

# **Busy Barns Adventure Farm LLC**

“Bringing Agriculture to Education”



## **THE WONDERS OF WHEAT**

**Curriculum Resource  
for Grades K-4  
2010**



Busy Barns Farm provides an agricultural based education program each autumn in order to broaden the knowledge base of elementary aged student.

**[www.busbarnsfarm.com](http://www.busbarnsfarm.com)**

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## Notes to the Teacher:

- Wisconsin standards are correlated with the lesson plans. Many other standards will be covered dependent on the extensions you choose to do with your class.
- One goal of this curriculum is to familiarize the students with agriculture emphasizing on wheat and its important role in our diets. ....
- Helpful websites:
  - [www.busybarnsfarm.com](http://www.busybarnsfarm.com)
  - [www.agintheclassroom.org](http://www.agintheclassroom.org)
  - [www.wheatfoods.org](http://www.wheatfoods.org)
- Please contact us at [www.busybarnsfarm.com](http://www.busybarnsfarm.com) if you have any feedback regarding this curriculum.
- The materials contained here were drawn from and adapted from the following sources:
  - Oklahoma Agriculture in the Classroom
  - Utah Agriculture in the Classroom
  - Montana Wheat & Barley Committee
  - Wheat Food Council
  - Original materials from Mariah Telfer-Hadler
- This curriculum was compiled and written by Mariah Telfer-Hadler of Busy Barns Farm. Mariah is certified in both Wisconsin and New York State. She holds a bachelors degree from the University of WI-River Falls in Animal Science, Dairy Business and a master's in education from Roberts Wesleyan College in Rochester, NY.
- The curriculum was reviewed and expanded to by Caitlin Gibson. Caitlin will be certified by December 2010 with an Elementary Education/Communications double major from the University of Wisconsin-Madison. She will be certified to teach ages: Pre-K (birth) to grade 5.

# Lesson #1: The Wheat Plant

Grades K-4: Pre-trip

## WI State Learning Standards:

Subjects – Science

Life Science: F.4.1, F.4.2, F.4.3

Earth Science: E.4.2

**Objectives:** The student will sequence stages in the life of a wheat plant and identify the six main parts of the wheat plant.

## Background:

Spring wheat is planted in the spring and harvested in late summer. Spring wheat grows best in the northern areas of the United States where the summers are not too hot for the young plants, such as Wisconsin, North and South Dakota, Minnesota and Montana.

Farmers can also grow a kind of wheat called winter wheat. This type of wheat is planted and starts growing in the fall, rests during the winter and begins to grow again in the spring.

Before planting, the farmer must prepare the soil for the seed. He or she spends many hours on a tractor turning the soil and breaking it into fine particles. At last the soil is ready, the weather is right, and it is time to plant. The farmer puts the seed in the ground, using a machine called a grain drill.

The moisture in the soil is what causes the wheat plant to start growing. A shoot grows up through the soil. As the plant gets bigger, it draws water and nutrients up through the roots and produces carbohydrates (food) in the leaves. A good supply of water, nutrients and food will allow the plants to grow tall and develop green leaves. Wheat planted in the fall will grow about six inches tall before the first freeze. After that the plants stop growing, or become dormant, until spring. While the plant is dormant, the farmer may turn cattle into the fields to eat the tender first leaves. This does not harm the plants. In the spring they will produce new leaves.

The warmth of spring encourages the plants to grow again. Soon people driving along county roads can see lush green carpets, between two and four feet tall. Slowing, as the weather turns warmer, the wheat will mature and turn the green from tan to yellow and finally to a golden color that tells the farmer harvest is just ahead.

## Materials:

- Worksheets
- String
- Fuzzy Pipe Cleaner
- Straws
- Tissue Paper

**Procedures:**

1. Have students create a K-W-L chart, provided in curriculum on page 13. Complete the K and W sections first. The L section will be completed in lesson #3 when they return from their field trip.
2. Hand out student worksheet “Wheat Farmers”. Read it together as a class before having students complete it.
3. Pass out student worksheets “The Wheat Plant” A and B. Go over the directions before having students complete them.

**Extensions:**

1. Have your students visit the interactive “Just for Kids” page at [www.wheatfoods.org](http://www.wheatfoods.org) or review the material online as a class. Watch the great video’s at this website’s “How Wheat Works” page. Videos are 4-5 minutes in length. This website does a fantastic job over viewing and providing a true depiction of wheat products from farm to fork. They cover the history of wheat, what a combine does, transportation, the harvest process, weather implications, cost of equipment, and the planting/growing seasons.
2. Create a three-dimensional wheat plant on a door or board display.
  - Use string to represent the root system (green for a young wheat plant, yellow for a ripe plant)
  - Make the stem of painted paper straws.
  - Make the leaves of matching tissue paper.
  - The head can be made of fuzzy pipe cleaners or craft fur rolled into a tube shape.
  - Label the six parts of the plant.

**Extra Reading:** Johnson, Sylvia, *Wheat*, Lerner, 1990. See index on pages 49 and 50.

**Assessment:** Have students pair and share to a partner about what they read. After sharing with a classmate the discussion will open up to the entire class.

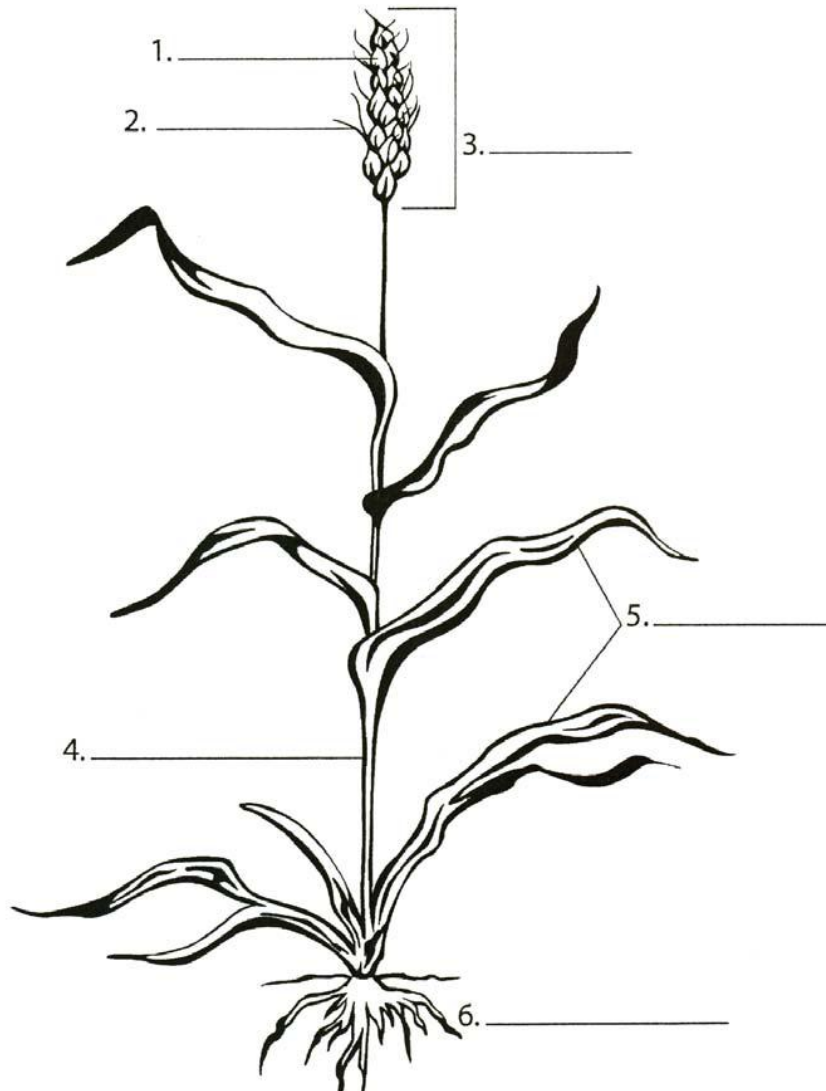
**Vocabulary :** Beard, grain drill, kernel, leaves, root, stem, winter wheat, carbohydrates, nutrients, harvest, dormant

*Lesson Plan adapted from Oklahoma Ag in the Classroom*

Name: \_\_\_\_\_

## The Wheat Plant

Label the parts of the diagram of the wheat plant using the **boldfaced** words below. This annual grass plant grows to be two to three feet tall.



**roots** - the part of the plant that gets nourishment from the soil and which anchors the wheat plant to the soil

**head** (termed spike until it matures) - the part of the plant that contains the kernels and the beard, located at the top of the plant stem

**leaves** - the parts of the wheat plant that gather light energy for photosynthesis

**kernel** - When planted in moist soil, this plant part provides the plant with food to grow. Each wheat head contains 50 to 75 of these, which are the only part of the wheat plant used for human food and livestock feed.

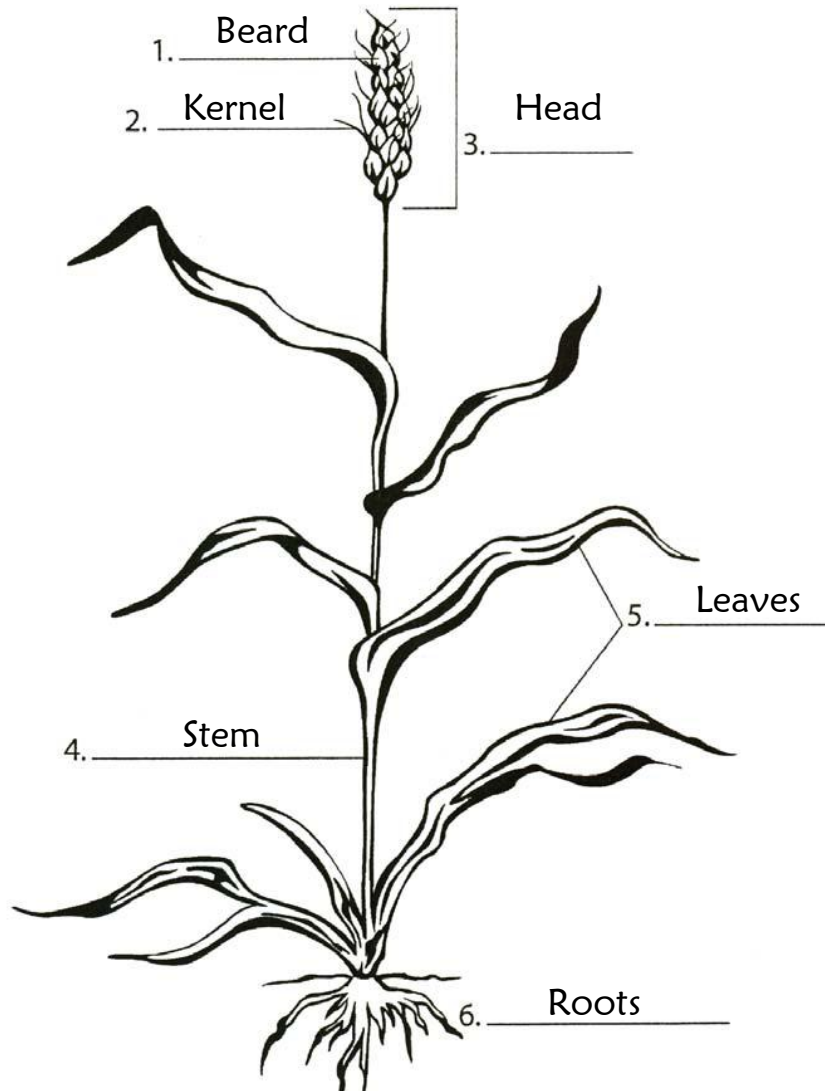
**beard** - This part of the plant looks bristly and protects the kernels.

**stem** - the part of the wheat plant that supports the head and becomes straw at harvest

Name: \_\_\_\_\_

## The Wheat Plant – KEY

Label the parts of the diagram of the wheat plant using the **boldfaced** words below. This annual grass plant grows to be two to three feet tall.



**roots** - the part of the plant that gets nourishment from the soil and which anchors the wheat plant to the soil

**head** (termed spike until it matures) - the part of the plant that contains the kernels and the beard, located at the top of the plant stem

**leaves** - the parts of the wheat plant that gather light energy for photosynthesis

**kernel** - When planted in moist soil, this plant part provides the plant with food to grow. Each wheat head contains 50 to 75 of these, which are the only part of the wheat plant used for human food and livestock feed.

