

Popcorn

1. Share a short history of popcorn.

Probably one of the most common stories in the history is that popcorn was introduced to the Pilgrims on the first Thanksgiving by their Native American friends. Whether or not the story is true, popcorn had been grown in the Americas for maybe as long as centuries. Archeologists have found dried ears of popcorn that they estimate to be several thousand years old. A common thread that Internet sites agree on is that some of the earliest introductions of Europeans to popcorn came with the era of the Spanish Conquistadores.

Fast forward a few centuries. From what Wikipedia tells us, popcorn was eaten as a type of breakfast cereal in the early 1800s. Towards the end of the 1800s, (around the 1890s), Charles Cretors invented the “popcorn maker”, which used steam to pop the corn. A few other important dates might include 1970, the year that Orville Redenbacher began marketing his renown brand of popcorn, and “the first patent for a microwave popcorn bag” for General Mills in 1981. This is just a small sample of the information that can be found online. Go do some research!

2. Draw or label a diagram of a corn kernel with the:

a. Pericarp (hull)

This is the hard outside, the only part of the kernel that can be seen on an un-popped kernel. It’s also that annoying shell that gets caught between your teeth, snagged in your braces, and stuck in your throat.

b. Endosperm

This is the part of the kernel that turns into the bright white fluff that you like to eat. Before getting popped, it fills up most of the pericarp (hull).

c. Germ

If planted, this is where the kernel would sprout. It also has some nutritional value in it. Mmmm! Germs!

3. Explain and describe the following terms as related to popcorn:

a. Flake

In popcorn language, this is just about any kernel that is successfully popped. Think of it as a flake of snow, unique, white, and tasty!

b. Butterfly or snowflake

Popcorn “flakes” can be divided into two groups. The butterflies are the irregular types of flakes that have lots of little “arms and legs” sticking off of them.

c. Mushroom

These flakes are the other type of popped kernels. The shape of these ones look somewhat like, well, a mushroom. It’s the type that businesses specializing in popcorn manufacturing and flavoring like especially, since they aren’t as breakable. They also aren’t as “tender” as the butterflies.

d. Old Maid or dud

There is a science to the amount of moisture that must be in a kernel of popcorn to make it pop, and kernels must be dried after harvesting to “cure” them for popping or they would be somewhat disappointing. However, drying the kernels too long or storing them in a cool place like a refrigerator will cause the moisture to leak out of the end of the kernel, not allowing it to pop when the time comes. However, if the kernels are rehydrated by soaking them in a little water, there will be fewer old maids. In fact, if you find old maids in the bottom of your bowl of popcorn, you can sometimes pop them after you’ve rehydrated them, even though you’ve already tried to pop them once. For more specific instructions about this, visit:

<https://www.usaemergencysupply.com/information-center/all-about/all-about-whole-grains/all-about-popcorn>

4. Draw, sample, collect, or photograph the following types of corn:

a. Dent Corn

Also known as field corn. The most common type of corn grown in the US. Called dent corn because of the dent that forms in the side of the kernel when it dries.

b. Flint Corn

Similar to dent corn, but harder and not as modified. Definitely not as popular as dent corn.

c. Flour Corn

Has soft kernels and soft insides. Used to make (surprise!) flour.

d. Pod Corn

More commonly known as Indian corn, that brightly colored corn that you see in stores around Thanksgiving. Mostly used for decoration.

e. Popcorn

That’s what we’ve been talking about all this time! It is closely related to flint corn. Scientifically known as “Zea Mays Everta”.

f. Sweet Corn

This is the type that you eat (although it is possible for you to eat all the types of corn here)., It is eaten while still young, green, and underdeveloped, or else it would be tough and chewy. By the way, since it has such a soft hull, it will never be able to pop.

5. What separates popcorn from other types of corn?

The difference is that it is specially designed for exploding its soft, white, fluffy insides. It can do this because of its hard outer shell. While other types of corn can pop, most don’t have the hard outer shell to allow a nice, fluffy flake to form inside.

6. Describe to process of how a popcorn kernel pops.

In every kernel, there is a very tiny little droplet of water. When heated, this droplet becomes steam and pushes pressure on the hull. Meanwhile, it is preparing the endosperm to erupt when the hull opens. When the pressure on the hull gets high enough, (around 135 pounds per square inch, depending on

the Internet source), the hull will split and the endosperm will burst out, hardening when it comes in contact with the air.

Something important to remember is that heating the kernels too quickly will make them pop open before the endosperm is ready, but heating them too slowly will let that tiny droplet of steam escape from the tip of the kernel that connects it to the ear of corn. It's not perfectly "moisture-proof"!

