

Pop, Pop, Popcorn

Grades PreK-2

English Language Arts, Math, Science, Visual Art



Objectives

Students will grow a popcorn necklace to discover the life cycle of a plant. Determine if popcorn needs sunlight and water to grow. Students will use popcorn kernels and popcorn to create and extend patterns. Students will make popcorn corsages or pictures. Students will use popcorn kernels and popcorn to count objects and sets of objects. Students will read about popcorn kernels and popcorn and answer questions to show a basic understanding of how popcorn pops.

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

Background

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. 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.

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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.

Additional Reading

Aliki, *Corn is Maize*, Collins, 1986.

Basel, Roberta, *From Corn to Cereal*, Capstone, 2005.

DePaola, Tomie, *The Popcorn Book: 40th Anniversary Edition*, Holiday House, 2018.

Gibbons, Gail, *Corn*, Holiday House, 2009.

Landau, Elaine, *Popcorn!*, Charlesbridge, 2003.

Peterson, Cris, *Popcorn Country: The Story of America's Favorite Snack*, Boyd Mills Press, 2019.

Ruddell, Deborah, *The Popcorn Astronauts: And Other Biteable Rhymes*, Margaret K. McElderry Books, 2015.

Websites

<https://www.youtube.com/watch?v=rIldiPSZffc>

<https://www.youtube.com/watch?v=FSZd33awqQk>

<https://www.popcorn.org/Facts-Fun/History-of-Popcorn/Recent-Popcorn-History>

<https://www.youtube.com/watch?v=joFzepw3lfs>

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Activity 1

Grades PreK-2 Teacher Resources and Standards

Activity 1: Grow a Popcorn Necklace, (Science) 1-6 50 minute class periods

Students will grow a popcorn necklace to discover the life cycle of a plant. They will measure the roots and shoots to determine the length.

Oklahoma Academic Standards

Activity 1: Grow a Popcorn Necklace, (Science)

- K-LS1-1 Use observations to describe patterns of what plants and animals (including humans) need to survive.
- 1-LS3-1 Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.
- PK.GM.2.2 Use words to compare objects according to length, size, weight, position, and location.
K.GM.2.1
- 1.GM.2.4 Describe a length to the nearest whole unit using a number and a unit.
- 2.GM.2.2 Explain the relationship between length and the numbers on a ruler by using a ruler to measure lengths to the nearest whole unit.

Materials:

- Activity 1 Worksheet 1 “**Grow a Popcorn Necklace**”
- popcorn kernels
- water
- small jewelry baggie
- cotton balls
- yarn
- hole punch
- ruler

Procedures

1. Soak popcorn kernels in water for an hour or overnight. This will help them sprout quicker for the students. They will sprout without soaking them.
2. Use a hole punch to poke a hole in the baggie, above the zipper.
3. Dip a cotton ball in water and place in the baggie for moisture. Place the soaked popcorn kernel in the baggie. Zip the baggie shut.
4. Use the yarn to thread through the hole and make a popcorn necklace for students to wear. Baggies can also be hung in the window.
5. In three to five days a small root will emerge. The next day a small shoot should start growing.
6. Discuss and observe the life cycle of a popcorn plant.
7. Use a ruler to measure the length of the shoots and roots.
8. Order the plants as they grow from shortest to tallest shoot. Discuss the length of each one.
9. Discuss what the plants need to grow. How are they like an adult plant?

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Activity 1 Worksheet 1: Grow a Popcorn Necklace



Name: _____ Date: _____

For eight days, use a ruler to measure your shoots and roots. Compare your graph with others in your class to see which shoot and root are the tallest.

DAY 8		
DAY 7		
DAY 6		
DAY 5		
DAY 4		
DAY 3		
DAY 2		
DAY 1		
	SHOOT	ROOT

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Activity 2

Activity 2: Sprouting Popcorn Experiment, (Science) 1-6 50 minute class periods

Determine if popcorn needs sunlight and water to grow.

Oklahoma Academic Standards

Activity 2: Sprouting Popcorn Experiment, (Science)

2-LS1-1 Plan and conduct an investigation to determine if plants need sunlight and water to grow.

Materials:

- Activity 2 Worksheet 1 “**Sprouting Popcorn Experiment**”
- popcorn kernels
- water, soda, Kool-Aid, rubbing alcohol
- small jewelry baggie
- potting soil, clay, sand
- box
- refrigerator

Procedures

1. Soak popcorn kernels in water for an hour or overnight. This will help them sprout quicker for the students. They will sprout without soaking them.
2. Place the soaked popcorn kernel in the baggie.
 - Students will plan and conduct an experiment to see what effect more/less water or sunlight will have on the germinating seeds. Place some baggies in a window and some in a box.
 - What if the temperature is changed? Place some baggies in a refrigerator and some in the room.
 - 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.?
3. In three to five days a small root will emerge. The next day a small shoot should start growing.
4. Discuss and observe the popcorn kernels planted in the different conditions. Did they all sprout? What differences can the students observe?
5. Students will record the growth on a chart, labeling each column with the variables.

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Activity 2 Worksheet 1: Sprouting Popcorn Experiment



Name: _____ Date: _____

For eight days, observe the plants and record the effect of the different variables. Compare your graph with others in your class to see the differences in the plants.