**beard** - This part of the plant looks bristly and protects the kernels.

**stem** - the part of the wheat plant that supports the head and becomes straw at harvest

Name: \_\_\_\_\_

## Wheat Farmers

**A**

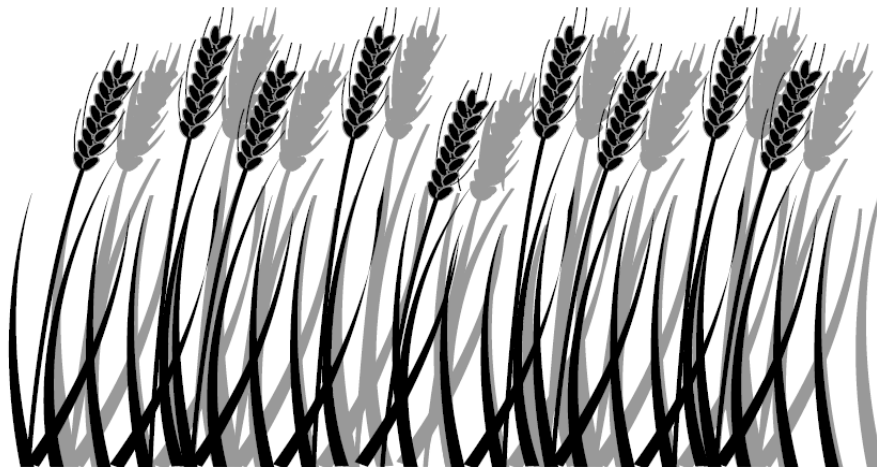
Farmers can grow a kind of wheat called hard red winter wheat. This wheat is planted in the fall and starts growing in the fall. During the winter it rests. Sometimes the farmer puts cattle in the wheat field to graze in the winter. During the spring it begins to grow again.

First, the farmer prepares the soil. He or she spends many hours on a tractor turning the soil and breaking it into fine particles. At last the soil is ready, the weather is right, and it is time to plant. The farmer puts the seed in the ground, using a machine called a grain drill.

A shoot grows up through the soil. The moisture in the soil is what causes the wheat plant to start growing. The plant gets bigger. It draws water and nutrients up through its roots and produces carbohydrates (food) in its leaves.

The plants grow tall and develop green leaves. Wheat planted in the fall will grow about six inches tall before the first freeze. After the first freeze the plants stop growing, or become dormant, until spring. While the plant is dormant, the farmer may turn cattle into the fields to eat the tender first leaves. This does not harm the plants. In the spring the plants will produce new leaves.

In the spring, the plants grow quickly. The warmth of spring encourages the plants to grow again. As the weather turns warmer, the wheat turns from green to tan to yellow and finally to a golden color that tells the farmer it is time for harvest.



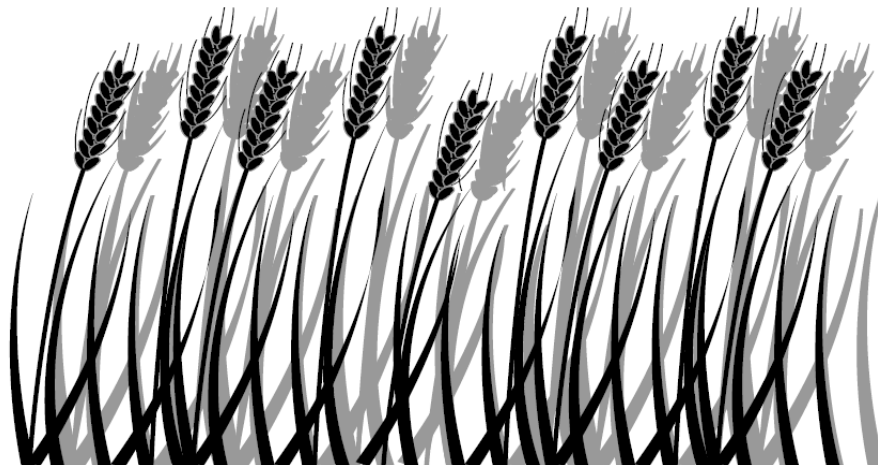
Name: \_\_\_\_\_

## Wheat Growth Process

**B**

Read the sentences below. Number the steps in order from one to nine to retell what happens to wheat, from seed to harvest.

- \_\_\_ The plant rests through the winter months.
- \_\_\_ The wheat is harvested.
- \_\_\_ A shoot grows up through the soil.
- \_\_\_ The full-grown plant turns from green to tan to yellow to a golden color.
- \_\_\_ The plant grows tall and develops green leaves.
- \_\_\_ Before planting, the farmer prepares the soil.
- \_\_\_ The plant continues to grow until there is a hard freeze.
- \_\_\_ In the spring, the plant grows quickly.
- \_\_\_ The farmer puts the seed in the ground, using a machine called a grain drill.



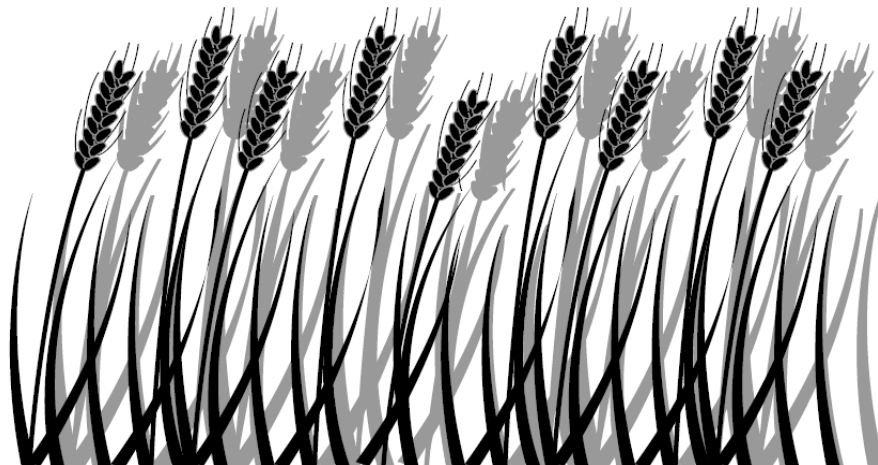
Name: \_\_\_\_\_

## Wheat Growth Process – KEY

**B**

Read the sentences below. Number the steps in order from one to nine to retell what happens to wheat, from seed to harvest.

- 6   The plant rests through the winter months.
- 9   The wheat is harvested.
- 3   A shoot grows up through the soil.
- 8   The full-grown plant turns from green to tan to yellow to a golden color.
- 4   The plant grows tall and develops green leaves.
- 1   Before planting, the farmer prepares the soil.
- 5   The plant continues to grow until there is a hard freeze.
- 7   In the spring, the plant grows quickly.
- 2   The farmer puts the seed in the ground, using a machine called a grain drill.



## Lesson #2: Busy Barns “Acres of Adventures”

Grades K-4: On-farm Field Trip

### WI State Learning Standards:

Subjects –Social Studies: Geography, Behavioral Sciences

Geography: A.4.4

Behavioral Science: E.4.12, E.4.15

**Objectives:** Students will experience agriculture first hand through unique interactive farm activities. Students will work together to accomplish the corn maze as groups.

**Approximate Time:** 1 ½ to 3 hours (30 minutes guided)

This lesson takes place in the hand-on outdoor classroom at Busy Barns Farm. It consists of 3 parts that will be experienced in any order.

- 1. Hands-on Exploration:** Students will discover and learn about agriculture through unique interactive farm experience including milking the simulated cow “Holly the Holstein”, determining by-products of wheat in the “Discovery Nesting Box”, sorting the process of wheat from Seed to Slice on the “Process Puzzle”, playing in tubs of wheat seeds and many more fun, yet educational activities.
- 2. Animal Acres:** 30-minute guided session through the farm animals.
  - Students will thresh wheat in their hands. The wheat seeds will be taken back to the classroom for a post-field trip lesson #4. We’ll examine the various plant parts and discuss the uses of wheat.
  - Students will learn the difference between hay (green alfalfa/grass used for animal feed) and straw (yellow wheat/oats used for animal bedding). Students will lift a bale of each and feel the weight difference.
  - Students will learn fun facts about farm animals.
  - Students will visit, touch and feed all of the farm animals.
- 3. Corn Maze:** Explore the 3-acre corn maze where navigational decisions are determined by the answers chosen at various points. There are 10 true and false questions and 10 multiple choice questions throughout the corn maze. The questions in the maze reflect information that parallels educational material taught in “The Wonders of Wheat” curriculum resource guide.
- 4. Pumpkin Patch:** Walk to the pumpkin field and learn about this popular fruit.

# Lesson #3: Busy Barns Field Trip Review

Grades K-4: Post-trip Lesson

## WI State Learning Standards:

Subjects – Social Studies

Speaking and Listening: 1.a, 2-4

Social Studies: E.4.1

## Objectives:

Students will review and reflect on the information that was provided on the field trip (finish the K-W-L chart). Students will be able to identify a wheat plant, know its function, the difference between hay and straw. Students will know food products and alternative uses of wheat.

## Background:

Material presented on wheat by the on-farm educators during their field trip to Busy Barns Farm.

## Materials:

Worksheets – K-W-L Chart, Beyond the Table, Machine Power, From Seed to Harvest

## Procedures:

1. Review what was taught at Busy Barns Farm.
2. Have students complete the K-W-L chart and see if all of their questions were answered.
3. Have students complete the worksheet “Beyond the Table” expose students to some of the alternative uses of wheat.
4. Read and study the “Machine Power” worksheet to review what was taught at Busy Barns Farm when threshing wheat in their hands. This action is similar to how a combine works. Learn about the parts and interworking of a combine. Compare the machine to your students experience of rubbing, shaking, skimming, and blowing the wheat heads.
5. Have students complete the worksheet “From Seed to Harvest” to review the process of growing and harvesting wheat.

## Extensions:

1. Wheat Family Feud or Wheat Jeopardy Game
  - Have students break into groups. Example: boys vs. girls
  - Teacher may read questions or choose a student to read, depending on grade level.
  - Have one student from each team keep track of points.
  - Questions are on pages 14-16 are from the corn maze and from on-farm educator talking points discussed on the field trip.

**Vocabulary:** Irrigation, bushel, threshing, combine, hay, straw

Name: \_\_\_\_\_

## K-W-L Chart

KNOW	WANT TO KNOW	LEARNED

## Wheat Family Feud or Wheat Jeopardy

### Corn Maze Multiple Choice Questions:

- 1- Which piece of farm machinery is used to harvest wheat?
  - A. Plow
  - B. Drill
  - C. Combine**
- 2- What product is made from wheat?
  - A. Spaghetti**
  - B. Soda Pop
  - C. Chocolate
- 3- The part of the wheat plant called the straw is bundled into bales and used as
  - A. Animal Feed
  - B. Crop Fertilizer
  - C. Animal Bedding**
- 4- A wheat head contains
  - A. 50 to 75 kernels**
  - B. 2-5 kernels
  - C. >10,000 kernels
- 5- The wheat berry seed contains three distinct parts that are separated during the milling process to produce flour. Which is NOT part of the kernel?
  - A. Endosperm
  - B. Stalk**
  - C. Germ
- 6- Wheat is called
  - A. "The other white meat"
  - B. "The fiber of our nation"
  - C. "The staff of life"**
- 7- After wheat is harvested, it is stored at the local \_\_\_\_\_ until the farmer is ready to sell it?
  - a. Factory
  - b. Grain Elevator**
  - c. Farm Store
- 8- What type of weather will NOT ruin a wheat crop standing in the field?
  - a. Sun**
  - b. Heavy wind and rain
  - c. Hail
- 9- The top of the wheat plant that holds the seeds is called the
  - a. Neck
  - b. Head**
  - c. Shoulders
- 10- What three things are required for a wheat seed to germinate?
  - a. Soil, Water, Heat**
  - b. Soil, Snow, Wind
  - c. Water, Wind, Hail

