

# The Journey of Corn with Kid Kernel

**Grade Level: 2-3**

**Approximate Length of Activity: One-two class periods**

## **Objective**

### **Teacher**

1. Help students to understand the history of corn, dissect a seed and observe the parts.
2. Discuss the different uses of corn.

### **Students**

1. Learn about the origin of corn.
2. Compare the characteristics of corn seeds.
3. Learn about the parts of the seed and the different uses of corn.

**Michigan Content Standards: (Science) L.HE.E.1, L.OL.E.4; S.RS.02.11; S.RS.03.11; S.RS.03.19**

## **Introduction**

Hello, my name is Kid Kernel and I am a corn seed. I would like to take you on an adventure today. You will find out what it is like to be me, Kid Kernel. We will look at how I grow and what happens when I become a golden kernel of corn. Now come on! Get those thinking caps on and get ready to learn about corn, something that is grown right here in the state of Michigan!

## **Vocabulary**

- **Endosperm**
- **Pericarp**
- **Tip Cap**
- **Germ**

## Materials Needed

- World map
- Field corn seeds for each student
- Popcorn seeds for each student
- Water
- Plates or pans for each student
- Plastic knives possibly (or students can use their finger to split the seed open)
- Paper towel for each student
- Corn seed to plant
- Ziploc bag for each student
- Marker
- Sunlight
- Calendar
- Copies of "Comparing Different Corn Seeds" worksheet
- Copies of "Seed Dissection" worksheet
- Copies of "A Golden Nugget" worksheet
- Copies of "Corn Products Found in the Home" worksheet
- Copies of "A Corny Word Scramble" worksheet
- Copies of "Things Made from Corn" worksheet

## Activity Outline

1. Discuss the origin of corn and observe a map.
2. Explain the different types of seeds.
3. Conduct a seed dissection.
4. Grow a corn plant in a bag.
5. Find corn in your home.
6. Complete the "A Corny Word Scramble" worksheet.

### 1. Discuss the origin of corn and observe a map

Since corn has traveled so far, for so many centuries, we will use a map and story to discover the journey of corn. Look at the map and follow along as we read. (Be sure the students know what the different continents are and label them first to guide them.)

While explaining the origin, point to a map to distinguish locations.

Corn was first grown in Mexico. In later years the Inca planted corn along the roadsides for travelers. Three thousand years later corn entered the Southwest United States. A few centuries more and the use of corn was spreading across South America.

Native Americans began to raise corn. It was a staple food for their diet. When Columbus discovered corn, he took it back to Europe. When Pilgrims landed in Plymouth, they learned to grow corn from Native Americans.

Corn has been grown in Michigan for centuries. Native Americans grew different types of corn, including popcorn, sweet corn and field corn, which are grown in Michigan today. Native Americans also called corn, maize. It was an important source of food for them. Corn is still an important food source, as we will find out later.

## 2. Explain the different types of seeds

Pass out a piece of dent corn and a popcorn seed to each student.

Explain to the children there are many different types of seeds and different types of corn. They are doing an investigation to figure out what is different about the two types of seeds and what is similar. Hand out the different seeds to the children; they can work alone, with partners or in a group. Have them come up with descriptive words to describe the different seeds.

Pass out "Comparing Different Corn Seeds" worksheet to each student and have them complete the questions.

## 3. Conduct a seed dissection

Pass out the "Seed Dissection" Worksheet and "A Golden Nugget" worksheet.

Conduct a seed dissection. Make sure you soak the corn seeds overnight before the experiment.

Look at the dry seed and try to find the main parts of the seed. Discuss what might be inside the seed.

Have the students diagram what they are seeing on the "Golden Nugget" worksheet.

Have the children use descriptive words as they look at the corn and feel it.

Discuss what each part of the corn seed does.

Now take the seed that has been soaked to look at the inside of the seed.

Let the children break apart the soaked seed, they may need a plastic knife to help them.

Have them look at what is inside and talk about how it feels and what they think it is.

Talk about the starch and what it is used for.

The children can discuss what they have been observing and record it on their worksheet.

## 4. Grow a corn plant in a bag

It's me, Kid Kernel again! Did you have fun discovering the different parts of the corn kernel?

Now watch what will happen to me when I am planted in the ground. You have looked at different parts of a kernel. Now you can look at me as I am growing into a corn plant. See if you can identify different parts of me, like the root and stalk, as I grow. Make sure you keep a close eye on me and write down what you see happening as I change and grow from a seed to a plant.

Talk to the children about how in the spring we plant seeds to grow different plants. Tell them they are about to grow their own corn plant. This is not like planting it in a garden, but it is a good way to see the different parts of a growing plant. Make sure each child gets a bag, paper towel, and corn seeds (3-4). Put their name on the bag. First you fold and then dampen the paper towel, but do not make it too wet. Then you place the corn seed in between the folded layers of paper towel. Zip it closed and place it in the sunlight. Have them record what they saw happening each day. Water them as needed to make sure the paper towel is damp. In about a week, you should have a growing plant with intertwining roots. Then you can have the children talk about the different parts of the plant and identify them.