DAY 8			
DAY 7			
DAY 6			
DAY 5			
DAY 4			
DAY 3			
DAY 2			
DAY 1			
POPCORN KERNEL	VARIABLE _____	VARIABLE _____	VARIABLE _____

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Activity 4

Grades PreK-2 Teacher Resources and Standards

Activity 4: Popcorn Patterns (Math) 1 50 minute class period

Students will use popcorn kernels and popcorn to create and extend patterns.

Oklahoma Academic Standards

Activity 4: Popcorn Patterns, (Math)

- PK.A.1.2 Recognize, duplicate, complete, and extend repeating, shrinking and growing patterns
K.A.1.2 involving shape, color, size, objects, sounds, movement, and other contexts.
- 1.A.1.1 Represent, identify, create, complete, and extend repeating, growing, and shrinking
2.A.1.1 patterns with quantity, numbers, or shapes in a variety of real-world and mathematical contexts.

Materials:

- popcorn kernels (try to find colored popcorn kernels)
- popped popcorn
- food coloring or powdered food coloring (found at cake supply stores) or powdered poster paint
- popcorn popper
- construction paper and glue

Procedures

1. 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 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.
2. After the popcorn has been colored, students will use the popcorn kernels and the popcorn, to create, duplicate, or complete patterns. Allow students to glue their patterns onto construction paper.

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Activity 3

Grades PreK-2 Teacher Resources and Standards

Activity 3: Popcorn Corsages or Pictures, (Visual Art) 1 50 minute class period

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 corsages or pictures.

Oklahoma Academic Standards

Activity 3: Popcorn Corsages or Pictures, (Visual Art)

- 1.VA.3.2 Use a variety of subjects, basic media and techniques in creating visual art, including
2.VA.3.2 drawing, painting, sculpture, collage, and mixed media.

Materials:

- popcorn kernels or popped popcorn
- food coloring or powdered food coloring (found at cake supply stores) or powdered poster paint
- popcorn popper
- nylon thread and needles
- construction paper and glue

Procedures

1. 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 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.
2. After the popcorn has been colored, students will string the popcorn, using needles and nylon thread to make corsages or necklaces. To make the strand into a corsage, the strand can be wound around in a circle and tied in various places to keep the tight circular shape of a corsage flower.
3. If you prefer to make a picture, instead of a necklace or corsage, allow students to glue the popcorn onto construction paper creating their own popcorn picture.

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Activity 5

Grades PreK-2 Teacher Resources and Standards

Activity 5: Popcorn Counting (Math) 1 50 minute class period

Students will use popcorn kernels and popcorn to count objects and sets of objects.

Oklahoma Academic Standards

Activity 5: Popcorn Counting, (Math)

- PK.N.2.2 Use one-to-one correspondence in counting objects and matching groups of objects.
- K.N.1.5 Count forward, with and without objects, from any given number up to 10.
- 1.N.1.4 Count forward, with and without objects, from any given number up to 100 by 1s, 2s, 5s and 10s.

Materials:

- popcorn kernels
- popped popcorn
- construction paper and glue

Procedures

1. Students will use the popcorn kernels and the popcorn to count objects.
2. Allow students to glue the kernels and/or popcorn onto construction paper to make sets of objects for counting.
3. Students will use popcorn to create sets of 2's, 5's and 10's for counting.

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Activity 6

Activity 6: Popcorn Reading Comprehension (ELA) 1 50 minute class period

Students will read about popcorn kernels and popcorn. They will answer questions to show a basic understanding of how popcorn pops.

Oklahoma Academic Standards

Activity 6: Popcorn Reading Comprehension, (ELA)

- 1.2.PWS.1 Students will decode phonetically regular words.
- 2.2.PWS.1 Students will decode one- and two- syllable words
- 1.2.PWS.2 Students will decode words by applying knowledge of structural analysis
- 2.2.PWS.2
- 1.3.W.2 Students will begin to write facts about a subject in response to a text read aloud to demonstrate understanding with guidance and support.
- 2.3.W.2 Students will write facts about a subject and include a main idea with supporting details.

Materials:

- Activity 6 **Popcorn Facts Reading Page**
- Activity 6 Worksheet 1 **Popcorn Facts Reading Comprehension**

Procedures

1. Students will use the popcorn kernels and the popcorn to count objects.
2. Allow students to glue the kernels and/or popcorn onto construction paper to make sets of objects for counting.
3. Students will use popcorn to create sets of 2's, 5's and 10's for counting.



Popcorn is a kind of corn.
Popcorn dries on the stalk.
After the popcorn is dry, it is picked.
Some popcorn is grown in Oklahoma.

Most popcorn kernels are white or yellow.
Popcorn kernels can be red, purple, or black.
All popcorn is white when popped.



Popcorn kernels are dry. They have water inside. When the popcorn is heated, the water gets hot. The water begins to boil. As the water boils, it turns to steam. This makes the corn swell. When the steam shoots out the popcorn pops open.

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Activity 6 Worksheet 1: Popcorn Facts Reading Comprehension



Name: _____ Date: _____

What color can popcorn kernels be?

What color is popcorn when it is popped?

What is the main idea?