## Wheat Family Feud or Wheat Jeopardy

### Corn Maze True and False Questions:

- 1- More foods are made with wheat than with any other cereal grain? **True**
- 2- Wheat and other grain crops are often bought and sold by the yard a unit of measurement for dry goods?  
**False**
  - a. Bushel
- 3- The food guide pyramid recommends that we consume 1-2 servings of grain-based foods daily? **False**
  - a. 6-11 servings
- 4- Farmers know wheat is ready to be harvested with a combine when it turns dark green? **False**
  - a. Golden brown
- 5- There are 6 types of wheat grown in the United States? **True**
- 6- If wheat kernels get wet or too hot they will spoil? **True**
- 7- Wheat can be found in cosmetics, pet food, paper, soap and biodegradable trash bags? **True**
- 8- A kernel of wheat is called a wheat berry? **True**
- 9- Most varieties of wheat grow between 2 to 4 feet tall? **True**
- 10- Hard wheat's are used to make breads and rolls. Soft wheat's are used to make cakes and crackers? **True?**

### Animal Acres Guided Session Questions:

- 1- Hay is green and is made from alfalfa or grass. It is used as animal feed or as animal bedding? **Feed**
- 2- Straw is yellow and is used as animal bedding. What plant and plant part does straw come from? **Oats or Wheat, the plant part is the stem**
- 3- What is heavier, hay or straw and why? **Hay is heavier, it has more nutrient value (moisture/water)**
- 4- What part of the wheat plant contains the seeds? **Head**
- 5- List 3 food products made from wheat? **Cereal, bread, pizza dough, noodles, pancake mix, muffins...**
- 6- List a by-product made from wheat? **Pet, livestock and fish feed, cosmetics, drugstore products, eating utensils, ethanol for gas purification, fiber board, food trays and containers, genetic tests, insulation, packaging materials, paper, laundry soap, roofing and building materials, shooting targets, trash bags**

## Pumpkin Patch Questions:

- 1- Pumpkins are considered a fruit or a vegetable? **Fruit**
- 2- What happens if you drop a pumpkin? **It could bruise, crack or break causing it to rot faster**
- 3- Why shouldn't you hold the stem of the pumpkin? **You could get prickles in your hands and potentially break the stem**
- 4- How long does a pumpkin last if it's not carved? **3 months**
- 5- What part of the plant turns into the pumpkin?
  - a. Stem
  - b. Leaf
  - c. **Flower**

## Farm Animal Questions:

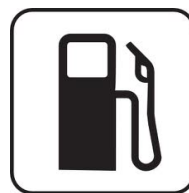
- 1- Donkeys can live?
  - a. **25-35 years**
  - b. 2-5 years
  - c. Forever
- 2- Peacocks perch high up in trees to protect themselves from predators? **True**
- 3- Alpacas are larger or smaller than llamas? **Smaller**
- 4- Sheep need to be sheared (cut their wool off) at least once a year? **True**
- 5- What do you need in a hen house for a chicken to lay fertilized eggs? **Rooster**
- 6- How do llamas protect themselves, their food and their territory? **They spit**
- 7- Do pigs sweat? **No** How do they keep themselves cool? **Cover their bodies in mud**
- 8- How many gallons of milk does a cow produce in a day?
  - a. 200-210 gallons
  - b. **7-10 gallons**
  - c. >1000 gallons
- 9- Can rabbits and pot belly pigs be trained to use a litter box? **Yes**
- 10- Are twins common in goats? **Yes**
- 11- What is the piece of skin under a turkey's chin that hangs down? **Wattle**
- 12- Why do ducks have webbed feet? **They act as paddles when they swim**
- 13- Who raises a baby gosling, dad or mom? **Geese are raised by both mom and dad**
- 14- There are how many breeds of dairy cattle? **7 – Holstein, Gurneys, Jersey, Ayrshire, Brown Swiss, Milking Shorthorn, Red & White**

Name: \_\_\_\_\_

## Beyond the Table

When you hear the word “wheat,” do you automatically think of bread, pasta and other wheat foods? I know I do, because these treats are some of my favorite foods! But did you know that wheat can be used for things other than edible goods? Wheat and wheat straw have many alternative uses that make wheat such a valuable crop. All the items listed below can be made from wheat. Place an X beside those that you and your family use each day.

- \_\_\_ cosmetics
- \_\_\_ pet, livestock and fish feed
- \_\_\_ drugstore products
- \_\_\_ eating utensils
- \_\_\_ ethanol for gas purification
- \_\_\_ fiber board
- \_\_\_ food thickener
- \_\_\_ food trays and containers
- \_\_\_ genetic tests
- \_\_\_ insulation
- \_\_\_ packaging materials
- \_\_\_ paper
- \_\_\_ laundry soap
- \_\_\_ roofing and building materials
- \_\_\_ shooting targets
- \_\_\_ sweetener
- \_\_\_ trash bags
- \_\_\_ fish and shrimp food
- \_\_\_ glue

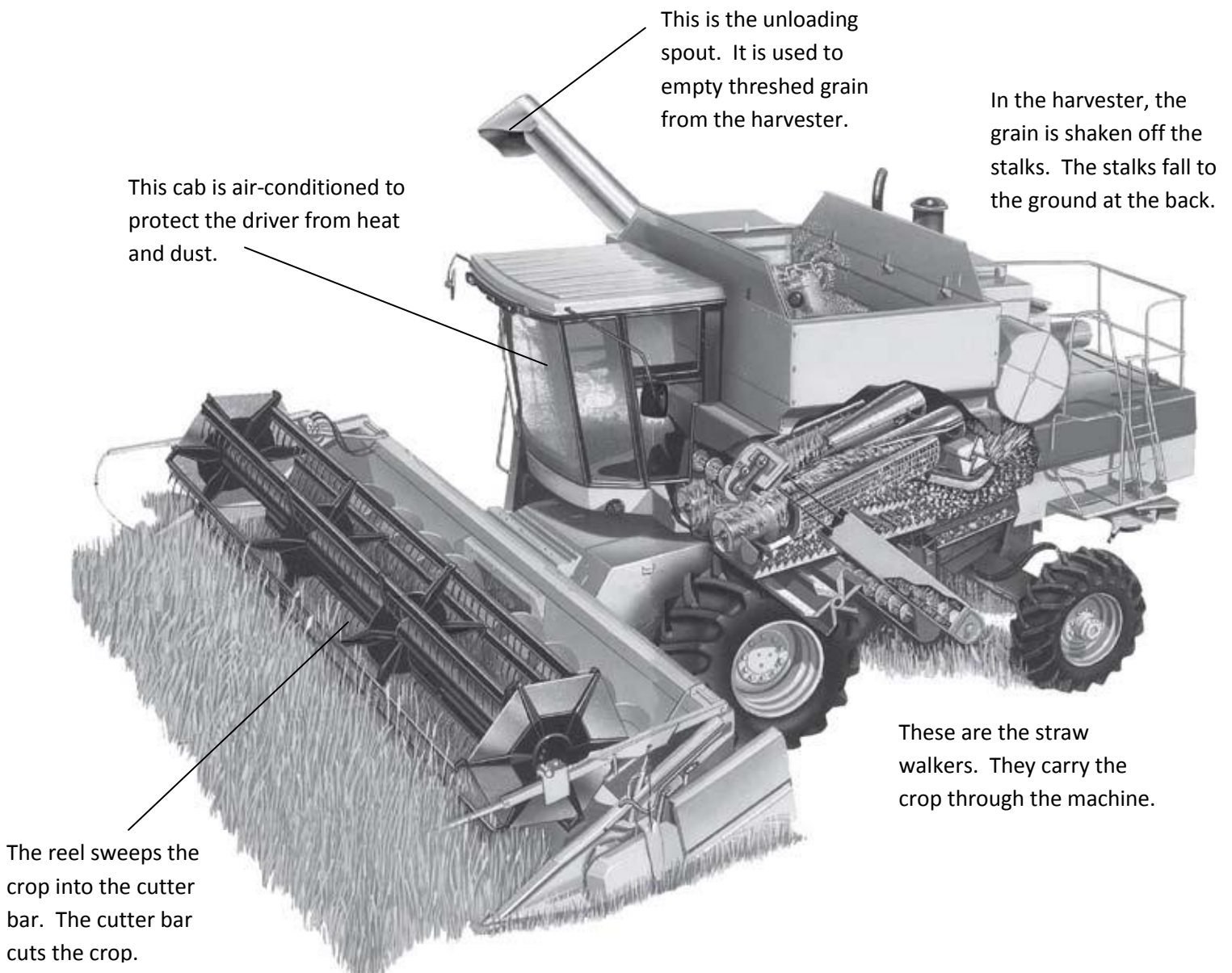


Name: \_\_\_\_\_

## Machine Power

This is a combine harvester. It cuts the crop and separates the grain from the straw. Straw can be baled and used by farmers as animal bedding. Some farmers leave the chopped straw on the field to provide nutrients to the soil for future crops.

A trip through the combine for the seed head only takes about 15 seconds, and there are thousands of heads going through the combine at the same time. Historically, farmers would have livestock walk on the wheat heads on a hard surface to thresh the grain out of the head, separate the straw and spikes by hand, and then throw the grain and chaff (seed hulls) up into the air for the wind to blow the chaff away.



Name: \_\_\_\_\_

# From Seed to Harvest



Complete the sentences below using words from the “Word Box.”

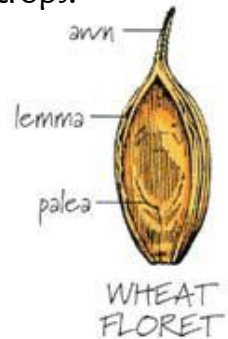
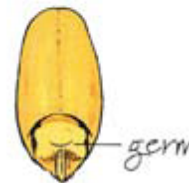
## Word Box

grass	spring wheat	irrigation
bushel	flour	truck
strong wind	golden	Wisconsin
disk	grasshopper	Combine

1. \_\_\_\_\_ is planted in the spring and harvested in the fall.
2. A \_\_\_\_\_ is used to turn, loosen, and break up the soil before planting.
3. Spring wheat is planted in \_\_\_\_\_ .
4. A \_\_\_\_\_ can flatten a ripe wheat crop.
5. When wheat is ripe it is a \_\_\_\_\_ color.
6. A \_\_\_\_\_ is a harmful insect in a wheat crop.
7. The \_\_\_\_\_ cuts, separates, and cleans the grain.
8. The farmer sells his wheat by the \_\_\_\_\_.
9. A \_\_\_\_\_ is used to haul the grain to the elevator.
10. Wheat is ground into \_\_\_\_\_ to make cakes, bread, and pasta.
11. Some farmers use \_\_\_\_\_ to water their crops.
12. Wheat is a \_\_\_\_\_ plant.



WHEAT SEED



Name: \_\_\_\_\_

# From Seed to Harvest - KEY



Complete the sentences below using words from the “Word Box.”

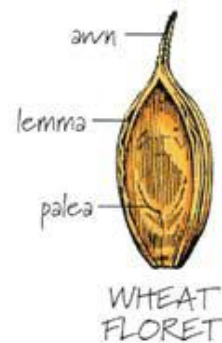
## Word Box

grass	spring wheat	irrigation
bushel	flour	truck
strong wind	golden	Wisconsin
disk	grasshopper	combine

1. \_\_\_\_\_ Spring wheat \_\_\_\_\_ is planted in the spring and harvested in the fall.
2. A \_\_\_\_\_ disk \_\_\_\_\_ is used to turn, loosen, and break up the soil before planting.
3. Spring wheat is planted in \_\_\_\_\_ Wisconsin \_\_\_\_\_.
4. A \_\_\_\_\_ strong wind \_\_\_\_\_ can flatten a ripe wheat crop.
5. When wheat is ripe it is a \_\_\_\_\_ golden \_\_\_\_\_ color.
6. A \_\_\_\_\_ grasshopper \_\_\_\_\_ is a harmful insect in a wheat crop.
7. The \_\_\_\_\_ combine \_\_\_\_\_ cuts, separates, and cleans the grain.
8. The farmer sells his wheat by the \_\_\_\_\_ bushel \_\_\_\_\_.
9. A \_\_\_\_\_ truck \_\_\_\_\_ is used to haul the grain to the elevator.
10. Wheat is ground into \_\_\_\_\_ flour \_\_\_\_\_ to make cakes, bread, and pasta.
11. Some farmers use \_\_\_\_\_ irrigation \_\_\_\_\_ to water their crops.
12. Wheat is a \_\_\_\_\_ grass \_\_\_\_\_ plant.



WHEAT SEED



## Lesson #4: The Kernel Sprouts

Grades K-4: Post-trip Lesson

### WI State Learning Standards:

Subjects – Science and Math

Science: F.4.1, F.4.2, F.4.4, C.4.2, C.4.5, C.4.6, C.4.7, C.4.8

Math: K.MD1, 2.MD3, 2.MD4

**Objectives:** Students will discover that one kernel of wheat produces many kernels. Students will observe and document a kernel sprouting. Observing and journaling the process of sprouting a kernel of wheat.

