



SC Farm Bureau  
Ag in the Classroom  
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August 2022

## **Pancakes, Pancakes!** **By Eric Carle**

**Grade Level(s):**

- Kindergarten – Second Grade

**Reading Levels**

- Lexile- AD530L
- Fountas and Pinnell- M

**Estimated Time:**

- 40 minutes

**Purpose:**

- Students will understand how wheat is harvested and becomes flour.



Scan here for ready to use slides!

**Vocabulary:** (cite 1,2)

**chemical change:** a change that results in the formation of a new chemical substance through the making or breaking of bonds between atoms

**physical change:** a change in a substance that does not alter its chemical identity, including changes in shape, physical state, size, or temperature; this type of change is usually reversible

**grain mill** -a grinder that can be used to grind wheat, oats, barley, corn, and other cereals into a fine powder or flour to use in baking and cooking.

**wheat**-the grain obtained from certain grasses and used in making flour and other foods

**bran**-The bran is the multi-layered outer skin of the edible kernel. It contains important antioxidants, B vitamins, and fiber.

**The endosperm**-The endosperm is the germ's food supply, which provides essential energy to the young plant so it can send roots down for water and nutrients and send sprouts up for sunlight photosynthesizing power. The endosperm is by far the largest portion of the kernel. It contains starchy carbohydrates, proteins, and small amounts of vitamins and minerals.

**germ**-The germ is the embryo that has the potential to sprout into a new plant. It contains many B vitamins, some protein, minerals, and healthy fats.

**photosynthesis:** the process by which plants convert carbon dioxide, water, and light energy into sugars and oxygen in order to store energy; the opposite of cell respiration

**Background Agricultural Connections:** (CITE 1 and 5)

**Wheat**

Bread has been an important part of the human diet since early times. Loaves baked over 5,000 years ago have been found in ancient Egyptian tombs. Wheat has been discovered in pits where human settlements existed 8,000 years ago. In the Stone Age, solid cakes were made from crushed wheat. Bread provided ancient civilizations with a reliable food source.

The wheat plant has four basic parts—roots, stem, leaves, and head. The *roots* anchor the plant in the soil, absorbing water and nutrients and transporting them to the stem. The *stem* supports the head and helps transport nutrients and water throughout the plant. The *leaves* are responsible for **photosynthesis**.

The *head* of the wheat plant contains the wheat seeds, also referred to as kernels or berries.

Wheat flour is made from the kernels of the wheat plant. The kernel is the seed from which the wheat plant grows. A wheat kernel contains three distinct parts—the **bran**, **germ**, and **endosperm**. The *bran* is the multi-layered, hard outer covering of the kernel. Bran consists of important antioxidants, B vitamins, and fiber. The *germ* is the embryo or sprouting section of the kernel. It is the part of the wheat kernel that will sprout and grow into a new wheat plant. During the milling process, the germ is often separated from the flour because its fat content limits the flour's shelf-life. The germ contains B vitamins, protein, minerals, and healthy fats. The *endosperm* is the germ's food supply. In its natural state, the endosperm provides essential energy to the young wheat plant, allowing the plant to send roots down into the soil to absorb water and nutrients and shoot sprouts up for sunlight.

In Neolithic times, saddle stones (cradle-shaped pieces of hard stone) and hand stones (cylindrical-shaped stones) were used to crush grain into a coarse flour. In the Stone Age, hand-powered rotary querns consisted of a rotating circular stone on top and a stationary stone on the bottom to grind grain. In the 18th century, automated stone wheels, powered by wind or water, rose in popularity as a method of flour production. The invention of the roller **mill** in the middle of the 19th century increased the productivity of flour mills. Commercial flour mills today still use the roller mill, however, they are utilizing the advances in modern technology to improve the efficiency, reliability, and safety of flour production.

