The Cornfield Maze Mystery

Educational Materials

This PDF contains:

- Student Worksheets (6 worksheets)
- At-Home Extension Activities (8 activities)
- Parent Letter Template
- Glossary of Key Terms
- Answer Key for Worksheets

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Worksheet 1: Story Comprehension

Name: _____ Date: _____

After reading The Cornfield Maze Mystery, answer the following questions:

1. Who are the three main characters in the story? What are their names and ages?

_____

_____

2. What did the Corn Crew decide to investigate for their science fair project?

_____

_____

3. List three places the children visited during their investigation:

a) _____

b) _____

c) _____

4. What is a GMO? Why do some farmers use GMO corn?

_____

_____

_____

5. What are ultra-processed foods? Give three examples from the story.

_____

_____

_____

6. What pattern did Ana notice about her mother's stomach problems?

_____

_____

7. What advice did Dr. Lopez give about making healthy food choices?

_____

_____

_____

8. What did the Corn Crew learn about asking questions and doing research?

_____

_____

_____

Worksheet 2: Soil Detective Observation Log

Name: _____ Date: _____

Collect soil samples from two different locations. Observe carefully and record your findings:

Analysis Questions:

1. What differences did you notice between the two soil samples?

_____

_____

2. Which soil sample do you think would be better for growing plants? Why?

_____

_____

3. What might cause the differences you observed?

_____

_____

Worksheet 3: Food Label Detective

Name: _____ Date: _____

Examine food labels and record your findings:

Common corn-derived ingredients to look for:

• Corn syrup, high-fructose corn syrup (HFCS)

• Corn starch, modified corn starch

• Corn oil, vegetable oil

• Dextrose, maltodextrin, glucose syrup

• Corn meal, corn flour

Analysis Questions:

1. How many of the products you examined contained corn-derived ingredients?

_____

2. Were you surprised by how common corn ingredients are? Why or why not?

_____

_____

3. Which product had the most ingredients? Was it whole, processed, or ultra-processed?

_____

_____

4. Based on what you learned, what is one food swap you could make to eat healthier?

_____

_____

Worksheet 4: Plant Growth Experiment Data Log

Name: _____ Date Started: _____

Track your plant growth over 2-4 weeks. Measure and record every 3-4 days:

Additional Observations:

Leaf color: _____

Number of leaves: _____

Insects or other visitors: _____

Other notes: _____

_____

Final Analysis:

1. Which pot grew the tallest? Why do you think this happened?

_____

_____

2. What does this experiment teach us about soil health and plant growth?

_____

_____

3. How might this relate to farming practices and food production?

_____

_____

Worksheet 5: Research Project Planning

Name(s): _____ Date: _____

Use this worksheet to plan your research poster or presentation:

Topic: _____

Research Question: What do you want to find out?

_____

_____

Key Facts (List at least 3 important facts you discovered):

1. _____

_____

2. _____

_____

3. _____

_____

Sources (Where did you find your information?):

1. _____

2. _____

3. _____

Action Steps (What can people do based on your research?):

1. _____

2. _____

3. _____

Visual Ideas (What images, charts, or drawings will you include?):

_____

_____

Worksheet 6: Reflection & Action Planning

Name: _____ Date: _____

Reflect on what you learned during this unit:

1. What did you learn about the food system (how food gets from farms to your table)?

_____

_____

_____

2. What surprised you most during this unit?

_____

_____

_____

3. What is one thing you will do differently based on what you learned?

_____

_____

_____

4. What questions do you still have about food, farming, or health?

_____

_____

_____

5. How can you share what you learned with your family or community?

_____

_____

_____

6. On a scale of 1-5, how much did you enjoy this unit? (Circle one)

1 (not at all) 2 (a little) 3 (somewhat) 4 (quite a bit) 5 (very much)

7. What did you like best about this unit?

_____

_____

Activity 1: Pantry Investigation

What you'll need: Food packages from your pantry, paper and pencil

What to do:

1. Choose 10 packaged foods from your pantry
2. Read the ingredient lists together
3. Look for corn-derived ingredients (corn syrup, corn starch, corn oil, dextrose, maltodextrin, etc.)
4. Count how many products contain corn ingredients
5. Discuss: Were you surprised? Why is corn in so many foods?

