

# Pop, Pop, Popcorn

## Objective

Students will read about the history of popcorn and answer questions about the main idea. Students will conduct math activities with popcorn. Students will conduct science experiments with popcorn. Students will make popcorn corsages.

## Materials

- unpopped popcorn
- popcorn popper
- small plastic jar
- water
- needles and nylon thread or fishing line
- food coloring

## Procedures

1. Hand out copies of the Reading Page
  - Students will read individually or as a class.
  - Students will develop a time line showing the history of popcorn as described in the background.
  - Students will develop cartoons to illustrate the process that takes place when popcorn pops or some other detail about popcorn described in the background.
2. Hand out the Main Idea worksheet, included with this lesson.
  - Review clues for finding the main idea.
  - Students will answer the questions on the worksheet to find the mainidea in the paragraph.
3. Students will write step-by-step directions for making popcorn.
4. Provide one cup unpopped popcorn
  - Students will weigh the popcorn to the nearest ounce and the nearest gram.
  - Students will estimate what the corn will weigh after it is popped.
  - Students will determine the mass and volume of the unpopped corn.
  - Pop the popcorn.
  - Students will weigh the popped popcorn and compare it with the weight of the unpopped corn to the nearest ounce and gram.
  - Students will measure the mass and volume of the popped corn and compare it with that of the unpopped corn.
5. Based on what they learned in Step 4, students will determine how much unpopped popcorn they would need to provide enough popped popcorn for the entire class, if each student gets one cup of popcorn.
6. Students will weigh one popped popcorn kernel and count kernels in

## Oklahoma Academic Standards

### GRADE 3

Reading and Writing Process:  
R.1,3. Critical Reading and Writing: R.7; W.1,2  
Number & Operations: 1.1;  
2.1,2,5,6,7. Algebra: 1.1  
Life Science: 1-1; 4-3  
Visual Art Expression: 3.1,2.  
Connections: 4

### GRADE 4

Reading and Writing Process:  
R.1,3;4. Critical Reading and Writing: R.7; W.1,2  
Number & Operations: 1.1,5,7;  
Algebra: 2.1,2. Measurement: 2.5  
Life Science: 1-1  
Visual Art Expression: 3.1,2.  
Connections: 4

### GRADE 5

Reading and Writing Process:  
R.1,3. Critical Reading and Writing: R.6; W.1,2  
Number & Operations: 1.4  
Physical Science: 1-2; Life Science: 1-1  
Visual Art Expression: 3.1,2.  
Connections: 4

- a cup of popped corn to estimate the total weight.
7. Students will use popped popcorn as a unit of measurement to determine the length, perimeter and/or area of an object.
  8. Students will use popped popcorn to develop addition and subtraction or multiplication and division problems.
  9. Fill a small plastic jar with popcorn kernels.
    - Pour in water up to the rim. Weigh the container
    - Place a plastic dish or lid on top of the jar.
    - Wait one hour, and check the jar. The kernels will begin to swell and lift the cover slightly. Weigh the container.
    - Check the jar again the next morning. The water-soaked kernels should have pushed the cover off the jar. Weigh the container.
    - Did the weight of the container change as the water was absorbed, or was the amount (weight) of the matter conserved even as it changed forms (water was absorbed)?
  10. Grow a popcorn plant.
    - Soak some popcorn kernels in water overnight.
    - Line a clear glass with a paper towel.
    - Stuff the inside of the glass with more towels.
    - Soak the paper.
    - Place the soaked seeds between the glass and the paper.
    - Place in a warm spot.
    - In three to five days a small root will emerge.
    - The next day a small shoot should start growing.
  11. Discuss and observe the life cycle of a popcorn plant.
  12. Students will plan and conduct an experiment to see what effect more/less water or sunlight will have on the germinating seeds. What if the temperature is changed? What if the liquid is changed from water to soda, Kool-Aid, rubbing alcohol, etc.? What if the type of soil is changed from potting soil to clay, sand, etc.?
  13. Columbus reported seeing young girls wearing popcorn corsages on one of his voyages. Ask students if they can see the similarity between popped corn and white flowers. Students will make popcorn garlands.
    - Color the popcorn, if desired, by using one of the following methods:
      - Add food color to the oil prior to popping for a very faint color finish.
      - Add powdered food coloring (found at cake supply stores) to popped corn for a more intense color.
      - Add a little water to some food coloring and pour into a bag. Add the popped corn and toss till it is well coated.
      - If the popcorn is NOT going to be eaten, toss powdered poster paint over your popped corn. This provides vibrant color, but it is NOT edible.
    - After the popcorn has been colored, students will string the popcorn, using needles and nylon thread or fishing line to make necklaces.
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# Pop, Pop Popcorn

There are several different kinds of corn. The corn on the cob we like to eat is called “sweet corn.” It is picked while still tender. Other kinds of corn are allowed to dry on the stalk. That kind of corn is ground into meal for cornbread, tortillas, and corn chips. Dried corn is also used to feed livestock. Popcorn is made from another kind of corn that is allowed to dry on the stalk.

Popcorn kernels are dry outside, but they have water stored inside. When you heat popcorn, the water inside begins to boil. As it turns to steam, the water expands, or takes up more space. This causes the corn to swell until the steam shoots out, and the corn pops. Air rushes in and fills the space left by the escaped steam.

Popcorn has an ancient history. Popcorn ears over 5,600 years old have been found in the Bat Cave in New Mexico. The size of these ears ranged from 1/2 inch to 2 inches long. They are the oldest ears of popcorn known. Grains of popcorn over 1,000 years old were discovered on Peru’s east coast. This popcorn was preserved so well that the corn would still pop. In 1492, Christopher Columbus saw West Indian natives wearing corsages made from popcorn.

About 1612 in the Great Lakes region, French explorers observed the Iroquois popping popcorn in pottery with heated sand. The Frenchmen took part in an Iroquois dinner that included popcorn soup and popcorn beer.

Ancient poppers made of soapstone, pottery and metal have been found in Indian excavation sites. Most of these have tripod legs and are large clay containers with lids to be set directly in the fire. The Papago Indians of Arizona still pop corn in clay pots up to eight feet wide. These pots are known as “ollas.” Researchers have documented these poppers go back in design 1,500 years, to the South American Indian and Mexican cultures.

Some tribes popped oiled popcorn while it was still on the cob. Somehow the corn stayed attached to the cob, and it was eaten like corn on the cob. The Winnebago Indians have a long history of enjoying popcorn on the cob, stabbing a stick through the cob and holding the ear close to the fire.

Home versions of popcorn poppers were invented in 1925 and quickly snapped up by those able to afford them. Poppers were even manufactured in junior-high metal shop classes to keep up with the demand.

During the Great Depression, popcorn was a popular snack because it was cheap, at 5-10 cents a bag. While other businesses failed the popcorn business thrived and became a source of income for some struggling farmers. During World War II, sugar rations diminished candy production, causing Americans to eat three times more popcorn than they had before.

Most of the corn used for popcorn production today is grown in Nebraska, Indiana and Texas. Oklahoma farmers grow corn across much of the state, but most of that is used for feeding cattle and other livestock.

The popcorn you buy in the store is usually white or yellow, but popcorn kernels can be almost any color. Some of them are red, some are purple, and some are black. No matter what color it is on the outside, all popcorn is white when popped.

Today the American public eats over one billion pounds of popcorn per year. The average American eats about 70 quarts per person annually. Popcorn is a healthy snack. It is low in fat and calories and has no sugar. It has more nutrients than many other snacks.

## Vocabulary

**cob**—the woody core on which the kernels of corn are arranged

**corsage**—a bouquet of flowers usually worn at the shoulder

**meal**—ground seeds of a cereal grass

**pottery**—articles made from clay that is shaped while moist and hardened by heat

Name \_\_\_\_\_

# Main Idea

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The main idea of a paragraph tells what the paragraph is about. Supporting details give more information about the main idea. The main idea is the most important point the author wants you to understand.

Read the following paragraph. Think about the main idea.

Popcorn has an ancient history. Popcorn ears over 5,600 years old have been found in the Bat Cave in New Mexico. Grains of popcorn over 1,000 years old were discovered in Peru. The Indians of North and South America popped corn 2,000 years ago. In 1492, Christopher Columbus saw West Indian natives wearing popcorn corsages.

What was the main idea?

- a. Grains of popcorn over 1,000 years old were discovered.
- b. Popcorn has an ancient history.
- c. In 1492, Christopher Columbus saw West Indian natives wearing popcorn corsages.

Some tribes popped oiled popcorn while it was still on the cob. Somehow the corn stayed attached to the cob and it was eaten in the same manner as corn on the cob. The Winnebago Indians have a long history of enjoying popcorn on the cob. They stab a stick through the cob and hold the ear close to the fire.

What was the main idea?

- a. The Winnebago Indians have a long history of enjoying popcorn on the cob.
- b. They stab a stick through the cob and hold the ear close to the fire.
- c. Some tribes popped oiled popcorn while it was still on the cob.

Match the details below to the main idea to create a paragraph.

## Main Ideas

Popcorn kernels can be almost any color on the outside.

Popcorn is a healthy snack.

## Details

- It has more nutrients than any other snacks.
- The popcorn you buy in the store is usually white or yellow.
- It has no sugar.
- All popcorn is white when popped.
- It is low in fat and calories.
- Some of the kernels are red, some are purple and some are black.

Oklahoma Ag in the Classroom is a program of the Oklahoma Cooperative Extension Service, the Oklahoma Department of Agriculture, Food and Forestry and the Oklahoma State Department of Education.