

GROW YOUR PALS PROGRAM GUIDE



THE NATIONAL FFA MENTORING PROGRAM

Sponsored by



LESSON 40

Exploring Corn

Unit:
FOOD SCIENCE

PRECEPTS

- J. Mental Growth
 - J2. Think creatively
 - J4. Solve problems



Lesson Type:
Large Group

NATIONAL STANDARDS

NM-MEA.3-5.1 Understand Measurable Attributes of Objects and the Units, Systems and Processes of Measurement

STUDENT LEARNING OBJECTIVES

As a result of this lesson, the student will ...

1. Identify the types of corn.
2. Identify the processing of and uses for corn.
3. Determine the yield grade for popcorn.





TIME

Instruction time for this lesson: **45 minutes**..



RESOURCES

www.campsilos.org/mod3/students/c_history.shtml
www.tricountyfarm.org/oregon_corn.asp
www.rlrouse.com/history-of-corn.html
www.popcorn.org/client_files/teachtools/maths.pdf
<http://enchantedmaze.com/pdf/k-4-worksheet.pdf>

TOOLS, EQUIPMENT AND SUPPLIES



- ✓ large wooden bowl
- ✓ canvas bag (that can be gotten dirty)
- ✓ 1 cup of dried corn kernels
- ✓ large smooth rock
- ✓ water
- ✓ honey
- ✓ electric fry pan
- ✓ spatula (optional if you plan to cook the pancakes)
- ✓ 1/4 cup colored popcorn (counted and recorded number of kernels in the 1/4 cup) 1/4-cup measure
- ✓ kitchen scale
- ✓ corn popper (whatever kind is easiest)
- ✓ blank paper
- ✓ pencil
- ✓ pictures of corn products (or variety of actual corn products)

KEY TERMS



The following term is presented in this lesson and appears in ***bold italics***:

yield

INTEREST APPROACH

Have a variety of corn products or pictures of corn products. Try to get students interested and focused on the commonalities of these products.



Let's take a look at these items. What do these items have in common? *Take a few minutes to discuss and pull answers.*

Right, they all are corn products or have corn ingredients. What are some other things that contain corn? *Depending upon the ingredients chosen, this list will vary. Items that contain corn include baby food, margarine, detergents, sandpaper, chewing gum, deicers for roads, antibiotics, potato chips, plastics, rubber tires, degradable plastics, corn flour, cornstarch, cornmeal, corn oil, corn syrup, cereal, cosmetics, rubber tires, degradable plastic trash bags and some explosives.*

It may be beneficial to make the list on the board and record it.



Let's share some facts. Raise your hand to finish the following statement: Today 60 percent of harvested corn is fed to _____ (livestock) and 25 percent is _____ (exported –sent to other countries). *Call on someone to answer until the correct answer is given. Thank them for their answers, even if they are incorrect.*

Great! Now that we have identified some products of corn, let's dig a little deeper into this versatile commodity.

SUMMARY OF CONTENT AND TEACHING STRATEGIES

OBJECTIVE 1. | Identify types of corn.



What are the types of corn? *Allow time for answers. Lead the discussion toward the correct answers.*

There are several types of corn. Let's look at a few types.

Dent -- field corn used as feed for livestock

Flint -- Indian corn used typically for decorative purposes

Sweet -- used for eating

Popcorn -- kernel corn that is popped for eating

Use the *Choral Response e-Moment* to review the different types of corn.



Good job! Let's review. When I say the corn type, you say its use. When I say "dent," you say, "field corn."

Dent. *Field corn.*

When I say "flint," you say "Indian corn."

Flint. *Indian corn.*

When I say "sweet," you say "eat."

Sweet. *Eat.*

When I say "kernels popping," you say, "POP!"

Kernels popping. *POP!*



Great job! Now we know the types of corn and many products containing corn, but how is corn made usable for these products? It's grinded. This grinded corn is known as _____? (cornmeal)

OBJECTIVE 2. | Identify the process and uses of corn.



Good job. Now we are going to make cornmeal. *Have some volunteers come up and help complete the next task or split them into groups for each group to complete the activity.*

First we need to place the corn kernels into the canvas bag and put the bag into the wooden bowl. Next we will take turns pounding the bag with the rocks. *Continue the process until the corn is ground.*

How cool is that? We just made cornmeal!

What are some uses for cornmeal?



Discuss the various uses for cornmeal and include among them making pancakes. IF time allows, make and eat the pancakes.

Good. Let's dive into another type of corn--popcorn.

OBJECTIVE 3. | Determine the yield grade of popcorn.



We are about to explore the yields of colored popcorn. *Define yield for the students* Yield is the amount of something. Today we are going to determine the amount of kernels that actually pop. Why do popcorn kernels pop? *Discuss answers.*

Popcorn pops because each kernel stores water and as the kernel is heated, the water heats, builds up pressure and then expands, which turns the kernel inside out.

Before the lesson, count how many kernels there are in the ¼- measuring cup. If time allows, you could get a student to count them, or count the kernels as a group.



Here is a ¼ cup of popcorn. How many kernels do you think are in this ¼ cup? Great guesses. There are _____ kernels.

Now, let's pop the corn. *As someone is popping the corn, have another ¼ cup of popcorn ready that can be weighed.*

While _(mentee's name)_____ is popping the corn, let's measure the weight of the corn.

Using the scale, measure and record the weight of the corn.

When the kernels are cool, separate the popped corn from the un-popped kernels. Count the kernels that did not pop and subtract them from the total (which was already counted and recorded) . Also, weigh the popped corn.



Now let's weigh the popcorn and count the number of kernels that didn't pop.

Record the kernels.



Good. Now let's subtract that from the total. Which colored popcorn popped the best?

That's right. Just as we have measured and weighed the popcorn, farmers do something similar to decide which type of seed to plant. Then after they have harvested the crop, they weigh and sell their crop.



Great job today! Let's eat!



REVIEW / SUMMARY

Create a chart of the various colored popcorn kernels, and their weights popped and unpopped.

EVALUATION

If a worksheet from the website is used, it may be evaluated. There are samples or ideas for worksheets on <http://enchantedmaze.com/pdf/k-4-worksheet.pdf>.

APPLICATION



Small Group Suggestion: *Work in small groups of mentors/mentees to determine the other uses for corn.*



One-on-One Session: *Review with your mentee the types of corn and various uses for them.*