**Approximate Activity Time:** 1 week

### Materials:

- Kernels of Wheat
- Jewelry size zip-lock bags
- Yarn for necklaces
- Strip of paper for each student (~5 ½ X17")
- Water hydrating crystals

### Procedures:

1. Make a sprouting bag for each student. Teacher can squirt several drops of food coloring into a pint of water. Each child received one kernel of wheat, 3 or 4 water crystals, 1 small jewelry size zip-lock bag (with hole punched above the seal) and 3 or 4 drops of colored water. Zip the bag shut and thread yarn through to make a necklace. The necklace could be worn everyday throughout the week. **They should be left a school.** Begin this activity on a Monday to be able to journal throughout the week.
2. Fold 5 ½ x 17" strip of paper into fourths to make a book. Label cover with a title and glue on a kernel of wheat if you have extra. Number the pages 1-5. Each day of the week observe, discuss and journal by drawing or writing a few words. By the end of the week the kernel should have roots and a green sprout. Send home the journal and necklace at the end of the week. Extension Activity: Students can plant the wheat sprout into soil and watch it grow.

### Alternative Planting Activity: (no materials needed)

1. Place a folded paper towel on a paper plate, and lay wheat kernels on top. A kernel is a wheat seed. Sprinkle daily with water. Soon the kernels will begin to sprout.
2. After several days, have the students count the seeds that have sprouted.
3. Have students pretend they are farmers and decide if they want to plant this type of wheat, based on the number of seeds that germinated.
4. Plant some kernels of wheat in the classroom so students can watch the growth and development.
5. Have students record the plants progress on a calendar posted near the growing plant.

**Extension:**

If you have extra wheat seeds, grind the kernels into flour.

**Assessment:** Reading and understanding the picture journal. Make sure to journal each day so the students drawings can monitor changes made throughout the week.

**Vocabulary:** Sprout, kernel, combine, roots, germ, mill, bran,

# Lesson #5: Breads Around the World

Grades K-4: Post-trip Lesson

## WI State Learning Standards:

Subjects – Geography and Behavior Science

Geography: A.4.4, A.4.7

Behavior Science: E.4.4, E.4.8, E.4.11, E.4.13, E.4.15

**Objectives:** Students will learn how wheat varies throughout the world. They will be able to explore the different types of bread that is made from wheat in different parts of the world. Students will also become aware of how different cultures work with wheat and how it is important in different cultures.

**Materials:** World Map, Internet

## Background:

Certain classes and varieties of wheat work better for certain foods. While the differences from class to class are nutritionally insignificant, the protein content and quality makes a difference from a baking perspective. The harder the wheat, the higher the protein content in the flour.

Soft, low protein wheat's are used in cakes, pastries, cookies, crackers and Asian noodles. Hard, high protein wheat's are used in bread. Durum is used in pasta and egg noodles.

- Hard Red Winter: Yeast breads, hard rolls, flat breads and all-purpose flour
- Hard Red Spring: Hearth breads, rolls, croissants, bagels and pizza crust
- Soft Red Winter: Crackers, cereal, pita and flat breads
- Durum: Premium pasta products, couscous and some Mediterranean breads
- Hard White: Asian noodles, whole wheat products, pan breads and flat breads
- Soft White: Cakes, cookies, pastries and Asian-style noodles and Middle Eastern flatbreads

## Procedures:

1. Bring a sample of each of the 10 type of bread into class. See worksheet "Breads Around the World" - Lefse, Pita, Wonton, Bagel, Tortilla, Pizza Crust, Scone, Chapati, Fry Bread, Croissant. Discuss each type with the students.
2. Discuss the six kinds of wheat that can produce different types of flour that these food products can be made from. See background material.
3. Use a world map to locate each country in bold represented. Cut out the word and/or a picture of the type of bread and tack it to the correct location on the world map.

## Extensions:

1. Teacher displays a box of crackers, loaf of bread, box of cereal, pizza box, box of spaghetti and a cake mix (for example). The teacher explains to the students that a major ingredient in each of these foods is wheat flour. Teacher displays a chart with the following possible headings: Pasta, Desserts, Cereals, Fast Foods, Breads. Brainstorm with students food that will fit into each category. Ask students to bring empty containers (box, can or bags) from home the following day of food products with wheat flour as an ingredient.

2. Chart the food containers that the students brought from home. Use the same categories as were used the first day. The students could place their food container in the appropriately labeled areas.
3. Have students read and complete the Wheat Flour worksheet.

**Assessment:**

Have students complete the “W is for Wheat” worksheet. For older student, have them write three wheat flour products that can be eaten for breakfast, lunch, dinner and snacks.

After completing the “Breads Around the World” worksheet, have the students visit [www.wheatfoods.org/FlashForKids/bread.html](http://www.wheatfoods.org/FlashForKids/bread.html) for an interactive quiz to test and reinforce the material they learned. Go to “play a game” then to “Grains Around the World”

**Vocabulary:** wheat flour, whole wheat

*Lesson Plan created from Montana Wheat & Barley Committee materials*

Name: \_\_\_\_\_

## Breads Around the World

People all over the world eat bread in all shapes and sizes. Flour for making bread comes from many kinds of grains. People mostly make bread from grains that grow in their own country. The main grain in the bread most commonly eaten in our country is \_\_\_\_\_.

Draw a line to match the bread to its description. On a world map find the place where each kind of bread is most commonly eaten.

- |                |   |
|----------------|---|
| A. Lefse       | 1. Noodle-dough dumplings from <b>Asia</b> that are filled with spiced meat and boiled in soup or fried and eaten as a side dish.   |
| B. Pita        | 2. Corn dough patted into thin, flat rounds and fried on a hot griddle. This is the daily bread in a country on the same continent as the <b>United States</b> . These can also be made from flour. |
| C. Wonton      | 3. Flat, chewy rounds of bread served with curries or with peanut butter and honey, cheese and tomato, or just butter. They are from the country of the <b>Taj Mahal</b> .                          |
| D. Bagel       | 4. Pocket breads from the <b>Middle East</b> that are round, flat and hollow inside.  |
| E. Tortilla    | 5. Flaky, tender crescent-shaped rolls from the land of the <b>Eiffel Tower</b> .   |
| F. Pizza Crust | 6. Like biscuits, but cut into big, thick triangles and baked. They are eaten with tea in a country on the island of <b>Great Britain</b> .   |
| G. Scone       | 7. Flat bread made from mashed potatoes, flour and liquid and then fried on a griddle. The <b>Scandinavians</b> created it.   |
| H. Chapati     | 8. Popular <b>Italian</b> pie that was first made as a way to use leftover bread dough.   |
| I. Fry Bread   | 9. Small, round breads fried in hot oil. Made by the thousands for <b>powwows</b> and special occasions.  |
| J. Croissant   | 10. Chewy baked roll with a hole, often eaten with cream cheese. brought to America by <b>Polish</b> immigrants.  |

Name: \_\_\_\_\_

## Breads Around the World - KEY

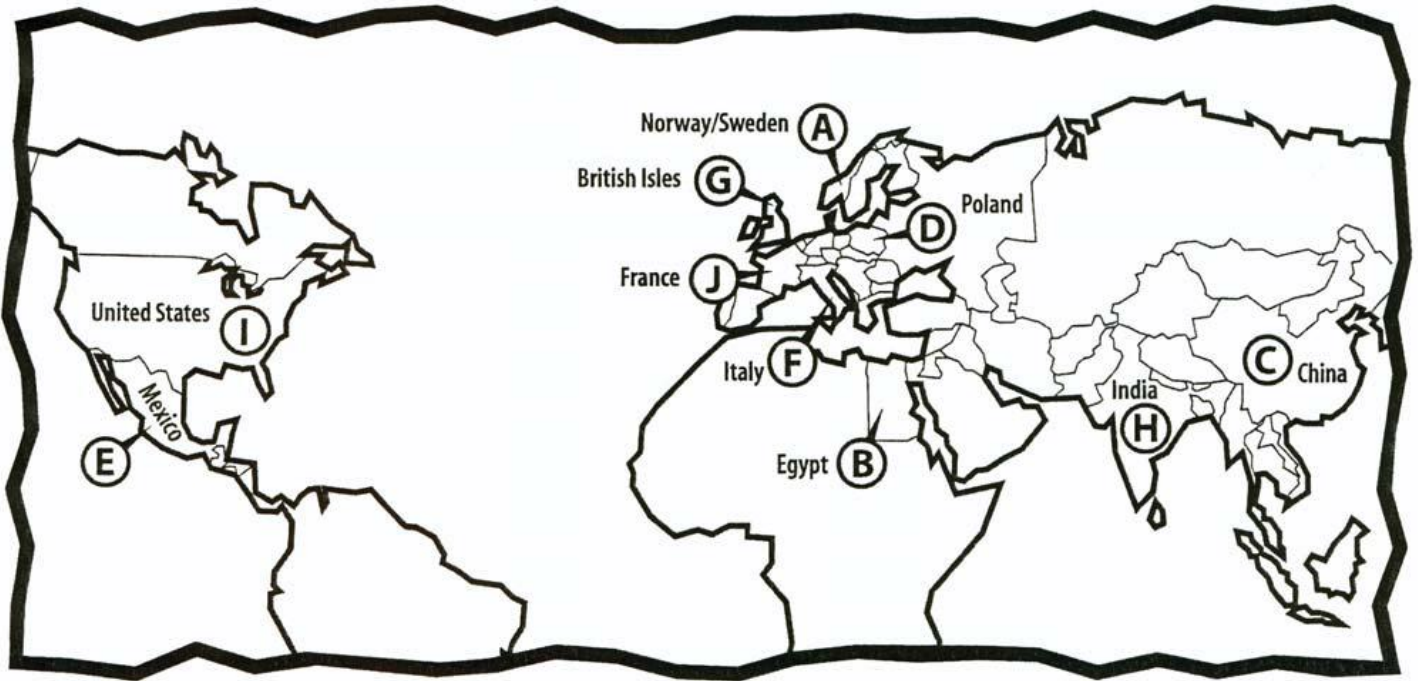
People all over the world eat bread in all shapes and sizes. Flour for making bread comes from many kinds of grains. People mostly make bread from grains that grow in their own country. The main grain in the bread most commonly eaten in our country is wheat.

Draw a line to match the bread to its description. On a world map find the place where each kind of bread is most commonly eaten.

- |                |   |
|----------------|---|
| A. Lefse       | 1. Noodle-dough dumplings from <b>Asia</b> that are filled with spiced meat and boiled in soup or fried and eaten as a side dish.   |
| B. Pita        | 2. Corn dough patted into thin, flat rounds and fried on a hot griddle. This is the daily bread in a country on the same continent as the <b>United States</b> . These can also be made from flour. |
| C. Wonton      | 3. Flat, chewy rounds of bread served with curries or with peanut butter and honey, cheese and tomato, or just butter. They are from the country of the <b>Taj Mahal</b> .                          |
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| E. Tortilla    | 5. Flaky, tender crescent-shaped rolls from the land of the <b>Eiffel Tower</b> .   |
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| J. Croissant   | 10. Chewy baked roll with a hole, often eaten with cream cheese. brought to America by <b>Polish</b> immigrants.  |