7. Describe four different ways used to pop popcorn.

Here are some examples worth checking out:

- a. Air popped – The common method of using hot air currents to pop the popcorn
- b. Microwave – Probably the easiest and most common household method
- c. Stovetop – Somewhat self explanatory...could be either in a pot/kettle or with a specially designed popcorn maker.
- d. Specialty Popper – Examples of this would be the fancy machines with the stirring rod, and you could probably include the movie theater or carnival type poppers in here as well.
- e. Popcorn Hammer – This is a unique method used in Asia and it's worth looking up. A similar method is used for making puffed rice and other puffed grains.

8. On average, about how many quarts of popcorn are eaten by Americans each year?

While this varies depending on the source, Americans eat an estimated 13 to 17 billion quarts of popped popcorn per year! That's between 42 and 68 quarts of popcorn per person!

9. Do four of the following:

- a. **Compare the popcorn yields of at least three brands of popcorn, as well as sizes and shapes.**

Choose three different brands of popcorn, select a certain number of kernels (say, 100) from each, and see how many pop. Compare them!

- b. **Make a collection of at least fifteen different recipes for popcorn, both sweet and savory.**

This shouldn't be that hard. There are lots of different recipes online, and your friends might have some delicious suggestions!

- c. **Make popcorn sculptures.**

This is easy if you know how to make sticky caramel popcorn.

- d. **Create an object lesson using popcorn. Share it with your club.**

There are lots of possibilities here. Be creative!

- e. **Test three popcorn recipes not previously tried before, both sweet and savory.**

So this means you actually have to make popcorn! Make a party out of it and enjoy!

- f. **Grow your own popcorn, pop it, and prepare it for eating.**

For those who want to see the whole process, this is great fun, and there are plenty of resources online to help guide you through this!

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2. Draw or label a diagram of a corn kernel with the:
 - a. Pericarp (hull)
 - b. Endosperm
 - c. Germ
3. Explain and describe the following terms as related to popcorn:
 - a. Flake
 - b. Butterfly or snowflake
 - c. Mushroom
 - d. Old Maid or dud
4. Draw, sample, collect, or photograph the following types of corn:
 - a. Dent Corn
 - b. Flint Corn
 - c. Flour Corn
 - d. Pod Corn
 - e. Popcorn
 - f. Sweet Corn
5. What separates popcorn from other types of corn?
6. Describe the process of how a popcorn kernel pops.
7. Describe four different ways used to pop popcorn. Demonstrate at least two.
8. On average, about how many quarts of popcorn are eaten by Americans each year?
9. Do three of the following:
 - a. Compare the popcorn yields of at least three brands of popcorn, as well as sizes and shapes.
 - b. Create a craft or project using popcorn as an essential component.
 - c. Make a collection of at least fifteen different recipes for popcorn, both sweet and savory.
 - d. Make popcorn sculptures.
 - e. Test three popcorn recipes not previously tried before, both sweet and savory.
 - f. Grow your own popcorn, pop it, and prepare it for eating.
10. Create an object lesson using popcorn and share it with your club.

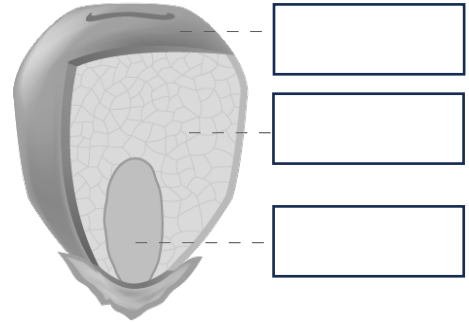
Name(s): _____

Date: _____

Popcorn

1. Label the following parts of a popcorn kernel:

- a. Germ b. Pericarp c. Endosperm



2. Label the steps of a popping popcorn kernel in the proper order:

- ____ Steam puts pressure on the inside of the kernel shell.
____ Popcorn starch erupts, hardening into a popcorn flake.
____ Kernel heats up.
____ The water droplet in the kernel turns to steam.
____ Kernel shell ruptures.

3. Match the following forms of popped popcorn kernels with their description:

- | | |
|-----------------------------|---|
| ____ Mushroom | a. Fully popped kernels with fragile “wings.” |
| ____ Flake | b. Popcorn kernels that remain un-popped. |
| ____ Butterfly or snowflake | c. A fully popped kernel of corn of any variety. |
| ____ Old Maid or dud | d. Round and sturdy fully-popped kernels often used for caramel corn. |

4. Fill in the blanks:

The average American eats _____ quarts of popcorn each year.

Popcorn’s _____ distinguishes it from other types of corn.

5. List four different ways to pop popcorn:

6. Draw or write a spiritual object lesson you can share from what you learned in this honor:

