



Grade Level: K-2

Essential Skills: 3,4, 9

Math: K.CC.4, K.MD.1, 1.MD.1, 2.MD.2

Time: 1.5 hours

Materials:\*Wheat Milling Kit  
- Wheat Grinder\*  
- Wheat for Milling\*  
- Seeds for counting pack per student\*  
- Wheat Seed Measuring Page per student  
-Tape  
-Seed Survivor Pictures\*

**\*Materials Available from Oregon Agriculture in the Classroom.**

**AITC Library Resources:**

Books:  
*Bread Comes to Life- A Garden of What and a Loaf to Eat Book*  
*Wheat- A True Book*  
*From Wheat to Bread*  
*The Wheat We Eat*

Supplemental Materials:  
*Wheat Heads*  
*US Wheat Trifold*  
*Cereal Grain Types & Varieties*

More Lessons:  
From Wheat to Macaroni

07/20

# Lesson to Grow

## Wheat Milling & Counting

**Description:**

Students will explore the concept of milling wheat for flour for use in their daily lives and use wheat kernels as a nonstandard unit of measurement.

**Background:**

Oregon farmers grow primarily soft white wheat, with wheat being grown in 24 Oregon Counties. Six types of wheat are grown in the United States with each one having a different purpose.

Six Classes of Wheat

1. Hard Red Winter: A versatile class that has excellent milling and baking characteristics.
2. Hard Red Spring: Best for making specialty breads like hearth breads, rolls, bagels and pizza crust.
3. Soft Red Winter: Most profitable choice and produces a wide variety of products like cookies, crackers or cakes.
4. Soft White: Low in moisture with excellent milling results. The most ideal for exquisite cakes and pastries.
5. Hard White: Best for making whole wheat foods, pan breads, or flat breads.
6. Durum: Hardest of all wheat classes. Highest gluten content and is best used for premium pasta products and some Mediterranean breads.

Wheat has two distinct growing seasons, winter wheat and spring wheat. Winter wheat is planted in the fall whereas spring wheat is planted in the spring. The majority of wheat production in the United States is winter wheat. Once the land is prepared, the seeds are sown in furrows created by the use of a wheat drill. A wheat drill is attached to a tractor and allows for the wheat seeds to be spread evenly and in place.

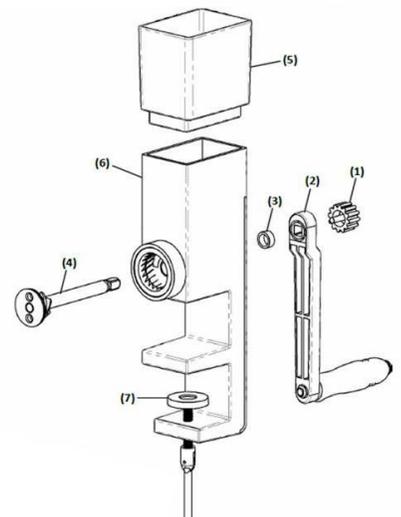
For large wheat crops, the use of a combine machine allows for quick and easy harvesting of acres of wheat in a short period of time. Winter wheat is harvested in the spring or summer, while spring wheat is harvested in the late summer or early fall.

**Directions:**

**Part I: Grinding Wheat using a Grain Mill**

Set-Up

- 1) Insert the shaft and attach milling cone through the body.
- 2) Slip the nylon washer on the end of the shaft, then attach the handle and adjustment knob.
- 3) Mount the grinder on a sturdy table or counter top, then secure with the clamp.
- 4) Select the desired texture by turning the adjustment knob clockwise for fine milling and counterclockwise for coarser milling.



1. Adjustment Knob
2. Handle
3. Nylon Washer
4. Milling Cone & Shaft
5. Housing
6. Body
7. Clamp Screw

## **Part II: Wheat Scramble- From Seed to Bread**

- 1) Using the Seed Survivor photos, describe to students the process of planting and processing wheat.  
*Farmers grow wheat planting in the fall or spring depending on the type of wheat. When the plant has matured and is ready for harvest, farmers use a machine called a combine. The combine cuts the crops and separates the seeds from the rest of the plant. The combines thresh the seeds, removing the seeds from the plant. Using a wheat head rub it in between your hands to simulated the threshing of a combine. The combine separates the seed and stores in a bin where it will later be hauled to a processing plant. The plant material or debris that is separated from the seed is called chaff and is made into bedding material for animals called straw. Once the seed is hauled to the process plant it is milled.*
- 2) Split class into 2 teams, give each team a set of the Seed Survivor photos that have been mixed up.
- 3) Have students race to put the photos in order from seed to bread. You should have two spots in the classroom where students can hang the pictures in order for the relay using tape to hang.
- 4) When students have finished, their whole group should be sitting down quietly at the finish line.
- 5) Check each groups work, correcting the order if needed.  
*They should be arranged in the following order: C, E, H, A, L, B, D, I, G, F, J and K.*

## **Part III: Milling Wheat to Flour**

*Now, that we have seen the process of planting we are going to take a deeper look at milling our own wheat into flour.*

- 1) Add one cup of grain in the housing chamber of the assembled grain grinder.
- 2) Place a cup under the body of the mil to catch the flour once the grain is ground.
- 3) Adjust the texture as needed.
- 4) Begin the milling process by turning the handle. Let students take a turn milling the wheat into flour.

## **Part IV: Counting Seeds in the Kernel**

- 1) Tell students that each wheat head contains kernels also know as the wheat seeds. Today, we are going to count the average amount of seeds that come from one wheat plant. Provide each student or pair of students with a pack of seeds.
- 2) Using the grid to help count seeds, students will place seeds into groups of five in each box of the grid. Have students count the total amount of seeds in their packets using the grid as a tool. (There should be 50 seeds).
- 3) Ask students how many seeds they counted, this is the amount of seeds of wheat plant on average has.
- 4) Using the wheat seeds a nonstandard measurement unit, have them measure the objects listed on their worksheet.



## Página de medición de semillas de trigo

Nombre del estudiante: \_\_\_\_\_

Use la tabla a continuación para contar la cantidad de semillas de trigo que produce una planta de trigo. Coloque cinco semillas de trigo en cada caja para ayudarlo a contar la cantidad total de semillas.


¿Cuántas semillas provienen de una planta de trigo?: \_\_\_\_\_

Usando las semillas de trigo como herramienta de medición, mida la longitud de cada objeto a continuación. Luego, mide cada objeto con una regla en pulgadas.

1. Un libro es \_\_\_\_\_ semillas de trigo largas y \_\_\_\_\_ pulgadas de largo.
2. Una regla es \_\_\_\_\_ semillas de trigo largas y \_\_\_\_\_ pulgadas de largo.
3. Una caja de crayones es \_\_\_\_\_ semillas de trigo largas y \_\_\_\_\_ pulgadas de largo.
4. Una carpeta es \_\_\_\_\_ semillas de trigo largas y \_\_\_\_\_ pulgadas de largo.
5. Un marcador es \_\_\_\_\_ semillas de trigo largas y \_\_\_\_\_ pulgadas de largo.
6. Mi zapato es \_\_\_\_\_ semillas de trigo largas y \_\_\_\_\_ pulgadas de largo.
7. Una barra de pegamento es \_\_\_\_\_ semillas de trigo largas y \_\_\_\_\_ pulgadas de largo.
9. Mi tarjeta identificativa \_\_\_\_\_ semillas de trigo largas y \_\_\_\_\_ pulgadas de largo.
10. Mi lapiz es \_\_\_\_\_ semillas de trigo largas y \_\_\_\_\_ pulgadas de largo.