Name: \_\_\_\_\_

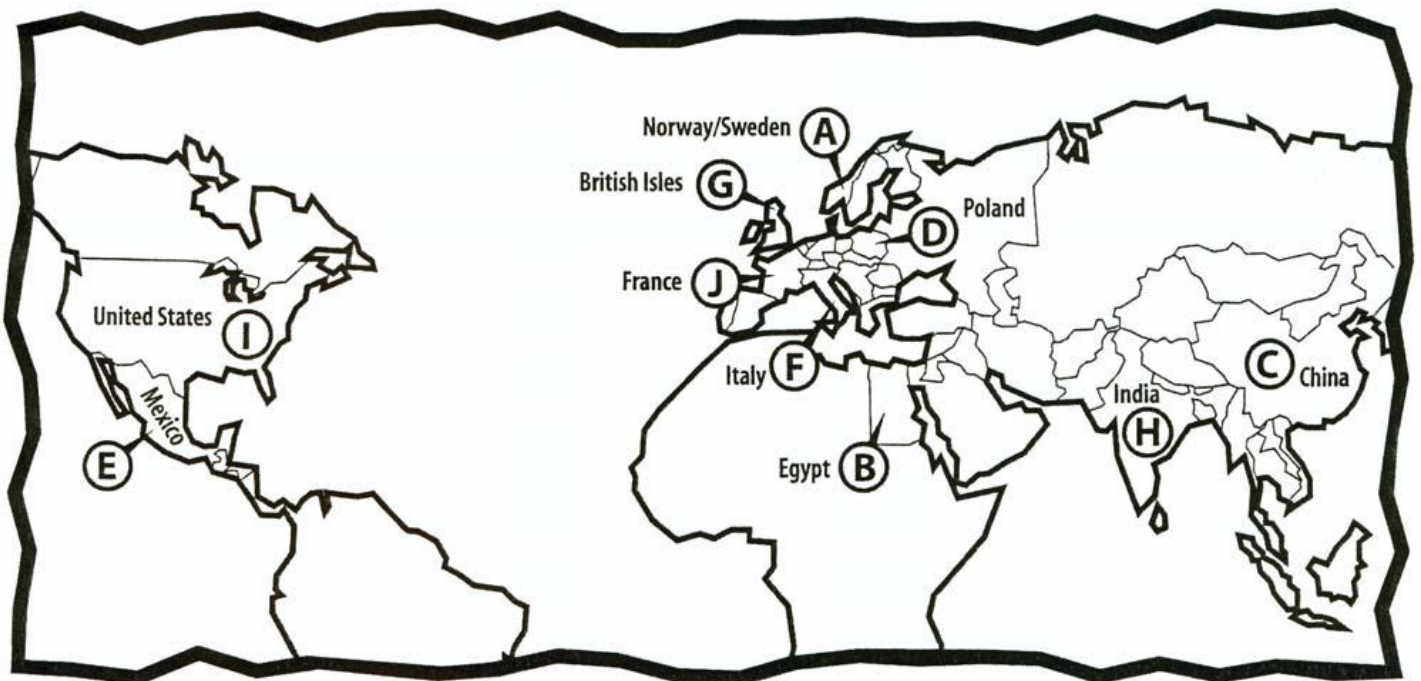
## Breads Around the World



Source: The Amazing Wheat Teachers' Guide from the Wheat Foods Council.

Name: \_\_\_\_\_

## Breads Around the World



Source: The Amazing Wheat Teachers' Guide from the Wheat Foods Council.

Name: \_\_\_\_\_

## Where in the US does wheat come from?

Most states produce their own milk, eggs, fruits, vegetables, and grains. Some states produce so much of a particular crop or animal that they have become famous for their particular products.

Wheat is a top producing crop in the following states: Texas, Kansas, Montana, Oklahoma, Washington, South Dakota, North Dakota, Colorado, Nebraska and Idaho. Locate these ten states on the map, color them the color of wheat just before it is harvested and label each state.



Why is wheat produced in these locations?

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Name: \_\_\_\_\_

## Wheat Flour

Wheat is unique. Wheat is the only grain with enough gluten to make yeast breads without being combined with another grain. Gluten is the protein part of the kernel. It is the part of flour that is stretchy and makes the dough hold its shape. The level of gluten varies depending on the class of wheat. There are six classes of wheat grown in the United States. Whole wheat flour comes from milling the entire wheat kernel (bran, germ, and endosperm). White flour comes from the endosperm only. Enriching white flour with vitamins and minerals makes this flour as nutritious as whole wheat flour.

Use the words in the box to fill in the blanks below.

<b>mill</b>	<b>whole wheat</b>	<b>enrichment</b>
<b>germ</b>	<b>bran</b>	<b>whole</b>

- 1) Whole wheat flour is made from the \_\_\_\_\_ kernel.
- 2) The flour that has the most fiber is \_\_\_\_\_ flour.
- 3) A place that makes wheat into flour is a \_\_\_\_\_.
- 4) White flour is made by removing the \_\_\_\_\_ and the \_\_\_\_\_.
- 5) Adding vitamins and minerals to white flour is called \_\_\_\_\_.

Name: \_\_\_\_\_

## Wheat Flour - KEY

Wheat is unique. Wheat is the only grain with enough gluten to make yeast breads without being combined with another grain. Gluten is the protein part of the kernel. It is the part of flour that is stretchy and makes the dough hold its shape. The level of gluten varies depending on the class of wheat. There are six classes of wheat grown in the United States. Whole wheat flour comes from milling the entire wheat kernel (bran, germ, and endosperm). White flour comes from the endosperm only. Enriching white flour with vitamins and minerals makes this flour as nutritious as whole wheat flour.

Use the words in the box to fill in the blanks below.

<b>mill</b>	<b>whole wheat</b>	<b>enrichment</b>
	<b>germ</b>	<b>bran</b>
		<b>whole</b>

- 6) Whole wheat flour is made from the \_\_\_\_\_ whole \_\_\_\_\_ kernel.
- 7) The flour that has the most fiber is \_\_\_\_\_ flour.
- 8) A place that makes wheat into flour is a \_\_\_\_\_ mill \_\_\_\_\_.
- 9) White flour is made by removing the \_\_\_\_\_ germ \_\_\_\_\_ and the \_\_\_\_\_ bran \_\_\_\_\_.
- 10) Adding vitamins and minerals to white flour is called \_\_\_\_\_ enrichment \_\_\_\_\_.

# Lesson #6: The Grain Game

Grades K-4: Post-trip Lesson

## WI State Learning Standards:

Subjects – Math and Social Studies

Mathematics: 1.OA-1, 1.NBT-1, 2.OA-2

Social Studies: E.4.1, E.4.4, E.4.8, E.4.12, E.4.14

**Objectives:** The student will use pieces of cereal made from grains grown in Wisconsin to play a counting game. The student will acquire strategies for making computations.

## Materials:

- Bowl
- Number cube
- Cereal made from wheat (Wheat Chex, Spoon Size Shredded Wheat)\*
- Cereal made from corn (Kix or Corn Chex)\*
- Cereal made from oats (Cherrios)\*

\*Use of brand names does not imply endorsement by Busy Barns Farm.

## Background:

Ready-to-eat cereal is eaten by millions of people worldwide. People in Ireland eat the most— an average 17 pounds of dry cereal per person per year. Americans eat an average 10 pounds per person. Brazilians eat only one ounce per person.

Cold cereal as we know it was invented in the early 1900s by the Kellogg brothers of Battle Creek, Michigan. John Kellogg believed heavy breakfasts were bad for people and that they should eat only vegetables and grains. In those days a kind of cold cereal was made by making thin biscuits, baking them, crushing them, and then baking the crumbs again. The crumbs were so tough they had to be soaked overnight in order to be chewable the next day.

In most homes at that time, a porridge of oats or wheat was cooked all night and served warm for breakfast. Kellogg wanted a cereal that was ready to eat and could be kept in a box. His younger brother, Keith, worked with him to invent this new food. In 1894, the brothers made a mistake and left a batch of soaked wheat kernels out overnight. The next day, they discovered that when the damp wheat berries were pushed through rollers, each made a flake. They called it “Granose” and sold it as a health food.

Grains supply your body with carbohydrates, protein, iron, thiamine and niacin. The U.S. Department of Agriculture recommends six to 11 servings of grain a day per person, depending on the age of the person. Cereals are a great way to get some of the servings you need from the grain group. Bread, pasta, muffins, tortillas and hamburger buns are also made from grains. Rice, oats and barley are whole grains that can be eaten as hot breakfast cereals or added to soups and other dishes. The grain most widely grown in Oklahoma is hard winter wheat. Hard wheat’s are best for making breads that keep for a long time. Soft wheat’s are used more often in pastries. Oklahoma is the number two producer of winter wheat out of all the 42 other states that grow it. Other grains grown in Oklahoma are oats, barley, corn, sorghum and rye.

**Procedure:**

1. Four to six students can play at one time. Fill the bowl with the breakfast cereal.
2. Share background material, and ask students to name the Oklahoma grains from which each kind of cereal was made.
3. The object of the game is for the student to accumulate 25 cereal pieces. The players take turns rolling a number cube and taking the number of cereal pieces indicated on the number cube from the bowl.
4. When a player gets close to accumulating 25 cereal pieces, he or she must decide whether or not to take the number of pieces indicated on the number cube. If the player decides not to take the number indicated on the number cube, he or she must wait a turn to roll again. The player will then try to roll the number needed or a number as close as possible to the

**Extensions:**

1. Have students name their favorite breakfast cereal and guess which grains they are made from. Bring in cereal boxes, and have students find the grains in the ingredient lists.
2. Make “Bread-in-a-bag” (see recipe on page 33)

**Extra Reading:**

- Johnson, Sylvia, *Wheat, Learner*, 1990.
- See index on pages 49 and 50.

**Assessment:** Did students enjoy the game and the change to use grain foods as manipulatives? Did they understand that the cereals were made from grains that might have been grown in Wisconsin. Have a discussion with the students after the game has been played.

**Vocabulary:** Grain, carbohydrate, protein, iron, thiamine, niacin, hard winter wheat, oats, barley, corn, sorghum, rye

## Let's Make Bread-in-a-Bag!

### Bread-in-a-Bag Recipe:

1-gallon heavy-duty freezer bag	1 cup warm water
2 tablespoons sugar	1 teaspoon salt
1 package active dry yeast	1/3 cup powdered milk
2 tablespoons margarine	3-3 1/2 cups of bread flour (or all-purpose flour)

- Arrange all supplies on one table.
- Clear desks and wash well. (shaving cream works great for cleaning)
- Divide class into groups of 3. Have each assume a number 1-3 in each group.
- Each student will be able to come up twice to the supply table.
- Give each group a zip-lock bag (gallon size).

### Ready to Begin!

- Have all #1's bring bag to supply table. Adult Leaders put in yeast and water (needs to be WARM and measure carefully!)
  - Students return to groups after each visit to supply table.
  - Mix ingredient well after each addition.
  - #2's get powdered milk and sugar.
  - #3's get margarine and salt.
  - #1's get 1 cup flour. Return and mix until no flour is evident.
  - #2's get 1 more cup of flour. Return and mix until no flour is evident.
  - #3's get 1 last cup of flour. Return and mix until no flour is evident.
- 1) Leaders walk around to the groups adding small amounts of flour as needed until dough is ready to be kneaded by hand.
  - 2) Sprinkle clean desks with small amounts of flour. Dump dough onto desk. Divide into 3 parts (or the number in the group). Each student is now able to work with his/her own dough.
  - 3) Give a brief lesson on kneading if necessary.
  - 4) Students knead dough until it is smooth and elastic and no flour is evident.
  - 5) Punch down the dough with your hands, using a "karate chop". Flatten it and roll it up like a sleeping bag. Pinch seams together with your fingers.
  - 6) Place the loaves on a cookie sheet lightly sprayed with vegetable spray. Cover for about an hour. The loaf will be double in size.
  - 7) Heat oven to 375 degrees and bake on center rack for 25 minutes or until golden brown. Remove from sheet and cool. You could use this time to talk about some of the above information.

# Lesson #7: Seasons on a Wheat Farm

Grades K-4: Post-trip Lesson

## WI State Learning Standards:

Subjects – Science and History

Science (life science): F.4.1, F.4.2, F.4.3

History: B.4.2, B.4.8,

**Objectives:** Students will understand the seasons/sequence on a wheat farm and why a grain elevator is important. Students will learn about the different seasons on a wheat farm and the uses of a grain elevator.

## Materials:

- Picture or posters
- Worksheets
- Dry-erase board and markers
- Popsicle stick and glue

## Procedures:

1. Attention Getter: Write the names of all the seasons on the board, beginning with Fall. Have the students talk about the four seasons in Wisconsin.
2. Look at the picture on the board. (farmers working in a big wheat farm)  
What kind of machines are they using to plant wheat? (drill)  
Did you know that the farmers are performing a service?
3. After the wheat is planted in the fall and the snow falls. What do you think happens to the wheat? (it goes dormant) Will it die? (no) When the wheat is resting, what time of the year is it? (winter) During the spring the snow melts and gives the wheat lots of what? (moisture) Then the plants begin to grow about two or three feet high and forms a large head at the top as in the picture I am showing on the board.  
Then the grain has to be picked or harvested by a large machine called a combine. Do you know what harvested means? Did you know that a combine picks other crops? Can anyone name one? (corn, soybeans, peas, oats, barley)
4. As the wheat is combined the grain is poured into a grain tank inside the combine. Then the stalks or straw comes out of the back of the combine on to the ground. When the tank is full, the grain is poured into the truck and it is taken to town and stored into a grain elevator so it can be sold. After the grain is sold to wheat mills it is ground up into flour. What do we use flour for? (bread, cereal, pasta)
5. Back in the olden days they didn't have wheat mills like we do today. Does anyone know what they used to grind up their wheat? Grist Mills I was a large stone that was rolled over and over the wheat to make the flour.
6. Let's review what we have learned about (drill, harvest, combine, grain elevator, mill) and do our worksheet.