## 5. Find corn in your home

I, Kid Kernel, am found throughout your home. I may be disguised as high fructose syrup, starch, or many other product names, but I am still corn. Take a look around your home. I bet you can find a corn product in almost every room.

Talk about the different types of corn products out there.

As a homework assignment, have the children look to find different products in their home containing corn. You can choose the number you want them to find or let them find as many as they can.

Pass out a copy of “Corn Products Found in the Home” worksheet to each student.

The next day you can share the enclosed sheet with them listing the many different corn products found on a large sheet of chart paper.

## 6. Complete “A Corny Word Scramble” worksheet.

Answers: corn flakes, ice cream, jelly, taco chips, soda, margarine, peanut butter, ketchup

## Discussion Questions

1. Where was corn first grown?
2. Who taught the Pilgrims to grow corn?
3. What did the inside of your seed look and feel like?
4. What is starch and what is it used for?
5. What are the different uses of corn?
6. What items in your house had corn in them?

## Related Activities

1. This lesson was provided courtesy of the Corn Marketing Program of Michigan. For more information and activities contact: 12800 Escanaba Dr., DeWitt, MI 48820, 1-888-323-6601, [www.micorn.org](http://www.micorn.org).
2. Visit [www.ncga.com](http://www.ncga.com) “Teacher Curriculum” for more exciting lessons.
4. The lesson “Where Would We Be Without Seeds?” located in the science section of this curriculum guide.
5. The lesson “Biodegradable Plastic from Corn” located in the science section of this curriculum guide.
6. Visit these Web sites for links that give a list and description of uses  
<http://www.ontariocorn.org/classroom/products.html#Products%20that%20use%20Corn>  
<http://www.sdcorn.org/cornuse/example.cfm>  
<http://www.sdcorn.org/documents/SDMakinItBrochure.pdf>

## Book Resources

1. “Corn” by Elain Landau
2. “Why are all the Cars Green?” and “I Love Corn” Contact the Corn Marketing Program of Michigan for copies, 1-888-323-6601.

# Comparing Different Corn Seeds

1. Draw both of your seeds below and label what they are.
2. Describe how they are different when you just look at them.
3. Now describe how different they feel.
4. How are the seeds similar?
5. What else can you do to see the difference between the two?
6. What do you think will happen if you were to heat them both up?



# Seed Dissection

## Step One:

Draw a picture of your corn seed. Put in details of what you see.

## Step Two:

Now label the four main parts of the corn seed on your picture above.

What does each part of the seed do?

Endosperm-

Pericarp-

Tip cap-

Germ-

What did you observe about the corn seed?

Now we are going to look inside the seed. Take your soaked seed and break it open. What did you find? Is it different from the outside of the seed, describe it.

# A Golden Nugget

## Endosperm

The endosperm is approximately 82 percent of the kernel's dry weight. It is the source of energy and protein (starch) for the germinating seed. There are two types of endosperm, soft and hard. In the hard endosperm, starch is packed tightly together. In the soft endosperm, the starch is loose. When corn dries in the field before the harvest, the moisture causes the soft endosperm to collapse and form a dent in the top of the kernel.