Activity 2: Whole Food vs. Ultra-Processed Challenge

What you'll need: Your regular groceries

What to do:

1. For one week, try replacing one ultra-processed snack per day with a whole food option

2. Examples: Apple slices instead of chips, carrots and hummus instead of crackers, nuts instead of candy

3. Keep a journal: How do you feel? Do you notice any differences in energy, mood, or hunger?

4. Discuss: Was it hard? What did you like? What would you keep doing?

Activity 3: Start a Small Garden

What you'll need: Seeds (beans, lettuce, herbs), soil, pots or a small garden bed, water

What to do:

1. Choose 2-3 easy-to-grow plants
2. Plant seeds together, following packet directions
3. Care for plants daily (watering, observing)
4. Keep a garden journal with drawings and observations
5. Harvest and eat what you grow!
6. Discuss: What did you learn about where food comes from? What was challenging?

Activity 4: Visit a Farmers Market or Farm

What you'll need: Transportation to a local farmers market or farm

What to do:

1. Visit a farmers market or farm stand
2. Talk to farmers: What do they grow? How do they grow it? What challenges do they face?
3. Buy something you've never tried before
4. Prepare and eat it together
5. Discuss: How is this different from grocery store shopping? What did you learn?

Activity 5: Make a Meal Together

What you'll need: Ingredients for a simple meal using whole foods

What to do:

1. Choose a recipe together (examples: stir-fry with vegetables and rice, pasta with homemade tomato sauce, beef tacos)

2. Shop for ingredients together, reading labels

3. Cook together, with age-appropriate tasks for your child

4. Eat together and discuss: How does this taste compared to packaged versions? Was it fun to make?

5. Make it a weekly tradition!

Activity 6: Compost at Home

What you'll need: Small compost bin or designated outdoor area, food scraps, yard waste

What to do:

1. Set up a simple compost system (many tutorials available online)
2. Collect vegetable scraps, fruit peels, coffee grounds, eggshells, yard waste
3. Avoid meat, dairy, and oils
4. Turn or mix compost weekly
5. Observe changes over weeks and months
6. Use finished compost in your garden
7. Discuss: How does composting reduce waste? How does it help soil?

Activity 7: Food Diary and Reflection

What you'll need: Notebook and pencil

What to do:

1. For one week, keep a simple food diary: What did you eat? How did you feel afterward?
2. Note: Energy level, mood, hunger, stomach comfort
3. At the end of the week, look for patterns
4. Discuss: Do certain foods make you feel better or worse? What changes might you want to make?
5. Remember: This is about awareness, not judgment!

Activity 8: Research a Food Topic Together

What you'll need: Internet access or library

What to do:

1. Choose a topic your child is curious about (examples: Where does chocolate come from? How is cheese made? What are probiotics?)

2. Research together using reputable sources

3. Create a poster, presentation, or report

4. Share what you learned with family or friends

5. Discuss: What surprised you? What questions do you still have?

Parent Letter

Sample Parent Letter

Date: _____

Dear Families,

Our class is beginning an exciting unit called "From Seed to Spoon: Understanding Our Food System." We will be reading the children's book The Cornfield Maze Mystery and exploring where our food comes from, how it's produced, and how we can make informed choices about what we eat.

This unit is designed to spark curiosity and critical thinking—not to cause alarm. Students will learn about:

• The journey of corn from farm to table • Modern farming practices, including GMO crops and herbicides • Food processing and how corn-derived ingredients appear in many products • Ultra-processed foods and their effects on health • The gut microbiome and how diet affects our bodies • Environmental impacts of different farming methods • Practical actions families can take to support health and sustainability

We will conduct hands-on experiments, including:

• Observing and comparing soil samples • Testing plant growth in different conditions • Investigating food labels to identify corn-derived ingredients • Creating research posters about food choices

This unit aligns with Next Generation Science Standards and Common Core ELA standards. It emphasizes inquiry-based learning, source evaluation, and respectful dialogue about complex issues.