**Assessment:** Have the students complete the worksheet to reinforce the topic discussed.

**Vocabulary:** Drill, harvest, combine, and grain elevator, seasons

*Lesson Plan adapted from Oklahoma Ag in the Classroom*

## Lesson #8: Little Red Hen

Grades K-4: Post-trip Lesson

### WI State Learning Standards:

Subjects – Language Arts, Social Studies, Music

Language Arts (sequencing) W.2-3, SL.1-3

Social Studies(careers): E.4.1, E.4.6, E.4.7

Visual Arts: A.4.1, A.4.6

Music (performing): A.4.2

**Objectives:** Students will read the story, “The Little Red Hen,” discuss all the different careers involved in providing our food and act out a play based on the story. (LA) The student will retell or act out narrative text by identifying story elements and sequencing the events. (SS) The student will understand basic economic elements found in communities.

### Materials:

- Little Red Hen story (from background information)
- Wooden art sticks for puppets

### Background:

Farmers have many different jobs to do. At different times, a farmer may have to be a veterinarian, a machine operator, a mechanic, a salesman, a businessman, a banker, a bookkeeper or a manager. Some farmers do all these jobs by themselves!

What if every farmer had the same problem as the Little Red Hen? Many farmers plant, water and cut their own wheat. But after that they are ready for some help. First the farmer takes his wheat to the mill. There the miller grinds it into flour. Then it is ready for the baker to make it into bread. When everyone helps out, no one is left, like the Little Red Hen, to do the work alone. And we all get to enjoy the finished product.

Wheat is the number one crop grown in Oklahoma. Most of the wheat grown here is hard red winter wheat. This is the kind of wheat that grows best in the weather we have in Oklahoma and in states like Kansas, Colorado and Texas. In the fall the farmer plants the wheat seeds. Rain, snow or sleet will water the tiny plants so they can stay alive during the winter. In the spring the warm sun shines and the plants really start to shoot upwards. The plant is working to produce a tall plant with a head that will contain new seeds. When summer arrives the wheat turn a yellow gold color. Then it is ready to harvest. The harvested wheat is taken to the miller, who grinds it into flour. Then the wheat is ready to be baked into bread.

### Procedures:

1. Read the story, “The Little Red Hen,” to students. Discuss the concept of cooperation. How do you feel after you have helped with a family project like yard work or preparing a meal?
2. Divide the chalk or white board into three segments. Write “Beginning,” “Middle” and “End” at the top of the segments. Ask the students to retell the story based upon the three different segments. Write their comments on the board. You may wish to have the students elaborate the emotions or feeling that may have been expressed by the Little Red Hen or the other animals in the story.

3. Have students number the pictures to correspond with the story they just heard.
4. Share the background information while students color the pictures on the student worksheet.
5. Help students make stick puppets and act out the play.

**Extensions:**

1. Ask students to describe the similarities and difference between what they have experience threshing wheat at Busy Barns Farm and what the Little Red Hen did in the story.
2. Using the background material, have students act out the different jobs a farmer has to do.
3. Visit a grain elevator in your area. A county agent or farm family can help with the arrangements.
4. Discuss what the moral of the story is. Have the class write a moral to fit the story.
5. Obtain some seed wheat from a local farmer, farmer's Cooperative or Busy Barns Farm. Sprout an even number of seed on a moist paper towel. Fold the towel in half, placing the seeds inside the fold. Put the towel on a paper plate. Mist the paper towel daily to keep the seeds moist. Place in a sunny window and watch the wheat grow.
6. Have students make Bread in a Bag. (See "Recipes.")
7. Let students use the puppets as characters for plays they write themselves. Divide the class into groups, and have the groups take turns acting out the plays.

**Extra Reading:**

- Barton, Byron (illustrator), Little Red Hen, HarperCollins Juvenile, 1997.
- Sturges, Philemon, and Amy Walrod, The Little Red Hen: (Makes a Pizza), Dutton, 1999.
- See index on pages 49 and 50.

**Assessment:** The pictures should be numbered as follows: 1. Seeds; 2. Rain; 3. Plants; 4. Flour and 5. Bread. Older students could also create their own correct sequence of growth by drawing/creating their own booklets or timelines.

**Vocabulary:** Farmer, miller, flour, bread, wheat, tractor, harvest

*Lesson Plan adapted from Oklahoma and Utah State University Ag in the Classroom*

Name: \_\_\_\_\_

## Little Red Hen

One morning the Little Red Hen was pecking in the barnyard when she came across some grains of wheat. "I think I'll plant these grains and grow some wheat," she said. "Then I can bake some bread!"

So the Little Red Hen gathered up the grains of wheat. "Who will help me plant this wheat?" she asked her friends.

"Not I!" mooed the cow.

"Not I!" grunted the pig.

"Not I!" bleated the lamb.

So the Little Red Hen planted the grains of wheat all by herself. With the help of the sun and rain, the wheat grew and grew until it was tall and golden. "Who will help me cut and harvest the wheat?" asked the Little Red Hen.

"Not I!" mooed the cow.

"Not I!" grunted the pig.

"Not I!" bleated the lamb.

So the Little Red Hen cut and harvested the wheat all by herself. She placed the wheat into large sacks to take to the mill to be ground into flour.

"Who will help me take the wheat to the mill so the miller can grind it into flour?" asked the Little Red Hen.

"Not I!" mooed the cow.

"Not I!" grunted the pig.

"Not I!" bleated the lamb.

So the Little Red Hen carried the wheat to the mill all by herself.

When the Little Red Hen returned from the mill with the sack of flour, she asked, "Who will help me bake this flour into bread?"

"Not I!" mooed the cow.

"Not I!" grunted the pig.

"Not I!" bleated the lamb.

So the Little Red Hen kneaded the flour into dough all by herself. Before long she had baked a warm and tasty loaf of bread. "Now who will help me eat the bread?" called the Little Red Hen.

"I will!" mooed the cow.

"I will!" grunted the pig.

"I will!" bleated the lamb.

"Oh, no, you won't," said the Little Red Hen. "I found the wheat, I planted the wheat, I cut and harvested the wheat, I took it to the mill to be ground into flour, and I baked this bread without any help from the three of you!"

Then the Little Red took her loaf of bread and sat down under her favorite tree to eat her bread alone. But before she took even one tiny bite, along came her friends cow, pig and lamb each holding baskets full of fresh vegetables.

"Surprise" laughed the cow, pig and lamb. "Look what we have been growing, while you grew your wheat!"

The four friends sat down under the tree together and enjoyed a summer picnic together.

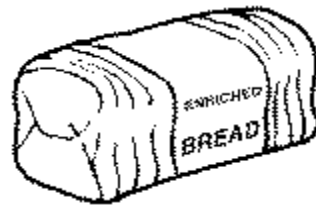
Name: \_\_\_\_\_

## Little Red Hen

Number the pictures in the same order as in the story. Color the pictures.



\_\_\_\_\_ Seeds



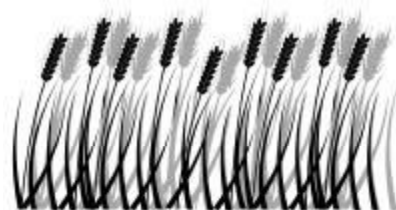
\_\_\_\_\_ Bread



\_\_\_\_\_ Rain



\_\_\_\_\_ Flour



\_\_\_\_\_ Plant

Name: \_\_\_\_\_

## Little Red Hen

Characters: Farmer, Little Red Hen, Cow, Pig, Lamb

### ACT ONE

Farmer: It is summer in Wisconsin. The animals are in the barnyard, talking among themselves. In the corner of the barnyard, Little Red Hen discovers some golden grains of wheat.

Little Red Hen: My, my. Look what I have found. Barnyard friends, who will help me plant these wheat seeds?

Cow: Not I. I am too busy.

Pig: Not I. I have to hurry off.

Lamb: Not I. I have just too many things to do.

Little Red Hen: Then I will do it by myself.

### ACT TWO

Farmer: It is fall now. The seeds have grown into wheat. The wheat is ripe and a golden color.

Little Red Hen: Barnyard friends, the wheat is ready to cut. Who will help me harvest the wheat?

Cow: Not I. I need a nap.

Pig: Not I. I am lying in the mud.

Lamb: Not I. I am going for a run in the meadow.

Little Red Hen: Then I will do it myself.

Name: \_\_\_\_\_

## Little Red Hen

### ACT THREE

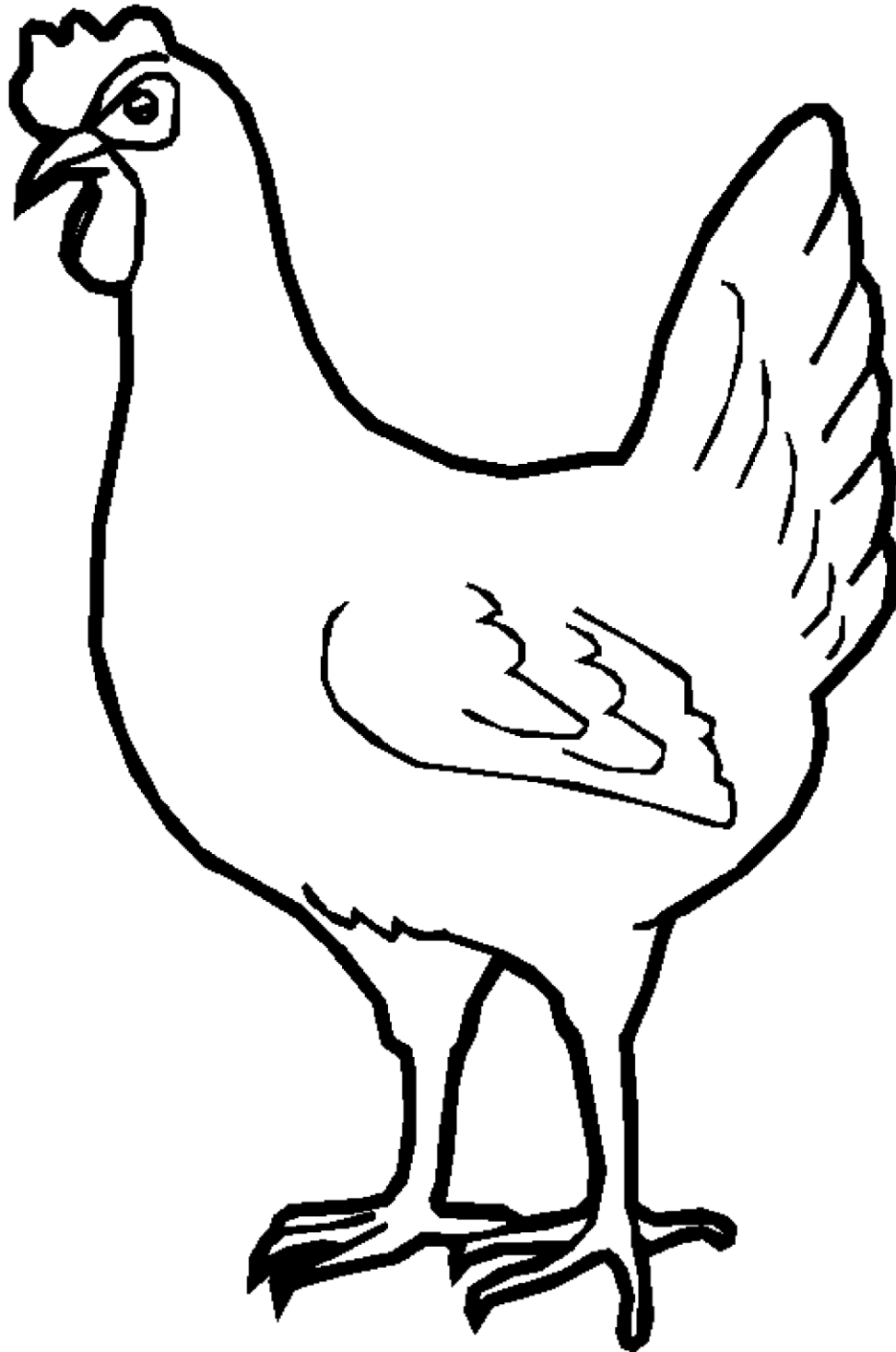
- Farmer: The wheat kernels are ready to go to the mill to be ground into flour.
- Little Red Hen: Who will help me take the grain to the mill?
- Cow: Not I. I am eating some grass.
- Pig: Not I. I am too tired.
- Lamb: Not I. I am playing with my friends.
- Little Red Hen: Then I will do it myself.