When wheat arrives at the mill, it is weighed, tested, cleaned, and conditioned. To condition the wheat kernels, water is added to the **grain** in order to toughen the outer part of the wheat and soften the inner part. The wheat then rests for about twelve hours. Steel rollers break open the grain to release and separate the endosperm from the bran and the germ. The starchy endosperm is ground and sifted several times to make white, all-purpose flour. When making whole wheat flour, the bran and germ is put back into the white flour at the end of the milling process. The flour is then packed into bags to be transported to stores, bakeries, and food processing plants.

### **Chemical and Physical Change**

The little red hen of folk-tale fame planted wheat and worked hard to make bread. Wheat is at the center of many recipes; the hen could just as well have made pancakes! Pancakes are easily made in the classroom, allowing students to observe the changes that take place as ingredients become batter and batter turns to pancake. As students follow the recipe to make pancakes, they can observe the properties of ingredients at different stages—in their original form, after they have been measured and mixed, and after they have been cooked. This provides a simple and captivating introduction to the difference between physical and chemical changes.

Young students will not have enough experience to determine the difference between physical and chemical changes. **Physical changes** happen when the form, shape, or appearance of material changes, but the substance of the material remains the same. Although it may be difficult, physical changes can generally be reversed. For example, mixing flour and sugar, tearing a large sheet of paper into smaller pieces, and freezing water are all examples of physical changes. In contrast, a **chemical change** creates a new substance with new properties that cannot be turned back into its original form. Cooking pancake batter and burning paper or wood are examples of chemical changes. Generally, a chemical change is irreversible and will create a new material that looks, feels, smells, and/or tastes very different.

The kitchen is a great place for students to make observations and explore the basics of chemistry. Almost all cooking has some basis in the physical sciences. Likewise, most cooking ingredients have some basis in the life sciences. Exploring food production helps engage students in the basics of biology. A discussion of maple syrup production also follows nicely after making pancakes.

#### **Materials:**

Wheat diagram (enlarge to poster size for display) (cite 2)

Wheat grain labels

Pancakes, Pancakes! By Eric Carle

Writing Prompt

[Pancake, Pancakes! \(video\)](#) (cite 4)

#### **Interest Approach – Engagement:**

The teacher will display a diagram of the inside of wheat grain and ask if anyone knows what the diagram represents. The teacher will then use the labels to correctly label the wheat grain and discuss the different parts of the wheat grain. The student will then brainstorm about what they think or know is made from wheat.

**Procedures:**

Before reading Pancakes, Pancakes! the teacher and students will take a picture walk through the book focusing on the questions of how wheat and pancakes are related. After taking the picture walk the teacher will have the students share how wheat and pancakes are related.

The teacher will then read the book Pancakes, Pancakes! by Eric Carle aloud, focusing on how the wheat became pancakes. After reading, the students will recall the process of how the wheat became pancakes. Students will use the writing prompt to correctly order the steps of wheat to pancakes.

**Processing Wheat (cite 3)****Assessment:**

Students will be able to write the steps on how wheat became pancakes using the read-aloud Pancakes! Pancakes!

**Enriching Activities:****1-Pancakes****Materials:**

Pancake Mix  
Eggs  
Milk/ Water  
Griddle  
Spatula  
Plates  
Syrup

**Preparation**

Collect the items needed to make pancakes in the classroom.  
Review the vocabulary

**Procedure:**

Follow the directions on the pancake mix to make the pancakes. While the teacher is mixing and cooking, the teacher can discuss the types of changes the wheat had to make to become a pancake that we can eat.

**Questions:**

- 1- What is a physical change?
- 2- What is a chemical change?
- 3- How do you think the wheat has physically changed?
- 4- Do you think the wheat has been chemically changed?  
(Refer to the vocabulary)

Eat and Enjoy!

**2- How to Make a Pancake****Materials**

Scissors  
Glue  
"How to Make a Pancake" printable  
Mini pancakes  
Jam

Butter  
Paper plates

### **Preparation**

Each student will need the following:  
A copy of “How to Make a Pancake” printable  
Scissors  
Glue  
Warm the mini pancakes  
1 – tsp of jam  
A pat of butter  
plate

### **Procedure**

Read [Pancakes, Pancakes!](#)  
Review sequencing of how to make a pancake  
Discuss where pancakes, jam, eggs, and butter originate as they are sequencing the order of “how to make a pancake”.  
After completing the cut and paste activity the students can enjoy their own mini pancakes.