## Pericarp

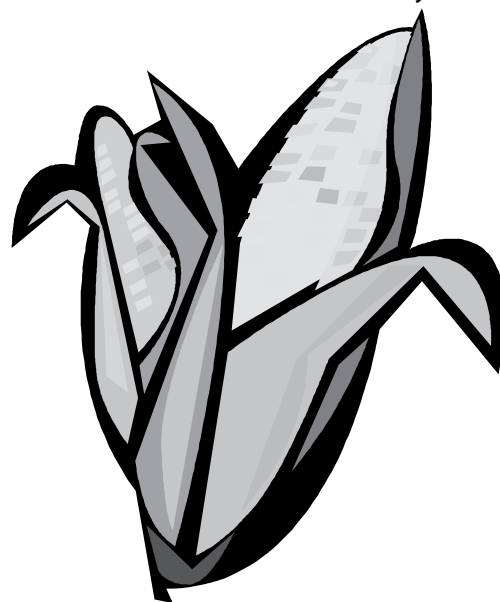
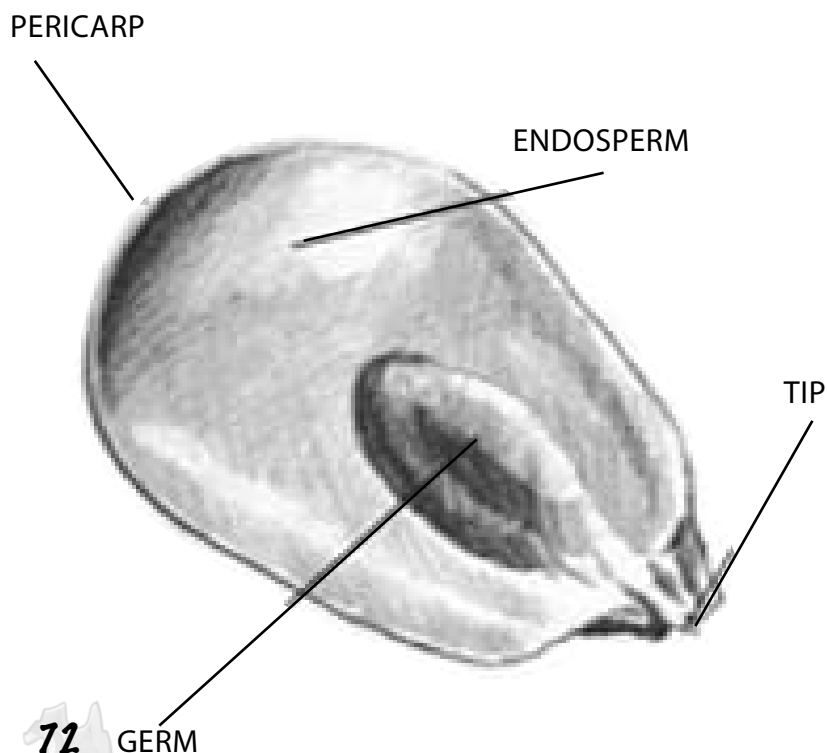
The pericarp is the outer covering of the kernel that protects it from deterioration. It resists water and water vapor and is undesirable to insects and microorganisms.

## Tip Cap

The tip cap is the only area of the kernel not covered by the pericarp. It was the attachment point of the kernel to the cob. It is the major entry path into the kernel.

## Germ

The germ is the only living part of the corn kernel. It contains the essential genetic information, enzymes, vitamins, and minerals for the kernel to grow into a corn plant. About 25 percent of the germ is corn oil. Corn oil is the most valuable part of the corn kernel because of the amount of linoleic fatty acid (polyunsaturated fat) and its bland taste.



## Corn Components

Starch	61.0%
Feed	19.2%
Oil	3.8%
Water	16.0%

# Things Made from Corn

Products that use corn in some form

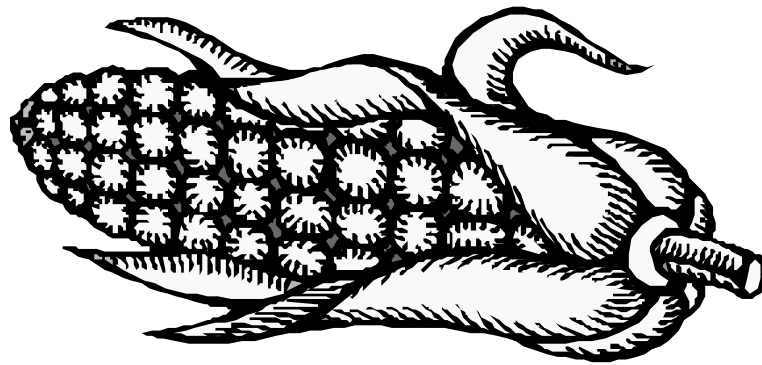
- Adhesives
- Aluminum
- Antibiotics
- Aspirin
- Baby food
- Biodegradable plastic
- Breakfast cereals
- Candy
- Canned vegetables
- Carbonated beverages
- Cheese spreads
- Chewing gum
- Chocolate products
- Coatings on wood, paper & metal
- Corn chips
- Corn meal
- Cosmetics
- Crayon and chalk
- Dessert powders
- Disposable diapers
- Dry cell batteries
- Dyes
- Edible oil
- Ethanol
- Finished leather
- Flour & grits
- Frozen foods
- Fructose
- Insecticides
- Instant coffee & tea
- Insulation
- Jams, jellies and preserves
- Ketchup
- Latex paint
- Licorice
- Lipstick
- Livestock feed
- Maple syrup
- Margarine
- Marshmallows
- Mayonnaise
- Mustard
- Paper plates & Cups
- Peanut butter
- Potato chips
- Rubber
- Rugs, carpets
- Salad dressings
- Shaving cream & lotions
- Shoe polish
- Soaps and cleaners
- Soft drinks
- Spark plugs
- Syrup
- Tacos, tortillas
- Textiles
- Toothpaste
- Wallpaper
- Wheat bread
- Windshield washer fluid
- Yogurts



# Corn Products Found in the Home

Search around your house for different corn products. List corn products that you have found in your home. Some key words to look for on labels are: cornstarch, corn syrup, dextrose, high fructose corn syrup and corn oil.

_____	_____
_____	_____
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_____	_____
_____	_____
_____	_____
_____	_____
_____	_____



# A Corny Word Scramble

Directions: The following list of foods all contain corn, it is your job to unscramble them and figure the food items out!

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