How You Can Support Learning at Home:

• Read the book together and discuss the story • Involve your child in grocery shopping and meal preparation • Read food labels together and talk about ingredients • Visit a farmers market or local farm if possible • Try one new whole food recipe together • Ask your child what they're learning and what questions they have

We will be sending home worksheets and activities throughout the unit. Please feel free to reach out if you have any questions or concerns.

Thank you for your support!

Sincerely,

_____

Teacher Name

Glossary

Expanded Glossary with Pronunciations

This comprehensive glossary includes all key terms from the story and lessons, with pronunciations and age-appropriate definitions. Terms are organized alphabetically.

Additive

Pronunciation: AD-ih-tiv

A substance added to food to preserve it, enhance flavor, or improve appearance. Examples include colors, flavors, and preservatives.

Agriculture

Pronunciation: AG-rih-kul-chur

The science and practice of farming, including growing crops and raising animals for food.

Amino Acid

Pronunciation: uh-MEE-no AS-id

Building blocks of proteins. Living things need amino acids to grow and function.

Atrazine

Pronunciation: AT-ruh-zeen

A herbicide used to control weeds in corn fields. It has been banned in Europe due to water contamination concerns.

Bioaccumulation

Pronunciation: BY-oh-uh-kyoo-myoo-LAY-shun

When a chemical builds up in an organism over time, usually because it's absorbed faster than it can be eliminated.

Biodiversity

Pronunciation: BY-oh-dih-VER-sih-tee

The variety of living things in an ecosystem. More biodiversity usually means a healthier, more resilient ecosystem.

Boom Sprayer

Pronunciation: BOOM SPRAY-er

A machine with long arms that sprays liquids (like herbicides or fertilizers) evenly across a field.

Bt Corn

Pronunciation: BEE-TEE CORN

Corn that has been genetically modified to produce a protein from the bacterium Bacillus thuringiensis. This protein kills certain insect pests.

Carcinogenic

Pronunciation: kar-sin-oh-JEN-ik

Capable of causing cancer.

Combine Harvester

Pronunciation: KOM-bine HAR-ves-ter

A large machine that harvests crops by cutting, threshing, and separating grain from stalks and husks.

Compost

Pronunciation: KOM-post

Decayed organic material (like food scraps and leaves) used to enrich soil and help plants grow.

Contamination

Pronunciation: kon-tam-ih-NAY-shun

The presence of unwanted or harmful substances in something, like chemicals in water or soil.

Conventional Farming

Pronunciation: kon-VEN-shun-al FAR-ming

Modern farming methods that may use synthetic pesticides, herbicides, and fertilizers.

Corn Gluten

Pronunciation: CORN GLOO-ten

The protein part of corn, often used in animal feed or as a food additive.

Corn Starch

Pronunciation: CORN STARCH

A white powder made from corn, used to thicken foods like soups, sauces, and puddings.

Corn Syrup

Pronunciation: CORN SIR-up

A sweet liquid made from corn starch, used as a sweetener in many processed foods.

Cover Crop

Pronunciation: KUV-er KROP

A crop planted between growing seasons to protect soil, prevent erosion, add nutrients, and suppress weeds.

Crop Rotation

Pronunciation: KROP roh-TAY-shun

The practice of growing different crops in the same field in different years to improve soil health and break pest cycles.

Desiccant

Pronunciation: DES-ih-kant

A substance used to dry something out. Some herbicides are used as desiccants to dry crops before harvest.

Dextrose

Pronunciation: DEK-strohs

A simple sugar made from corn, chemically identical to glucose.

Ecosystem

Pronunciation: EE-koh-sis-tem

A community of living things (plants, animals, microorganisms) interacting with each other and their environment.

Endocrine Disruptor

Pronunciation: EN-doh-krin dis-RUP-tor

A chemical that interferes with the body's hormone system, potentially affecting growth, development, and reproduction.

