

TEACHER'S GUIDE

AMAZING MAIZE READER

AG IN THE CLASSROOM - HELPING THE NEXT GENERATION UNDERSTAND THEIR CONNECTION TO AGRICULTURE

Additional Resources

cornfarmerscoalition.org

This site has a Corn Facts Book and more stories about corn farmers.

ncga.com

National Corn Growers Association describes issues and challenges facing today's corn grower.

coloradocorn.com

This is the web site of the Colorado Corn Growers Association. This is the home of the corn camera!

growingyourfuture.com

Colorado Foundation for Agriculture provides free resource materials to Colorado educators.

agclassroom.org

This is the national web site for Ag in the Classroom programs from across the nation. Numerous resources are posted on this site. A search of the site will bring up a variety of lessons, books, videos and links on the topic of corn.

Comments, questions, suggestions and feedback about the Colorado Reader are welcome.

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INTRODUCTION: Corn is a crop that has many diverse uses. Not only does it feed us, our animals and wildlife, but it is used to make many products. One of the most interesting uses of corn is that it can be used to replace oil in the manufacturing of plastics. Plastics made from corn are biodegradable. These bio-plastics break down in the environment and can be composted.

PAGE 1: Activity

Have your students study the picture of teosinte, maize-teosinte hybrid and maize. Have them identify the similarities and the differences. Which one do they think would produce the most food energy? Maize

PAGE 2 & 3: You might want to pick up samples of dent corn. If you have a grain elevator or farm feed stores near you, they might be willing to give you samples. Hobby stores sometimes have colored corn or Indian corn or you can use popcorn. Give each student a few kernels. Have them identify the parts of the kernel.

Answers to page 3:

ASPIRIN

CEREAL

CRAYONS

GLUE

LIPSTICK

PAINT

PUDDING

SOUP

SYRUPS

TOOTHPASTE

Word: Ethanol

PAGE 4:

Activity: Have your students draw a corn plant and label the parts.

Math Answers:

One ear of corn has 16 rows and about 800 kernels. The number of rows is always even.

1. If you had 3 ears of corn, how many rows of corn would you have? $16 \text{ rows} \times 3 = 48 \text{ rows}$
Is this an even number? even
2. If you had 10 ears of corn, how many rows of corn would you have? $16 \text{ rows} \times 10 = 160 \text{ rows}$
Is this an even number? even
3. You have 5 ears of corn and all of them have 800 kernels per ear. How many kernels of corn do you have? $800 \times 5 = 4,000$
4. If you have 10 ears of corn how many more kernels do you have? 10 ears would produce 8,000 kernels so you would have 4,000 more

PAGE 5

How well did your students read this page? Ask them:

What was the main reason for increased corn yield?

Better corn seed

What caused the farmer to use less fuel?

Less trips across the field do to no-till or low-till farming and doing more jobs when going through the fields.

What caused the farmers to use less water on their fields?

Farmers investing in center pivots or surge irrigation use less water, and applying water only when crops need it uses less water.

PAGE 6:

How well did your students read?

Ask them:

How is most of the corn used?

As feed for livestock

What is the fuel from corn called?

ethanol

Why have gasoline manufactures added ethanol to their gasoline?

US government mandated cleaner burning gasoline and one way to achieve it is by adding 10% ethanol to this fuel.

What are some of the benefits of adding ethanol to fuel?

1. cleaner air
2. reduce use of foreign oil
3. stimulate rural economies
4. lower gasoline prices
5. positive energy balance

For every dollar your family spends at the store for food, how much of that dollar goes to the farmer?

17 cents

PAGE 7

Student Activity:

As the students read this page, have them make a list of all the products that use corn in some way.

pizza	bread
chalk	crayons
candy	chips
pillows	blankets
cardboard	glues
bioplastics	packing peanuts
baby food	lipstick
filters	

PAGE 8 Review Quiz

1. The largest corn crop grown in Colorado is field corn.
2. Another name for field corn is dent corn or feed corn.
Both of the above is correct.
3. List the four major components of a corn kernel:
starch, fiber, protein and oil.
4. Corn is also called maize. It is

a grass native to the Americas and it is grown in most places around the world. So all of the above is correct.

5. Where in the corn kernel is corn oil found? in the germ
6. Corn is used to make baby food, lipstick and paint, so all of the above is correct.
7. Why is corn syrup used in breads and other baked goods? It keeps these items from drying out and going stale.
8. How can corn help prevent pollution? Items made of corn plastic are biodegradable, use of ethanol in fuel helps reduce air pollution and corn starch is used in industrial filters to reduce water pollution, so all of the above is correct.
9. What is the male part of the corn plant called? tassel
10. What is the female part of the corn plant called? silks

Content Standards

Colorado Academic Standards,
Fourth Grade

Life Science

Students know and understand the characteristics and structure of living things, the processes of life, and how living things interact with each other and their environment.

Mathematics

Number Sense, Properties, and Operations

3. Formulate, represent, and use algorithms to compute with flexibility, accuracy, and efficiency
 - a. Use place value understanding and properties of operations to perform multi-digit arithmetic
 - b. Use the four operations with whole numbers to solve problems

Reading, Writing and Communicating

2. Reading for all purposes
2. Comprehension and fluency matter when reading informational texts in a fluent way
3. Knowledge of complex orthography (spelling patterns), morphology (word meanings), and word relationships to decode (read) multisyllabic words contributes to better reading skills

National Agricultural Literacy Outcome*Agriculture & the Environment Outcomes*

- c. Identify land and water conservation methods used in farming systems (wind barriers, conservation tillage, laser leveling, GPS planting, etc.)
- e. Recognize the natural resources used in agricultural practices to produce food, feed, clothing, landscaping plants, and fuel (e.g., soil, water, air, plants, animals, and minerals)

Plants and Animals for Food, Fiber & Energy Outcomes

- b. Distinguish between renewable and non-renewable resources used in the production of food, feed, fuel, fiber (fabric or clothing) and shelter

Science, Technology, Engineering & Mathematics Outcomes

- b. Describe how technology helps farmers/ranchers increase their outputs (crop and livestock yields) with fewer inputs (less water, fertilizer, and land) while using the same amount of space