown by Joe Jutras. This remarkable harvest was also authenticated by the Great Pumpkin Commonwealth (GPC).
- Source: Ag Hires

Background Agricultural Connections

Squash are cucurbits, meaning they are part of the Cucurbitaceae plant family. There are two main types of squash: summer squash, which are harvested when they are still immature, and winter squash, which are harvested at maturity.

Summer squash have thinner skin and can be eaten raw or cooked. They grow with a bush-type habit, and the male blossoms can be harvested and eaten and are prized as a culinary delicacy. The female flowers develop into the fruit.

Winter squash have thicker skin, allowing them to be stored over the winter, and they are typically cooked before eating. They typically grow as vining plants and require a lot of space. Like summer squash, winter squash grows over the warm summer months, but it isn't harvested until the fall, before the first frost. After harvesting, winter squash is usually "cured" (basically, held in a warm place with good air circulation for 10-14 days to help excess moisture evaporate, sugars concentrate, and the skin thicken) to help it taste and store better.

Squash is originally from Central American and Mexico, so European colonists spread it to the Old World when they colonized the New World. Learn more about the effects of colonization on global food consumption: Columbian Exchange or Columbian Extraction?

Interest Approach - Engagement

Tell the students they will be exploring the ideas of how food can be used as a tool for control over communities power or freedom. Explain that you will be discussing and learning about the concept of and about the dynamics of power and privilege within and among communities that are colonized. Also that something as simple as a food can be a reflection or tool for taking back

a sense of control, and that cooking and eating food can be very symbolic of these conditions and changes.

1. Pass out paper and drawing utensils to the class and explain that we will be exploring the squash today. Ask the students if they have ever had squash before? Do they know what it tastes like? What kind of plant is it? Does it grow above or below the ground? What part(s) of the plant do we eat? Explain the answers to these questions.
2. Have students draw what they think a squash looks like. Help students explore the answers to the previous questions about squash as a crop.
3. Show students the summer squash and winter squash and ask them to point out some differences. Then, cut the squashes in half and ask them to compare them again. What's different about the skin, the stem, the seeds, and the texture? Why is one called summer squash and the other winter squash?

Procedures

Activity 1, Part 1:

1. Begin by having students view the PBS video "Leah Penniman's Soup Joumou." Ask students what their initial takeaways were from the content.
2. Prompt students with the following questions:
    a. What is important about the recipe?
    b. Why were Haitans NOT allowed to taste it?
    c. What allowed them to finally taste it?
3. Next, watch "The Soil Story" from Kiss the Ground to learn more about carbon sequestration. Discuss the questions: what purpose does carbon serve? (the building blocks of life) and, why has the carbon cycle become unbalanced? (burning fossil fuels, clearing rainforests and other land)? Penniman compares *restoring carbon back into the soil to restoring diversity back into the soul*. Ask the students to discuss what is meant by this statement. Have them explore the ideas and how this diversity can be accomplished.
4. Penniman also talks about how pruning her tomatoes allows the crop to grow, and uses that as a metaphor for her own life. Ask the students to consider what she means by this comparison? Ask them what they can prune from their lives. Prompt the students to consider metaphors that exist in growing food? (examples: watering and feeding the soil, diversity in planting, nurturing and caring for food etc….)
5. Penniman discusses the spiritual energy in the food. Ask students what she might be talking about. (Note, this is NOT a religious discussion-as a facilitator, it will be important to allow students to reference or inquire about this, without expecting or giving a specific definition) . Ask them to consider if any foods that they eat with their family or community that might have any type of special meaning or significance? Invite them to

share what that looks like for them. This can lead to a discussion of the diversity of spiritual/religious/cultural practices in our communities-just like the diversity of the plant world.

Activity 1, Part 2:

- 1 lb Kabocha squash, or pumpkin (about 1 large), baked, and scooped out
- Olive oil or other cooking oi
- 8 cups water
- 4 cloves garlic, crushed
- 1 celery stalk, chopped
- 1 large onion, chopped
- 2 potatoes, chopped
- ½ lb cabbage, chopped
- 1 turnip, diced
- 2 carrots, chopped
- 2 leeks or scallions, chopped
- 1 cup sweet corn, fresh, frozen or canned
- 1 tbsp chopped parsley
- 1 tbsp lime juice
- 2 whole cloves
- 1 can (12 oz) whole coconut milk
- Salt, pepper, and thyme to taste
- Dash of sweetener (optional)
- ¼ lb pasta (optional)

Directions

1. Preheat the oven to 375 F. Coat the squash/pumpkin in a bit of oil, scoop out seeds, place in a deep baking dish face down with ½ inch water, and roast in a 375 F oven until soft to the touch (about 40 to 45 minutes). Simultaneously, in a separate pan, roast the remaining vegetables (except corn, parsley) in oil and a bit of salt until golden and tender. [note for teacher: if an oven isn't available, you can bring the squash pre-roasted and saute the other veggies.]
2. Blend the cooked squash with coconut milk in a blender or food processor.
3. Mix the squash-coconut mixture with the water and bring to a low boil.
4. Add the roasted vegetables, as well as the corn, and parsley
5. Add the spices, optional sweetener, and lime juice to suit your taste.
6. Simmer for 15-20 minutes to blend the flavors.

7. If you are using pasta, add it when there are 10-12 remaining minutes of cook time. Enjoy!
8. (This should make approximately 30 3 oz. portions)

Serve in small tasting cups with spoons

Activity 2:

What is Healthy Eating??

