

# Considerable Corn

**Summary:** Students explore the parts of a corn plant and their functions, the seven main types of corn, the many uses of corn, and some interesting information about popcorn.

## Objectives:

The students will:

- Identify the parts of a corn plant and their functions.
- Discuss the seven main types of corn.
- Describe the many uses of corn (food and non-food products).
- Identify at least three facts about popcorn.

## Materials:

### Activity #1:

- twelve name tags (optional)
- marker

### Activity #2:

- several food and non-food items that contain corn
- lunch menu from the previous week
- paper/markers/crayons

### Activity #3:

- microwave popcorn or popcorn kernels and an air popper (enough to feed each student a handful)
- paper and pencils

## Getting Started:

### Activity #1:

- Make a copy of the corn plant illustration (in Appendix) ahead of time so that you can use it to introduce the plant parts and functions to the class. Depending on the time of the year, you may be able to bring in a real stalk of corn.

### Activity #2:

- Buy the corn-related food items ahead of time (or save empty containers from home).
- Save the lunch menu from the previous week.
- If making the paper plate projects, save and bring in grocery advertisements from the newspaper.

### Activity #3:

- Buy the popcorn ahead of time.
- Create the five senses checklist ahead of time (one per student).



**Grade Level:** K-6

**Topic:** Corn, Corn products

## PA Environment & Ecology Standards Addressed:

Agriculture and Society:

4.4.4.B: Identify the role of the sciences in Pennsylvania agriculture.

- Identify common plants found on Pennsylvania farms.
- Identify the parts of important agricultural plants.

4.4.4.C: Know that food and fiber originate from plants and animals.

- Identify agricultural products that are local and regional.
- Identify an agricultural product based on its origin.

## Teaching Methods:

- Hands-on activities
- Drama
- Analyzing/Deduction

## Multiple Intelligences Utilized:

- Naturalistic
- Visual/Spatial
- Interpersonal
- Intrapersonal
- Verbal/Linguistic
- Bodily/Kinesthetic

## Background:

Many people like to eat corn and there are many different ways to enjoy it. You can eat it on the cob or off the cob, in the form of corn chips, corn flakes, and even corn bread. However, many of us have eaten corn in other forms and may not have even known it. Corn is used in some syrups, cakes, breads, gravies, crackers, and pancakes. It is also an ingredient in such foods as soups, mustards, chewing gums, jellies, jams, catsups, licorices, breakfast cereals, salad dressings, whiskeys, beers, chips, and puddings. In fact, it is difficult to go a whole day without consuming some sort of corn product.

Though corn is in many of the foods we eat, an even larger amount is grown for an entirely different purpose. Most of the corn grown in the United States is used to feed livestock. Therefore, we indirectly eat corn when we eat foods such as hamburgers because the cattle that provided the meat for the hamburger most likely ate corn.

Many people may not know that corn is used for many non-food products as well. It is used as an ingredient in such things as fuel, soaps, crayons, batteries, toothpaste, mouthwash, explosives, fireworks, glue, yarn, medicine, paper, building materials, packing materials, and paints. The United States produces 66% of the world's corn exports. As you can see, with its many uses, this valuable crop is probably the most important grown in the United States.

Corn is a member of the grass family. Depending on the type, a cornstalk can reach a height of between three and twenty feet high. There are seven major types of corn. They are dent corn, flint corn, flour corn, sweet corn, waxy corn, pod corn, and popcorn. Dent corn is mostly used as livestock feed and for industrial purposes. Flint corn is also known as Indian corn and has colorful, smooth, round kernels that vary in color. It is eaten by both humans and animals, as well as used for decoration. The natives of Mexico and South America made flour corn a major part of their diets because its soft kernels can be easily ground into flour. Sweet corn is named for its delicious taste. It is picked from the stalk before the kernels have fully grown. This is when this yellow to white corn is really sweet. Waxy corn was first grown in China. The wax-like kernels are used in puddings, sauces, jellies, and to make glues for envelopes and boxes. Some scientists think that pod corn may be the oldest form of corn. It is very different from other types of corn in that each corn kernel is wrapped in its own husk and the entire ear of corn is also enclosed in husks like other ears of corn. This type of corn is no longer grown for food or industrial use. Popcorn is the only type of corn that pops. There are different kinds of popcorn that range in color from off white or light gold to red, black, and many colors in between. Americans eat 17.1 billion quarts of popcorn each year.

Corn has a long history. Corncob fossils that are 7,000 years old have been discovered. It is thought that Indians who lived in Mexico long ago probably gathered and ate wild corn over 10,000 years ago. These ears of corn were probably only one inch long.

The English colonists were introduced to corn at the first Thanksgiving feast in Plymouth, Massachusetts. The Native Americans helped the colonists learn how to plant and grow their own corn crops. Corn soon became an essential crop for the settlers throughout the colonies. Some settlers even used corn to pay their taxes or debts. They could trade corn for other much needed household items.