### ACT FOUR

- Farmer: Little Red Hen comes back to the farm with the flour. She quickly begins to make some bread. The smell of fresh bread fills the barnyard. Her three friends gather around the Little Red Hen.
- Little Red Hen: How good my bread smells. Who will help me eat the fresh bread?
- Cow: I will! It smells great!
- Pig: I will! I am always hungry.
- Lamb: I will! What a great snack!
- Little Red Hen: Oh, no! You cannot help me eat this bread. I found the wheat seeds. I planted and harvested the wheat. Then I took the wheat to the mill to get flour. Then I made the bread all by myself. I did all of the work. Now I will eat the bread—ALL BY MYSELF!
- Farmer: The Little Red Hen took her loaf of bread under her favorite tree to eat her bread all by herself. But before she took even one tiny bite, along came her friends each holding baskets full of fresh vegetables.
- Cow: Surprise. Look what we've been growing while you grew your wheat!
- Farmer: The four friends sat down under the tree together and enjoyed a summer picnic together

Name: \_\_\_\_\_

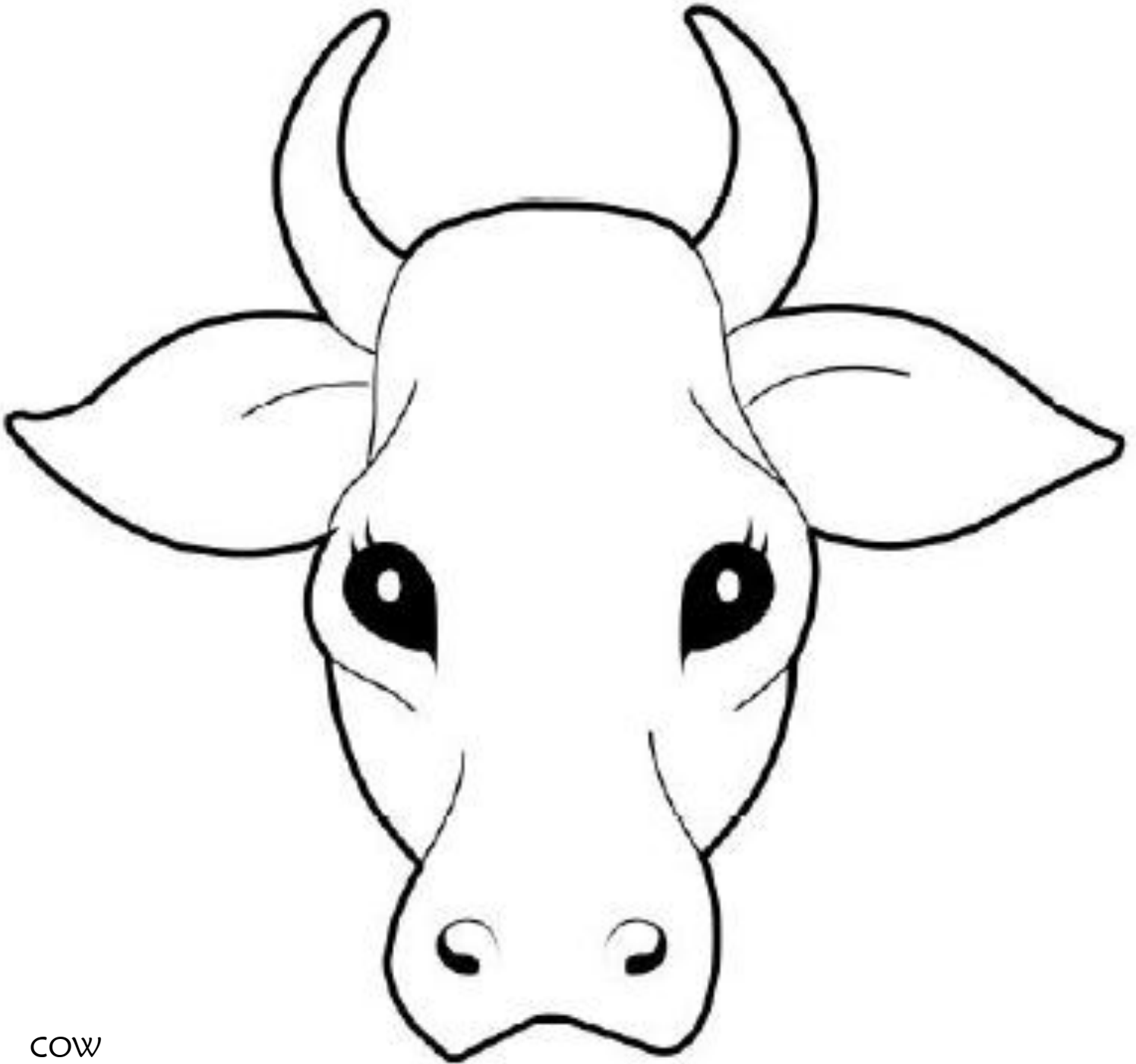
## Little Red Hen



CHICKEN

Name: \_\_\_\_\_

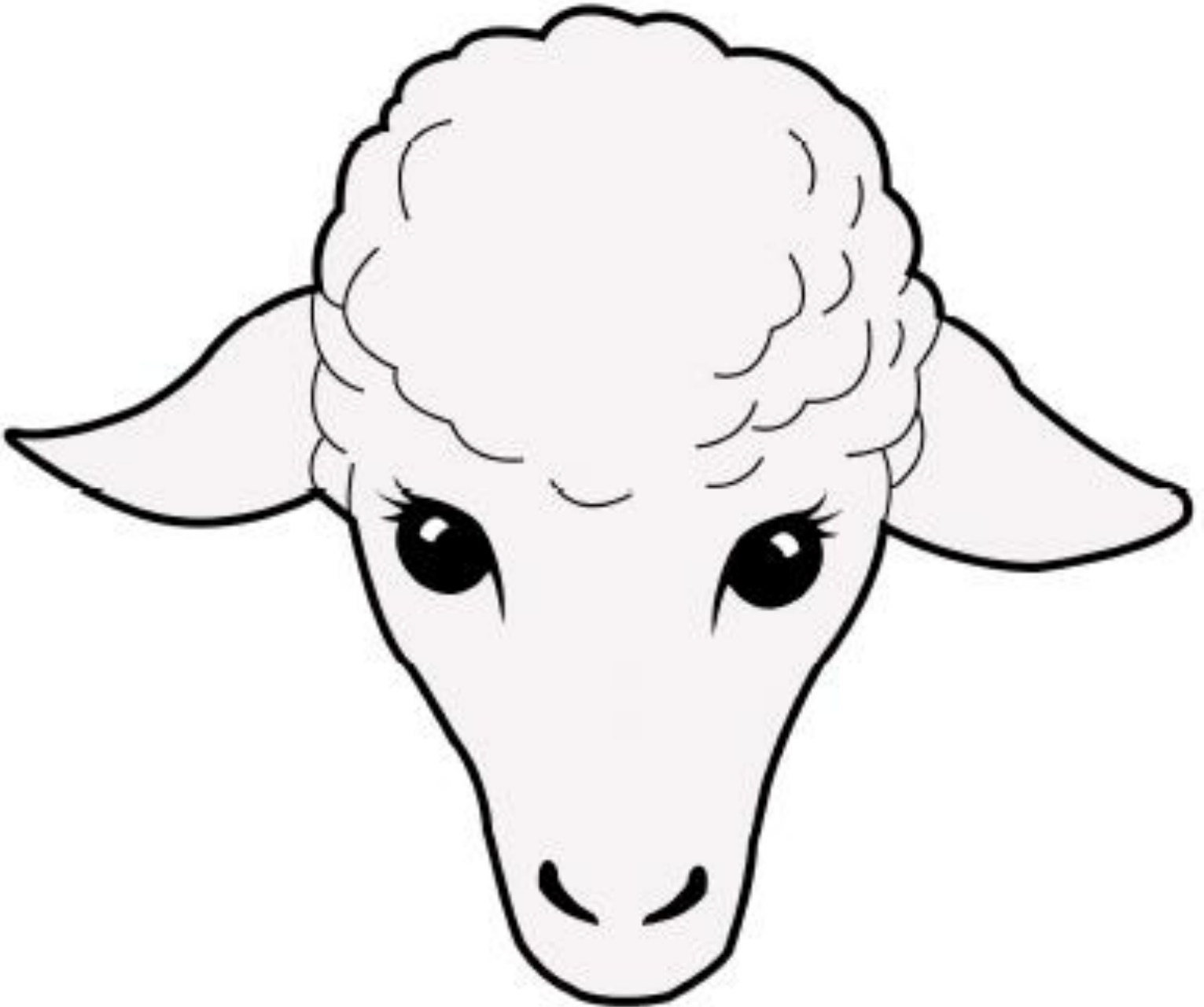
## Little Red Hen



COW

Name: \_\_\_\_\_

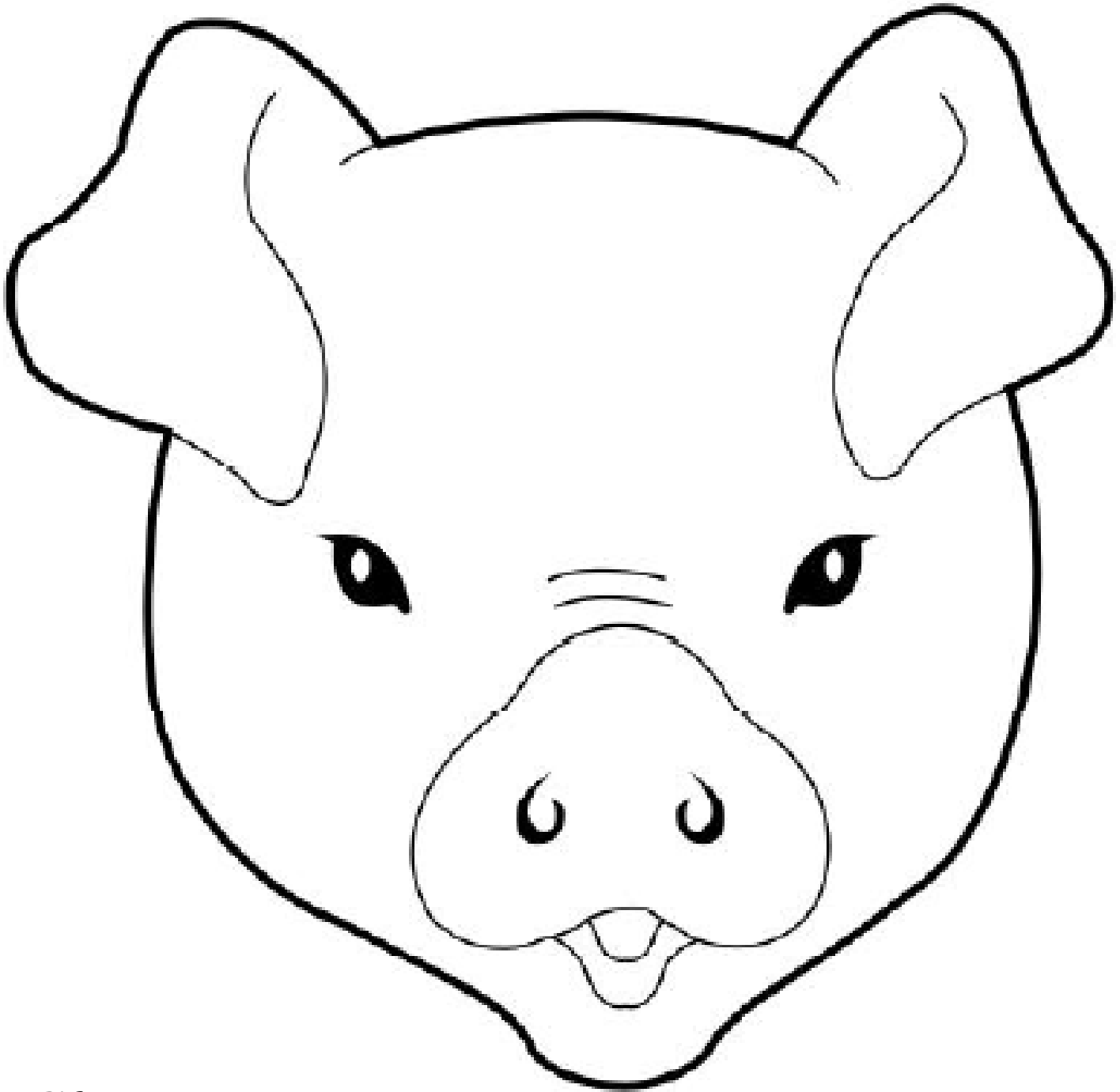
## Little Red Hen



LAMB

Name: \_\_\_\_\_

## Little Red Hen



PIG

Name: \_\_\_\_\_

## Little Red Hen



FARMER

## **Little Red Hen's Song**

*To the tune of "Here We Go Round the Mulberry Bush"*

This is the way I plant the seed, plant the seed, plant the seed.  
This is the way I plant the seed, early in the morning.