Part one: Introduce the topic by dividing students into groups of 3 or 4. Ask them to discuss and write down the answers to the following questions:

1. What do you think 'healthy' means.
2. What do you think 'healthy food/healthy eating' is.
3. Come back together and have students share what they've written down.
4. Write these words/defintions on the board for everyone to see.
5. Discuss/inquire as to what students understand and where they get their information.

Part two: What are whole foods? What should be on my plate?

Show students the Harvard Healthy Eating Plate and the USDA my plate (found in the supplemental documents)

Have them closely examine both plates. Each group should write down similarities and differences that they notice, and any ideas or interpretations they have about that information For example, they will probably notice that there is a glass of milk on the USDA plate, but not on the Harvard Plate. Be prepared to discuss the complexities of these disparities. This document: USDA My Plate versus Harvard Healthy Eating Plate is a useful tool in addressing questions that might come up.

Option 1: Have each student group choose a particular category to research, and answer the questions that arise in their discussion

Option 2: Make a list of all the questions that come up, and then explore the comparison document (USDA My Plate versus Harvard Healthy Eating Plate) as a way to begin to answer the questions as a group.

Ultimately, the most important message that students should get, and should be reinforced throughout all HOTM lessons, is the importance of WHOLE FOODS and plant forward diets in overall human and environmental health.

Part 3 (optional addition): For deeper investigation into the cultural and health related benefits of whole foods, have students go to this site and choose 2 or 3 'resources' to examine more

closely. After reading through these resources, have students choose a particular topic (whole grains, vegetables, fat, etc) and create their own resource. This should be targeted toward their peers, and should provide 1) helpful health facts/information, and 2)culinary facts/information. They can use supplemental materials found in our collection, or other sources.

Have students

Find more resources about the intersection of traditional diets and whole foods here

Optional Activity:

Get in touch with the MN Landscape Arboretum about a virtual or in-person visit to learn about squash and their squash collection in the fall. They also have a three sisters garden and other related resources.

Enriching Activities

1. Explain the tradition of the Three Sisters:
    a. According to Iroquois legend, Corn, Bean, and Squash are three inseparable sisters who only grow and thrive together. These three sister spirits protect and inhabit the croplands. Sister Corn stands tall to guard and protect the crops. Sister Bean feeds the roots of Sister corn. Sister Squash, the oldest of the three sisters, stays close to earth and encircles the sisters in a protective fashion and uses her large leaves to protect and shade the soil.
    b. When planting and harvesting these crops, the Iroquois would always plant corn, bean and squash together. They were among the first important crops for early settlers. By the re-telling of the story and this way of planting as well as the legacy was passed down from generation to generation.
2. Ask the students if they can think of why the Iroquois would continue on with this tradition of planting the crops together? Can they think of any reason this might be beneficial to the crops?
    a. Explain the answer to the question above: Corn provides a natural pole for bean vines to climb. Beans fix nitrogen on their roots, improving the overall fertility of the plot by providing nitrogen to the following year's corn. Bean vines also help stabilize the corn plants, making them less vulnerable to blowing over in the wind. Shallow-rooted squash vines become a living mulch, shading emerging weeds and preventing soil moisture from evaporating, thereby improving the overall crops chances of survival in dry years. Spiny squash plants also help discourage predators from approaching the corn and beans.

3. Next, ask the students if they can think of any nutritional reasons that these crops would be grown together. When considering the nutrients of each crop, do they each offer something unique?
    a. Corn provides carbohydrates, the dried beans are rich in protein, balancing the lack of necessary amino acids found in corn. Finally, squash yields both vitamins from the fruit and healthful, delicious oil from the seeds.
4. Ask the students to consider how plants that work together physically (like squash, beans, and corn) are also nutritious when eaten together. Ask if they can think of other examples of nature being 'smart' that way.

Food Systems Jeopardy (a fun and engaging opportunity to practice and learn concepts pertaining to the food system)

Sources

https://extension.illinois.edu/blogs/good-growing/2020-05-07-many-different-types-cucurbits

https://harvesttotable.com/store-winter-squash/

https://weseedchange.org/where-does-squash-come-from/

Suggested Companion Resources

- "Taste the Nation" is a series hosted by Padma Lakshmi (An Indian American Chef and TV host) which looks around the US at traditional and cultural foods from all over the world and how they represent different immigrant and cultural communities. It is truly an excellent and accessible series.
- Kiss the Ground film: "Kiss the Ground reveals that, by regenerating the world's soils, we can completely and rapidly stabilize Earth's climate, restore lost ecosystems and create abundant food supplies. Using compelling graphics and visuals, along with striking NASA and NOAA footage, the film artfully illustrates how, by drawing down atmospheric carbon, soil is the missing piece of the climate puzzle."

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Organization Affiliation

Transforming the Table (transformingthetable.com)

State Standards for Minnesota

Science:

- 9.3.2.3.1 Trace the cyclical movement of carbon, oxygen and nitrogen through the lithosphere, hydrosphere, atmosphere and biosphere. For example: The burning of fossil fuels contributes to the greenhouse effect.
- 9.1.3.2.1 Provide examples of how diverse cultures, including natives from all of the Americas, have contributed scientific and mathematical ideas and technological inventions.

Social Studies:

- 1.9.3: Evaluate various sources of information and forms of political persuasion for validity, accuracy, ideology, emotional appeals, bias and prejudice.
- 14.9.3: Describe patterns of production and consumption of agricultural commodities that are traded among nations.
- 15.9.9: Analyze the impact of colonialism on the emergence of independent states and the tensions that arise when the boundaries of political units do not correspond to the nationalities or ethnicities of the people living within them.

Health/Nutrition:

- 9.2.1 The student will analyze how cultural diversity enriches and challenges health behaviors.
- 9.2.3 The student will analyze how information from the community influences health.