### **Companion Lessons**

- [At Grandpa's Sugar Bush](#)
- [Pancakes to Parathas: Breakfast Around the World](#)
- [Pancakes for Breakfast](#)

### **Sources/Credits:**

- 1-Debra Spielmaker, Administrator and Yasuko Mitsuoka Grow. “Pancakes.” *Matrix Lesson*, <https://agclassroom.org/matrix/lesson/534/>.
- 2-“What Is a Whole Grain?” *What Is a Whole Grain? | The Whole Grains Council*, <https://wholegrainscouncil.org/what-whole-grain>.
- 3-“Processing Wheat into Flour.” *YouTube*, YouTube, 30 May 2017, <https://www.youtube.com/watch?v=CwY-P9t8x8>.
- 4-“Pancakes, Pancakes! - A Read-Aloud Children's Book by Eric Carle.” *YouTube*, YouTube, 31 May 2022, <https://www.youtube.com/watch?v=5-9ljf-XK9U>.
- 5- Agclassroom.org. 2022. *Matrix Lesson*. [online] Available at: <<https://agclassroom.org/matrix/lesson/628/>> [Accessed 14 July 2022].

## **Suggested SC Standards Met:**

### **ENGLISH/ LANGUAGE ARTS**

K.I.1.1 Engage in daily opportunities for play and exploration to foster a sense of curiosity, develop the disposition of inquisitiveness and begin to verbally articulate “I wonders” about ideas of interest.

K.RL.5.1 With guidance and support, ask and answer who, what, when, where, why, and how questions about a text; refer to key details to make inferences and draw conclusions in texts heard or read.

K.RL.5.2 With guidance and support, ask and answer questions to make predictions using prior knowledge, pictures, illustrations, title, and information about author and illustrator.

K.RL.6.1 Describe the relationship between illustrations and the text.

K.RL.9.2 With guidance and support, identify how an author’s choice of words, phrases, conventions, and illustrations suggest feelings, appeal to the senses, and contribute to meaning.

K.RL.11.1 Identify the author and illustrator and define the role of each.

1.RL. 5.1 Ask and answer who, what, when, where, why, and how questions to demonstrate understanding of a text; use key details to make inferences and draw conclusions in texts heard or read.

1.RL. 5.2 Make predictions using prior knowledge, pictures, illustrations, title, and information about author and illustrator.

1.RL.9.1 Identify the literary devices of rhythm, repetitive language, and simile and sound devices of rhyme, onomatopoeia, and alliteration; explain how the author uses each.

1.RL.9.2 Identify how an author’s choice of words, phrases, conventions, and illustrations suggest feelings, appeal to the senses, and contribute to meaning.

1.RL 11.1 Identify the author’s purpose—to explain, entertain, inform, or convince.

2.I 1.1 Ask self-generated questions that lead to group conversations, explorations, and investigations.

2.RL. 5.1 Ask and answer literal and inferential questions to demonstrate understanding of a text; use specific details to make inferences and draw conclusions in texts heard or read.

2.RL.5.2 Make predictions before and during reading; confirm or modify thinking.

2.RL.6.1 Use information gained from illustrations and words in a print or multimedia text to demonstrate understanding of its characters, setting, or plot.

## **Writing**

K.MCC.3.1 Use a combination of drawing, dictating, and writing to narrate a single event or several loosely linked events, to tell about the events in the order in which they occurred, and to provide a reaction to what happened.

1.MCC.3.1 Explore multiple texts to write narratives that recount two or more sequenced events, include details, use temporal words to signal event order, and provide a sense of closure.

2.MCC.3.1 Explore multiple texts to write narratives that recount a well-elaborated event or short sequence of events; include details to describe actions, thoughts, and feelings; use temporal words to signal event order; and provide a sense of closure.

## **SCIENCE**

K-ESS3-1. Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.