Enzyme

Pronunciation: EN-zime

A protein that speeds up chemical reactions in living things. Enzymes are essential for digestion, growth, and many other processes.

EPSPS

Pronunciation: E-P-S-P-S

An enzyme that plants use to make certain amino acids. Glyphosate works by blocking this enzyme.

Erosion

Pronunciation: ih-ROH-zhun

The wearing away of soil by wind, water, or other natural forces.

Fermented Food

Pronunciation: fer-MEN-ted FOOD

Food that has been transformed by beneficial bacteria or yeast. Examples include yogurt, sauerkraut, and kimchi.

Fertilizer

Pronunciation: FER-tih-ly-zer

A substance added to soil to provide nutrients that help plants grow.

Genetic Engineering

Pronunciation: jeh-NET-ik en-jih-NEER-ing

The process of changing an organism's DNA to give it new traits.

Genetically Modified Organism (GMO)

Pronunciation: jeh-NET-ik-lee MOD-ih-fide OR-gan-iz-um

A plant, animal, or microorganism whose DNA has been altered using genetic engineering.

Glyphosate

Pronunciation: GLY-foh-sate

The most widely used herbicide in the world. Brand name: Roundup. It kills plants by blocking an enzyme they need to grow.

Grain Cart

Pronunciation: GRAYN KART

A large wagon that collects grain from a combine harvester and transfers it to trucks.

Gut Microbiome

Pronunciation: GUT MY-kroh-by-ohm

The community of trillions of bacteria, fungi, and other microorganisms living in the digestive system.

Half-Life

Pronunciation: HAF-life

The time it takes for half of a chemical to break down in the environment.

Herbicide

Pronunciation: HER-bih-side

A chemical used to kill unwanted plants (weeds).

Herbicide-Tolerant

Pronunciation: HER-bih-side TOL-er-ant

Describes a plant that has been genetically modified to survive exposure to a specific herbicide.

High-Fructose Corn Syrup (HFCS)

Pronunciation: HY FRUK-tohs CORN SIR-up

A sweetener made from corn syrup, commonly used in sodas, baked goods, and many processed foods.

Hyperpalatable

Pronunciation: HY-per-PAL-uh-tuh-bul

Extremely tasty and appealing, often engineered to encourage overconsumption.

Inflammation

Pronunciation: in-fluh-MAY-shun

The body's response to injury or infection, involving redness, swelling, and sometimes pain. Chronic inflammation can contribute to disease.

Insecticide

Pronunciation: in-SEK-tih-side

A chemical used to kill insects that damage crops.

Integrated Pest Management (IPM)

Pronunciation: IN-teh-gray-ted PEST MAN-ij-ment

An approach to pest control that uses multiple methods (beneficial insects, crop rotation, targeted spraying) instead of relying only on chemicals.

Litigation

Pronunciation: lit-ih-GAY-shun

The process of taking legal action; lawsuits.

Maltodextrin

Pronunciation: mal-toh-DEK-strin

A powder made from corn, rice, or potato starch, used as a filler or thickener in processed foods.

Maximum Residue Limit (MRL)

Pronunciation: MAX-ih-mum REZ-ih-doo LIM-it

The highest amount of a pesticide legally allowed to remain in or on food, set by regulatory agencies.

Metabolite

Pronunciation: meh-TAB-oh-lite

A substance formed when a chemical breaks down in the environment or in a living organism.

Microbe

Pronunciation: MY-krohb

A tiny living thing, such as a bacterium or fungus, that can only be seen with a microscope.

Microbiome

Pronunciation: MY-kroh-by-ohm

The community of microorganisms living in a particular environment, such as soil or the human gut.

Modified Corn Starch

Pronunciation: MOD-ih-fide CORN STARCH

Corn starch that has been chemically or physically altered to change its properties, used in many processed foods.

Monoculture

Pronunciation: MON-oh-kul-chur

The practice of growing a single crop over a large area, year after year.