As the settlers headed west they planted corn wherever they moved. This helped corn to become a major U.S. crop by the 1800s. Harvesting corn was made easier soon after the invention of the mechanical corn picker. These machines pick the ears of corn from the stalks, remove the husks, and put the corn in a truck or wagon. Another machine, called a corn combine, does this, as well as shelling and cleaning the corn. Much of the corn grown in the U.S. comes from an area in the Midwestern part of the country called the Corn Belt. There, the soil and weather conditions are favorable for growing corn. The Corn Belt includes parts of Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Nebraska, Wisconsin, Ohio, and South Dakota.

Researchers have been working through the years to produce better corn. They have bred new types of corn called hybrids to be better than the original types. Some are designed to produce more corn and others are resistant to droughts and insects. Hybrids that produce more corn could help establish corn as an even more important food source in the future since the world's population is projected to double over the next thirty years. Some corn products are good for the environment. Corn is used to produce cleaner burning fuel, which helps protect the air we breathe because it releases less polluting fumes. Some lawn and leaf bags, disposable forks and spoons, and golf tees are made from corn and can be completely recycled. These can be thrown into a compost pile because they will decompose and eventually become soil-enriching compost.



## Activity #1: Acting Corny

- Students use their bodies to "act out" the parts of a corn plant and the important elements around them.
- Review the corn plant illustration.
- Assign each student a "role" or part of the plant or its environment.
- If you wish, give students a nametag with their designated role labeled on it.
- Start from the bottom and work your way to the top of the plant (nodal roots, prop roots, soil level, stalk, leaf, ear, silk, tassel, etc.; you can even add rain, sunlight, etc., if desired).
- Ask each student to describe the function or job that they do for the corn plant as they go up and get into position.
- Can the students think of any creative motions or sound effects to better illustrate their role?
- How do all of the parts and elements work together to successfully grow ears of corn?

## Activity #2:

### Corn Is All Around Us

- We eat corn and use products that are made from corn every day and may not even know it.
- Bring in grocery items that have corn in them. Lay them out on a table. Ask students to choose items that they think may contain corn. Once they think they have chosen all of the corn-related items, check the food labels to verify their choices. Since all of the items contained corn, if there are any items left on the table, show them that corn is an ingredient. Were they shocked by any of the items?
- Analyze a school lunch menu (or typical lunch menu) from the past week. Students can think back to the foods they ate and try to determine how many of the items contain corn. How could you find out if you were not sure? How many corn items were there per day/per week? Students could draw pictures or cut out pictures of corn-related foods from grocery advertisements and glue them to paper plates to illustrate the many foods we get from corn.
- You can do similar activities with non-food corn products.

## Activity #3:

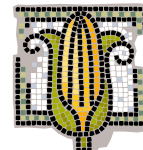
### The Popcorn Experience

- Help students to learn about action verbs, adverbs, and adjectives through an activity that involves using the five senses.
- Explain that the students will need to be careful observers. Tell them not to speak to each other, but to just use their senses of sight, smell, hearing, touch, and taste to describe the popcorn.
- Give each student a checklist where they can list: 1. What I see; 2. What I smell; 3. What I hear; 4. What I feel; 5. What I taste. Once they get a chance to sample the popcorn, encourage them to write as many descriptive words or phrases as they can think of for each category.
- Pop enough popcorn for each student to have at least a handful to taste and pass some out to each student.
- When students are finished, ask them to share some of their words and phrases with the class. As a group or individually, write sentences that describe the experience of eating popcorn.



## Extensions/Variations:

- Ask students to hypothesize what makes popcorn pop. Write down their ideas. Research the answer. What are the results?
- Popcorn is a naturally nutritious snack food. What are the characteristics that make it so?
- Create popcorn pictures by gluing popped popcorn to drawings on paper.
- Make popcorn seed mosaics.
- Read The Popcorn Book by Tomie de Paola and use some of the facts in the story to lead you to further research about popcorn.



## Evaluation:

### Rubric: Considerable Corn

3	2	1	0	The student can identify the parts of a corn plant and explain their functions.
3	2	1	0	The student can discuss the seven types of corn.
3	2	1	0	The student can describe the many uses of corn (food and non-food).
3	2	1	0	The student can identify at least three facts about popcorn.
12	8	4	0	<b>Total Score: /12</b>

## Resources:

de Paola, T. (1978). The popcorn book. Holiday House: NY.

Landau, E. (1999). Corn. Children's Press, Grolier Publishing: NY.

<http://www.popcorn.org> (The Popcorn Board)

<http://www.ilcorn.org> (Illinois Corn Growers)

<http://www.innvista.com/health/foods/seeds/corn.htm>

## Fun Facts!

The first breakfast cereal was made by adding sugar and milk to popped popcorn!