K.L.2A. Conceptual Understanding: The environment consists of many types of organisms including plants, animals, and fungi. Organisms depend on the land, water, and air to live and grow. Plants need water and light to make their own food. Fungi and animals cannot make their own food and get energy from other sources. Animals (including humans) use different body parts to obtain food and other resources needed to grow and survive. Organisms live in areas where their needs for air, water, nutrients, and shelter are met.

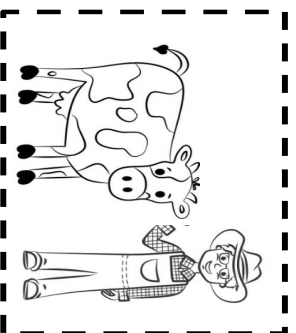
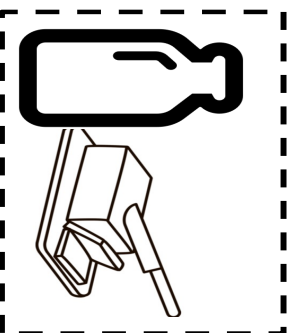
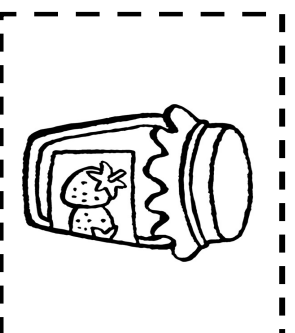
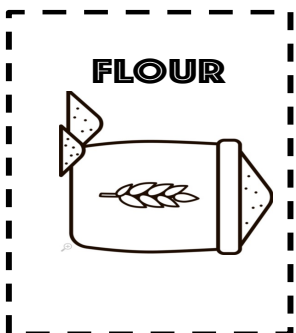
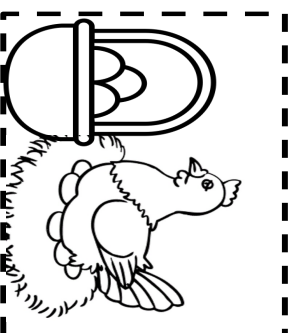
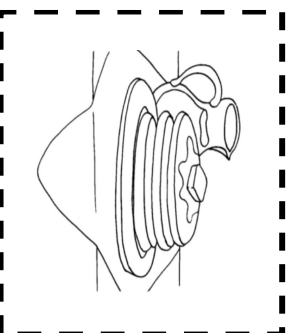
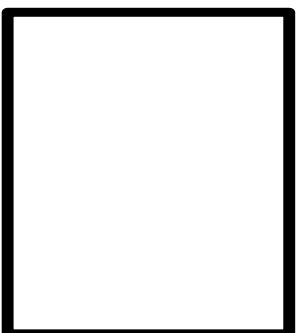
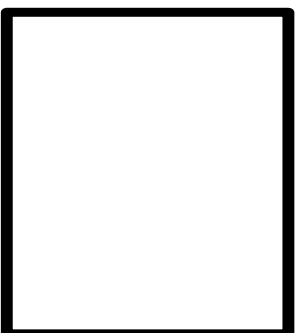
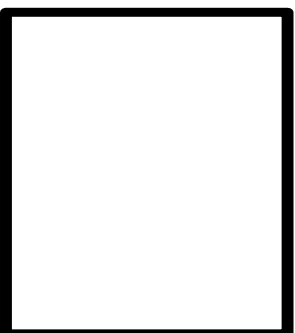
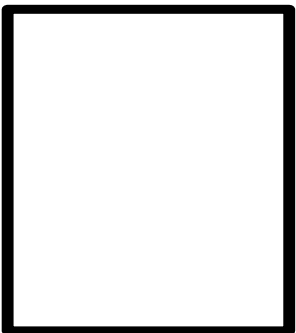
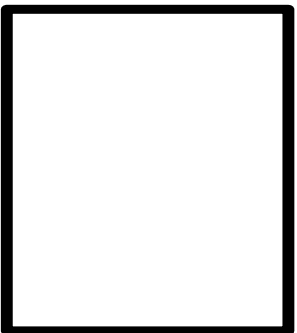
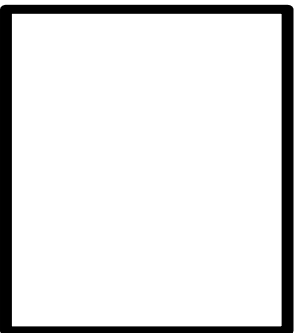
1.L.5A.1 Obtain and communicate information to construct explanations for how different plant structures (including roots, stems, leaves, flowers, fruits, and seeds) help plants survive, grow, and produce more plants.

