



LESSON 8

One Kernel, a Thousand Uses

*Concepts of Reading Comprehension,
Fine Arts, Science, and Culture*

FOCUS

Student Objectives and Kentucky Performance Standards:

- 1.13 Construct meaning, communicate ideas
- 2.24 Aesthetics
- 2.26 Cultural Diversity
- 2.30 Consumerism

Uses of Corn

BACKGROUND

Corn is used for many different things in addition to food for humans and livestock: fuel ethanol, breakfast cereal, soda sweetener, plastic, cosmetics, diapers, and much more.

PREPARATION AND MATERIALS

- *Products Made from Corn* List
- Index cards
- *Corn – the Seeds to Meet Our Needs* Seek-n-Find

TEACH

Activities

1. **Distribute copies of *Products Made from Corn* to students.** Ask students to search at home for products on the list. Students share findings, record data, and or classify (for example, the most common corn items in their homes, food products, personal hygiene, medicine, etc.)

2. **Make a “Corny Collage” of labels containing corn.**
3. **Let students make a “Memory/Concentration” game of products made from corn.** Use approximately 20-40 index cards and write or draw one product on each card (2 copies of each card). Mix and place cards face down. Students take turns choosing a card, then a second card to “match” the first card. The skill is in remembering where the match is! If a match is made, cards are left face up and students get another turn. (Tip: Reading the card aloud helps memory!) Continue until all matches have been found.
4. **Challenge students to create a new use for corn from any part of the corn plant.**
5. **Give students a “Corn—the Seeds to Meet Our Needs” Seek-n-Find.**

Environmentally Friendly Corn

PREPARATION AND MATERIALS

- Books: *The Lorax* and *Wump World*
- Biodegradable cornstarch packing peanuts
- Clear plastic cups, soil and water

BACKGROUND

Farmers are “outstanding” in their fields (pardon the pun)! Corn farmers are leading the fight to protect our greatest natural resource, soil, from wind and water erosion. Without soil, corn cannot grow. Most of the water required to raise corn comes from rain. In dry climates farmers also use irrigation. Corn growers use a variety of methods to protect and safeguard the quality of our water. Vegetative filter strips in conservation farming methods are tools a farmer can use. They help stop pollutants from reaching our rivers and lakes. Corn farmers use new ways of safely applying chemicals to protect America’s precious soil and water resources. Many products made from corn can be substituted for water-polluting materials.

Most plastics used in the U.S. are made from materials that come from petroleum. Petroleum products are a major problem in our rapidly filling landfills. New biodegradable plastic products are being made from corn such as garbage bags, car parts, and packing peanuts. By simply combining about 6 percent cornstarch with the plastic, the new corn plastics will degrade in under two years! Chemists say there’s nothing now made from petroleum (non-degradable) that can’t be produced from biodegradable corn.

Ethanol is a high performance fuel made from cornstarch. It’s safe for the environment, reducing air pollutants by more than 50 percent because it burns much cleaner than gasoline. While corn is growing, it takes carbon dioxide from the air and puts oxygen into the air. An acre growing 148 bushels of corn will remove 14 tons of carbon dioxide from the air. Corn farmers produce one of our nation’s most valuable, renewable resources...corn!

TEACH

Activities

1. **Read Dr. Seuss's book, *The Lorax* to your students.** Compare the Truffula Trees with corn (providing oxygen, filtering air, holding soil in place, products made from them, etc.). For assessment, have students rewrite the story using corn instead of Truffula Trees.
2. **Read Bill Peet's book, *Wump World*.** Discuss how biodegradable products made from a renewable resource like corn may change the story.
3. **Using biodegradable cornstarch packing peanuts (see address below), create science experiments.** Find out if they are biodegradable, at what rate, and under what conditions. (Sample variables: water temperature, soil, light, etc.). You can also make your own biodegradable peanuts (see *Make Your Own Biodegradable Packing Peanuts Sheet* .) *You may find colored biodegradable peanuts at craft, parent-teacher stores, or fabric stores.
4. **Make your own biodegradable plastic from corn.** See directions sheet.
5. **Write to the following for biodegradable products:**

Biodegradable Corn-Based ink pens

Roatan International Corporation
20 West 38th Street
New York, NY 10018
(212) 768-7538

Cornstarch-based Packing Material

American Excelsior Company
2329 Chaffee
St. Louis, MO 63146
(314) 993-5540

Biodegradable Golf Tees

Terra Form
P.O. Box 292
Dalton, MA 01227
(413) 684-9771

Crafty Corn Creations

PREPARATION AND MATERIALS

See each activity below for materials

BACKGROUND

Corn has been used in crafts and decorations for centuries. From the simplest cornhusk doll to the elaborate Corn Palace in Mitchell, South Dakota, corn has played a role in art and culture.

TEACH

Activities

1. **Surf the web to find out more about the Corn Palace.** Find out about a building covered with 13 large murals composed of 275,000 various colored ears of corn. (<http://www.cornpalace.org>).

Design and create a mosaic made of colorful corn kernels. Sketch a picture on cardboard or tagboard. Glue colored kernels on picture to create the mosaic. To dye kernels, fill a baby food jar half full with rubbing alcohol. Add 1/3 container of food coloring. Stir and pour into a Ziploc bag. Add kernels and stir. Drain excess water back into jar. Sprinkle kernels on newspaper to dry (about 10 minutes). This dye is non-toxic and permanent.

Note: Lynn's Paradise Café in Louisville, Ky. features an 8' x 24' mural made from ears of colored Indian corn on the restaurant's outer wall. Each fall during harvest, local artists design a new mural.

2. **For a multicultural corn connection, make a Kwanzaa craft such as a corn trivet (see #3).** Kwanzaa is a holiday celebrating the African roots of black Americans.
3. **Make a corn trivet.** You will need heavy cardboard, lots of metal bottle caps, green felt, glue, and yellow spray paint. First sketch an ear of corn about 8" long on the cardboard and cut out. With edges down, glue bottle caps to ear of corn. When glue dries, spray paint yellow. Make two green husks from felt and glue on the cardboard. Cook a pot of corn pudding and use your trivet! These make nice Kwanzaa gifts.
4. **Make cornstarch play dough.** You'll need: 1 ½ cup cornstarch, 2 cups water, 1 cup salt, ½ cup flour, 2 teaspoons cream of tartar, and 1 tablespoon vegetable oil. Mix all ingredients together in saucepan. Cook over medium heat, stirring constantly until mixture gathers on stirring spoon and forms dough (6 minutes) Turn onto waxed paper until cool enough to handle, knead to form a ball. Store in covered container or plastic bag. Food coloring may be added.

5. **For salt goop magnets or ornaments** you'll need: 2 parts boiling water to 1 part cornstarch. Stir thoroughly then add salt until mixture can be kneaded. When cool enough to handle, knead for several minutes adding salt until the mixture is firm and workable. Let stand for 2 hours. Shape and create ornaments or magnets then bake in a warm oven until hardened (about 20 minutes).
6. **Make Kentucky Spoon Bread** (See recipe).

Kernels of Knowledge

PREPARATION AND MATERIALS

- *Aw... Shucks, I Didn't Know That Sheet*

TEACH

Activity:

Distribute copies of *Aw... Shucks* sheet to students which contains interesting trivia about corn.

ASSESSMENT

"I'm All Ears" Bulletin Board. See directions and sample. As a culminating activity, let students fill in a kernel by writing something they have learned about corn during this unit (from lessons, activities, background information, corn trivia, etc.). Add kernels to a giant, ear-of-corn bulletin board. Directions are at the end of this lesson.