This is the way I plant cut the wheat, cut the wheat, cut the wheat.  
This is the way I cut the wheat, early in the morning.

This is the way I go to the mill, go to the mill, go to the mill.  
This is the way I go to the mill, early in the morning.

This is the way I make the dough, make the dough, make the dough.  
This is the way I make the dough, early in the morning.

This is the way I bake the bread, bake the bread, bake the bread.  
This is the way I bake the bread, early in the morning.

This is the way I eat the bread, eat the bread, eat the bread.  
This is the way I eat the bread, early in the morning.

## **A longer version the Little Red Hen's Song**

(teacher could say the Red Hens lines and the class could say the other lines together)

Once there was a little red hen, little red hen, little red hen.  
Once there was a little red hen who found a grain of wheat.

Who will help me plant this wheat, plant this wheat, plant this wheat.  
Who will help me plant this wheat asked the little red hen.

We can't help you plant the wheat, plant the wheat, plant the wheat.  
We can't help you plan the wheat, said the little hen's friends.

Who will help me cut this wheat, cut this wheat, cut this wheat.  
Who will help me cut this wheat asked the little red hen.

We can't help you cut the wheat, cut the wheat, cut the wheat.  
We can't help you cut the wheat, said the little hen's friends.

Who will help me go to the mill, go to the mill, go to the mill.  
Who will help me go to the mill asked the little red hen.

We can't help you go to the mill, go to the mill, go to the mill.  
We can't help you go to the mill, said the little hen's friends.

Who will help me make the dough, make the dough, make the dough.  
Who will help me make the dough, asked the little red hen.

We can't help you make the dough, make the dough, make the dough.  
We can't help you make the dough, said the little hen's friends.

Who will help me bake the bread, bake the bread, bake the bread.  
Who will help me bake the bread, dough asked the little red hen.

We can't help you bake the bread, bake the bread, bake the bread.  
We can't help you bake the bread, said the little hen's friends.

Who will help me eat the bread, eat the bread, eat the bread.  
Who will help me bake the bread, dough asked the little red hen.

We can't help eat the bread, eat the bread, eat the bread.  
We can't help you eat the bread, said the little hen's friends.

Sorry, but its just for me, just for me, just for me.  
Sorry, but its just for me and my family.

But look we all grew fresh vegetables, all grew fresh vegetables, all grew fresh vegetables.  
But look we all grew fresh vegetables, and we'd like to share.

Great, then let's have a picnic, let's have a picnic, let's have a picnic.  
Great, let's have a picnic with the crops we all grew.

## **The Farmer Tills the Field Song**

*Song to the tune of "The Farmer in the Dell"*

Have students sit in one big circle, representing seeds and wheat. One student should sit in the center to represent the sun. Several students, representing raindrops and clouds, should stand outside the circle, and several students, representing farmers, should stand inside the circle.

1. The farmer tills the fields... ("Farmers" make plowing motion.)
2. The farmer plants the seeds... ("Farmers" make plowing motion.)
3. The rain begins to fall... ("Raindrops" run round the outside of the circle.)
4. The clouds roll away... ("Clouds" back away from the circle.)
5. The sun begins to shine... ("Sun" stands, raises and waves arms in "shining" motion inside the circle.)
6. The seeds begin to grow... ("Seeds" stand up and become "Wheat".)
7. The farmer cuts the wheat... ("Seeds/Wheat" stoop down as "Farmers" pretend to cut.)
8. The farmer combines the wheat... ("Farmers" place "Seeds/Wheat" back to back.)
9. The farmer's work is done... ("Farmers" skip between the combined "Seed/Wheat".)
10. We all jump for joy... (All dance.)

# Vocabulary List

**roots** - the part of the plant that gets nourishment from the soil and which anchors the wheat plant to the soil

**head** (termed spike until it matures) - the part of the plant that contains the kernels and the beard, located at the top of the plant stem

**leaves** - the parts of the wheat plant that gather light energy for photosynthesis

**kernel** - When planted in moist soil, this plant part provides the plant with food to grow. Each wheat head contains 50 to 75 of these, which are the only part of the wheat plant used for human food and livestock feed.

**beard** - This part of the plant looks bristly and protects the kernels.

**stem** - the part of the wheat plant that supports the head and becomes straw at harvest

**grain drill**- A farm machine used to sow small grains or seeds into the soil

**hard winter** wheat- wheat planted from September to December in the Northern Hemisphere. It sprouts before freezing occurs and is dormant until the soil warms.

**Harvest**- The process of gathering a crop.

**Combine**- A power-operated harvesting machine that cuts and threshes wheat.

**grain elevator**- A machine that carries the grain to a building for storage.

**Farmer**- A person who harvests crops and cares for animals on the farm

**Miller**- A person who operates a mill where wheat is processed

**Flour**- A powder achieved when wheat is ground up

**Bread**- A product of wheat eaten by millions of people

**Tractor**- A machine that helps harvest wheat. It helps to dig up the ground and collect wheat.

**Wheat**- A grain harvested that is made into flour and bread.

**Sprout**- A bud of a plant that is the beginning of a mature plant.

**Germ**- part of wheat that is used in food.

**Enrichment**- Making a product better.

**Bran**- The outer layers of wheat

**Mill**- The place where wheat is ground up and prepared for food.

**Grain**- Small, dry part of the wheat plant. Sometimes called the fruit of the plant.

**Carbohydrate**- A dietary part of food including sugars, starches, and fiber

**Protein**- A product found in food that helps with muscle development

**Iron**- A mineral found in wheat that is good for our bodies.

**Thiamine**- A vitamin that is essential for our bodies and our body processes.

**Niacin**- Vitamin, also known as vitamin B3

**Oats**- A type of cereal grain

**Barley**- The grain of the plant used for making food.

**Corn**- The seed or kernel of a corn cob, used for food.

**Sorghum**- a species of grass raised for grain.

**Rye**- The grain of the plant used for making flour and other products.

# Books on Bread and Wheat

**Bread, Bread, Bread** by Ann Morris

Best for ages 6-8

ISBN: 0-688-06334-9

This book shares the idea that people eat bread all around the world and explores the forms which bread takes in each of those cultures. As an early-reader book this book does not contain too much detail but the excellent photographs help tell the story very well. The index contains pictures and identifies where each type of bread originates.

**Bread Comes to Life** by George Levenson

Best for ages 6-8

ISBN: 1-58246-114-7

This book shares the story of wheat in a rhyming poem and excellent photographs. Unfortunately, the effort to successfully complete the rhyme precludes using modern production techniques in the telling. Accurate up to the baker sowing the seed in his back yard, the story includes hand harvesting and threshing the wheat instead of the modern use of sowing seed in large fields using a seed drill and combine. While the poem and images are not technically incorrect they are not modern. The best use of this book would be as an accompaniment with another book that included modern images. The index contains pictures and detailed descriptions and student centered activities.

**Bread Is For Eating** by David and Phyllis Gershator

Best for ages 6-8

ISBN: 0-8050-5798-6

While this book does depict some stereotypical images it does provide an accurate description of the story of wheat. The story is colorfully illustrated using modern production techniques for the most part as it takes the reader on a journey from field to meal. A nice addition is the bilingual text, introduction of Spanish words, Guatemalan fold art and the depiction of a variety of peoples and the forms their breads take.

**Everybody Bakes Bread** by Norah Dooley

Best for ages 5-8

ISBN: 0-87614-895-X

On a rainy Saturday, what is better to do than to bake bread? Carrie and her brother bicker so much that their mother sends Carrie on a fool's errand to borrow a rolling pin. Each house she stops at a new kind of bread is offered to her and by the time she returns home the bread is ready at her house. This tummy warming story is both informational and fun for families to enjoy together as each new kind of bread represents a household of a different culture.

**Everybody Eats Bread** by Janet Reed

Best for ages 4-7

ISBN: 0-7368-2909-1

ISBN13: 978-0-7368-2909-0

This is an early reader book with short statement sentences in a large font. While the content is minimal this would be a very good book for a teacher to use to begin to teach reading for content. The content and picture could be used to begin to teach about cultures and meeting human needs in social studies. The photographs are excellent and enhance the text.

**From Wheat to Bread** by Kristin Thoennes Keller

Best for ages 7-10

ISBN13: 978-0-7368-2638-9

This is one in an excellent series of books depicting the various plant and animal source of food and fibers. As an early reader book, the content is minimal but fairly accurate. Each page has three to five sentences. The best feature of the book is that it begins with depicting wheat kernels and moves to harvesting wheat. Most students and teachers have never seen wheat seeds. The excellent photographs depict modern production and processing. The book ends with wheat weaving, a glossary, a recipe and recommended Internet sites.

**From Wheat to Bread** by Pam Marshall

Best for ages 4-8

ISBN: 0-8225-0715-3

This is one in an excellent series of books depicting the various plant and animal sources of food and fibers. As an early reader book, the content is minimal but fairly accurate. Each page has one to five sentences. The best feature of the book is that it begins with planting a wheat field as well as harvesting one. This is rarely seen in children's books or textbooks. The excellent photographs depict modern production and but the processing depicts much more old fashioned processes and equipment. The book ends with a glossary.

**From Wheat to Bread** by Stacy Taus-Bolstad

Best for ages 4-8

ISBN13: 978-0-8225-0715-4

This is one in an excellent series of books depicting the various plant and animal sources of food and fibers. As an early reader book, the content is minimal but fairly accurate. Each page has one to five sentences. The best feature of the book is that it begins with planting a wheat field as well as harvesting one. This is rarely seen in children's books or textbooks. The excellent photographs depict modern production and but the bread making depicts much more old fashioned processes and equipment. The book ends with a glossary.

**From Wheat to Pasta** by Robert Egan

Best for ages 6-9

ISBN: 0-516-26069-3

The excellent photographs beautifully illustrate this story from the wheat to the finished meal. The photos and story depict the growing wheat, combining wheat, grain elevators, milling flour, and making pasta. The book closes with photos and descriptions of six different types of pasta.

**Loaves of Fun** by Elizabeth Harbison

Best for ages 8-adult

ISBN: 1-55652-311-4

The text of this book is much better than its black-line illustrations. The illustrations are rudimentary at best while the text is well researched and written. The book starts in 8000 B.C. in Asia with the first known use of a ground grain and water mixture. It ends with a look at a modern bakery today. Included are breads from many countries, cultures and celebrations. Beyond bread, it includes recipes for poster paints, squeeze paints and play dough that use wheat flour as an ingredient. The book ends with a well-developed glossary.

**Wheat (A True Book)** by Elaine Landau

Best for ages 7-13

ISBN: 0-516-26792-2

As with the other books written by this author this text provides an accurate and comprehensive look at wheat. From the early cultivation of wheat over 17,000 years ago through modern culture today, the text and photos tell wheat's story. The author has even depicted and described the milling process. The author does a good job describing the six classes of wheat and difference between winter and spring wheat. The one small flaw appears in the caption of a photo which identifies large round bales of wheat straw as bales of hard red winter wheat. The book ends with a good glossary.

*Recommended by the American Farm Bureau Foundation for Agriculture*