1.L.5A.2 Construct explanations of the stages of development of a flowering plant as it grows from a seed using observations and measurements.

Lesson Plans Available Online at  
[scfb.org/book-of-the-month](http://scfb.org/book-of-the-month)

# HOW TO MAKE A PANCAKE

cut and paste the pictures in order

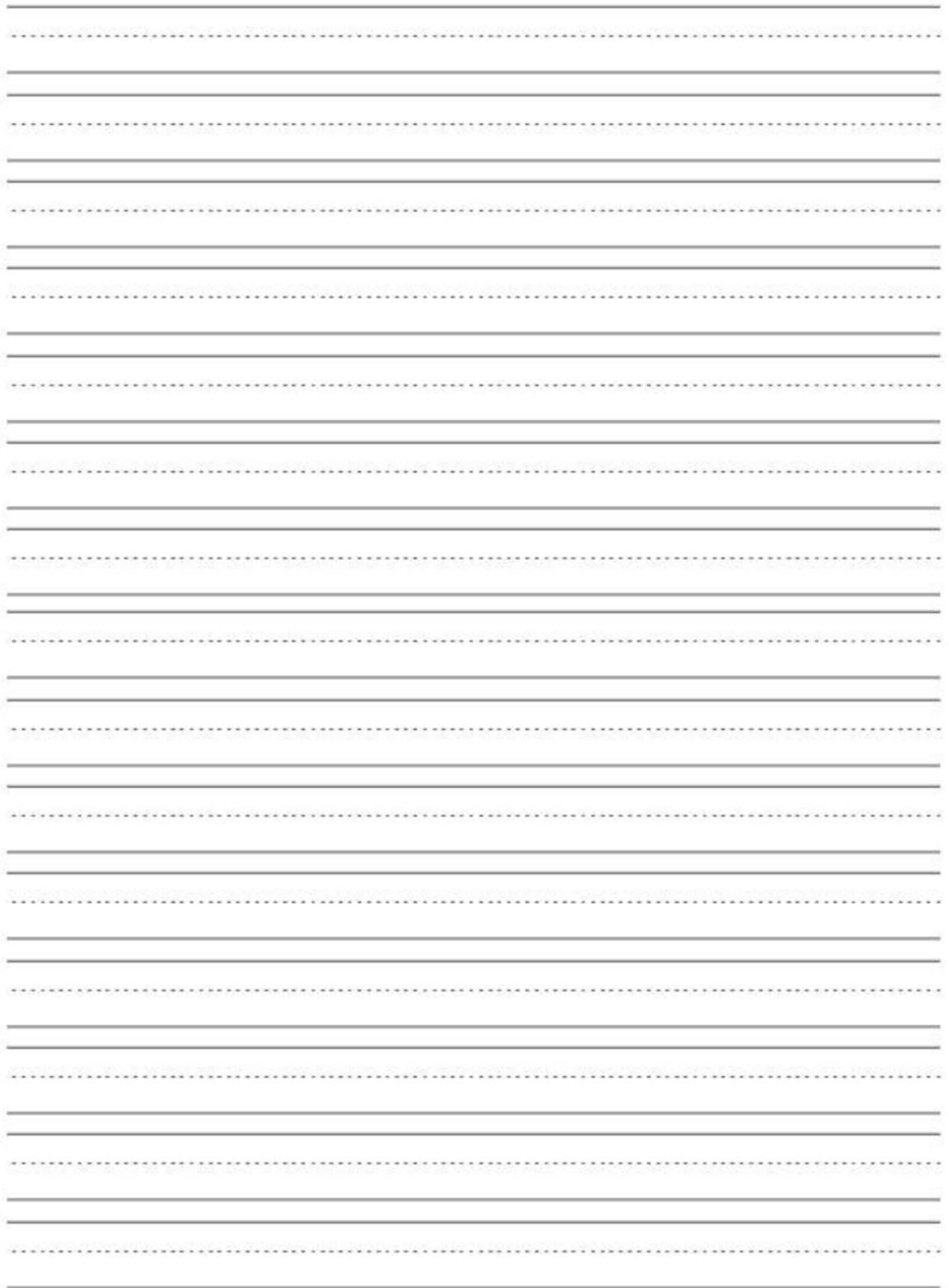


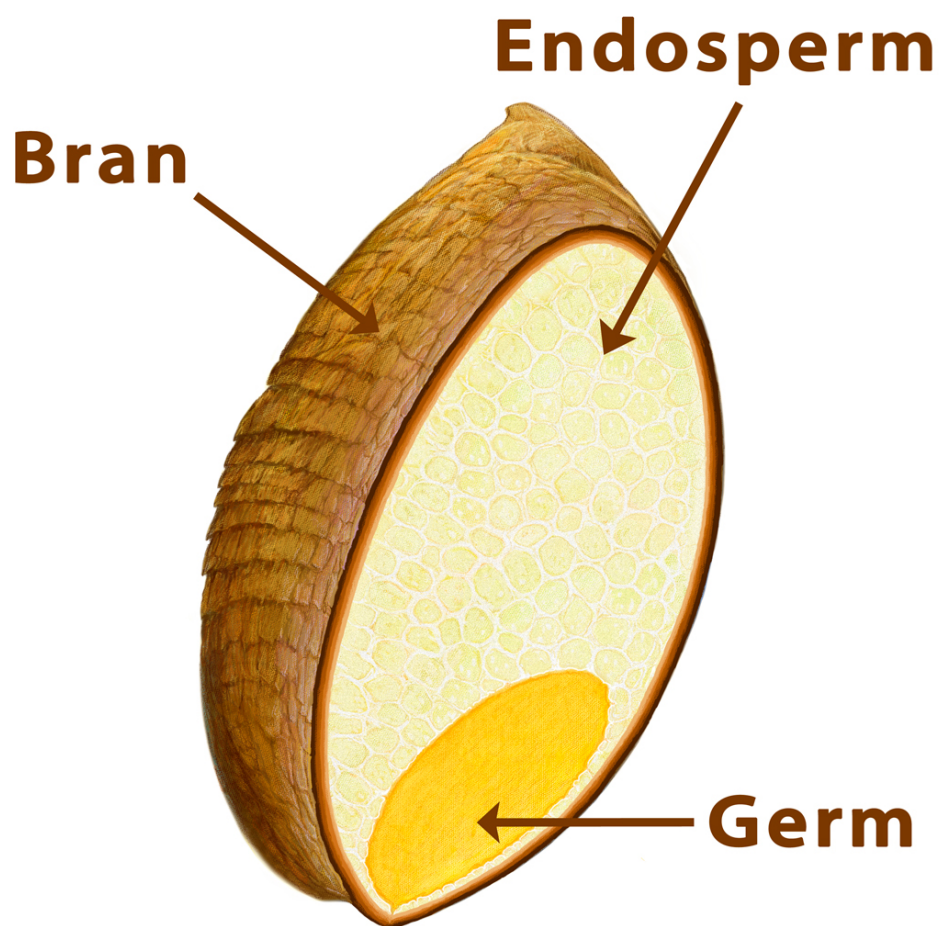




## **Wheat to Pancakes**

Handwriting practice lines consisting of multiple rows of solid top and bottom lines with a dashed midline.





# Grain Anatomy

WHOLEGRAINSCOUNCIL.ORG



**Germ**

**Bran**

**Endosperm**