Organic Farming

Pronunciation: or-GAN-ik FAR-ming

Farming without synthetic pesticides, herbicides, or fertilizers. Organic farmers use natural methods to build soil health and control pests.

Organic Matter

Pronunciation: or-GAN-ik MAT-er

Material that comes from living things, such as decayed plants and animals. Organic matter enriches soil.

Pesticide

Pronunciation: PES-tih-side

A chemical used to kill pests, including insects, weeds, fungi, and rodents.

Planter

Pronunciation: PLAN-ter

A machine that plants seeds in neat rows at precise depths and spacing.

Pollinator

Pronunciation: POL-ih-nay-tor

An animal (like a bee, butterfly, or bird) that carries pollen from one flower to another, helping plants reproduce.

Processing Plant

Pronunciation: PROH-ses-ing PLANT

A factory where raw crops are turned into ingredients or products used in food manufacturing.

Regenerative Agriculture

Pronunciation: rih-JEN-er-uh-tiv AG-rih-kul-chur

Farming practices that restore soil health, increase biodiversity, and capture carbon from the atmosphere.

Residue

Pronunciation: REZ-ih-doo

A small amount of a substance that remains after most of it has been removed or used up.

Shikimate Pathway

Pronunciation: SHIK-ih-mate PATH-way

A series of chemical reactions that plants and some microorganisms use to make certain amino acids. Glyphosate blocks this pathway.

Soil Organic Matter

Pronunciation: SOYL or-GAN-ik MAT-er

Decayed plant and animal material in soil that feeds soil organisms and helps soil hold water and nutrients.

Subsidy

Pronunciation: SUB-sih-dee

Money given by the government to support farmers or industries, often affecting which crops are grown and how much they cost.

Synergistic Effect

Pronunciation: sin-er-JIS-tik ih-FEKT

When two or more substances combine to produce an effect greater than the sum of their individual effects.

Tillage

Pronunciation: TIL-ij

The practice of turning over soil to prepare it for planting. Excessive tillage can damage soil structure.

Ultra-Processed Food

Pronunciation: UL-truh PROH-sest FOOD

Food made mostly from industrial ingredients (oils, sugars, starches, proteins) with many additives. Examples: sodas, chips, instant noodles.

Water-Soluble

Pronunciation: WAH-ter SOL-yoo-bul

Able to dissolve in water. Water-soluble chemicals can wash away easily but may also contaminate water supplies.

Weed

Pronunciation: WEED

A plant growing where it's not wanted, competing with crops for water, nutrients, and sunlight.

Wet Milling

Pronunciation: WET MIL-ing

A process that soaks corn kernels in water to soften them, then separates them into parts (germ, fiber, gluten, starch) for different uses.

Answer Key

Answer Key for Worksheets

Worksheet 1: Story Comprehension - Sample Answers

1. The three main characters are Mary (11), Ana (11), and Ben (10). They call themselves the Corn Crew.

2. They decided to investigate corn production from seed to table, including GMOs, herbicides, food processing, and health effects.

3. Three places they visited: Uncle Ray's farm, Heartland Processing Plant, Miller's Grocery Store (also acceptable: Dr. Lopez's office, school library)

4. GMO stands for Genetically Modified Organism. It's a plant whose DNA has been changed by scientists. Some farmers use GMO corn because it can tolerate herbicides or resist insect pests, which helps them control weeds and reduce crop damage.

5. Ultra-processed foods are made mostly from industrially processed substances like oils, fats, sugars, and starches, with added flavors, colors, and preservatives. Examples from the story: soda, chips, instant noodles, packaged snacks, many breakfast cereals, candy.

6. Ana noticed that her mother had more stomach problems on days when she ate a lot of processed foods, and felt better on days when she ate simpler, whole foods.

7. Dr. Lopez advised eating more whole foods (fruits, vegetables, whole grains, beans), reading labels, cooking more at home, and not aiming for perfection—an 80/20 approach is realistic.

8. The Corn Crew learned that asking questions is how we learn, that science doesn't always have simple answers, that it's important to look at evidence from multiple sources, and that everyone has power to make informed choices.