

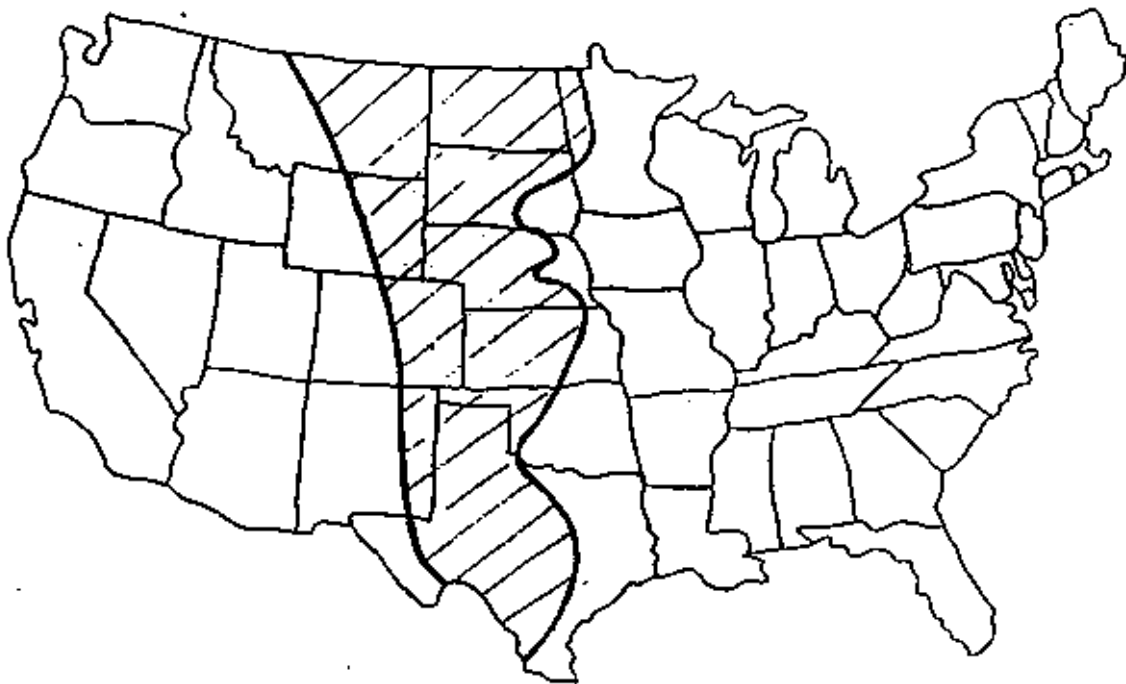
WHEAT

Breadbasket of the Nation

Name _____

The "Breadbasket of the Nation" is the greatest wheat producing area of the world.. It is found between the 100° Meridian, and the eastern boundary of the Rocky Mountain.

The shaded area below covers the area known as the Breadbasket of the Nation. Name the major states in this area on the lines below.



1. _____

6. _____

2. _____

7. _____

3. _____

8. _____

4. _____

9. _____

5. _____

10. _____

Find as many 3 or more letter words as you can using letters from the phrase, "Breadbasket of the Nation." There are over 425 words possible.

A WHEAT KERNEL . . . UP CLOSE!

BRAN LAYERS
(14-1/2% of kernel)

ENDOSPERM
(83% of kernel)

GERM
(2-1/2% of kernel)

35 times actual size

This picture is enlarged 35 times so you can see how complicated it is.

Bran: the skin or husk; it is separated from the flour by sifting.

Endosperm: the tissue which surrounds the developing embryo of a seed and provides food for its growth. This is the part that's ground to make white flour.

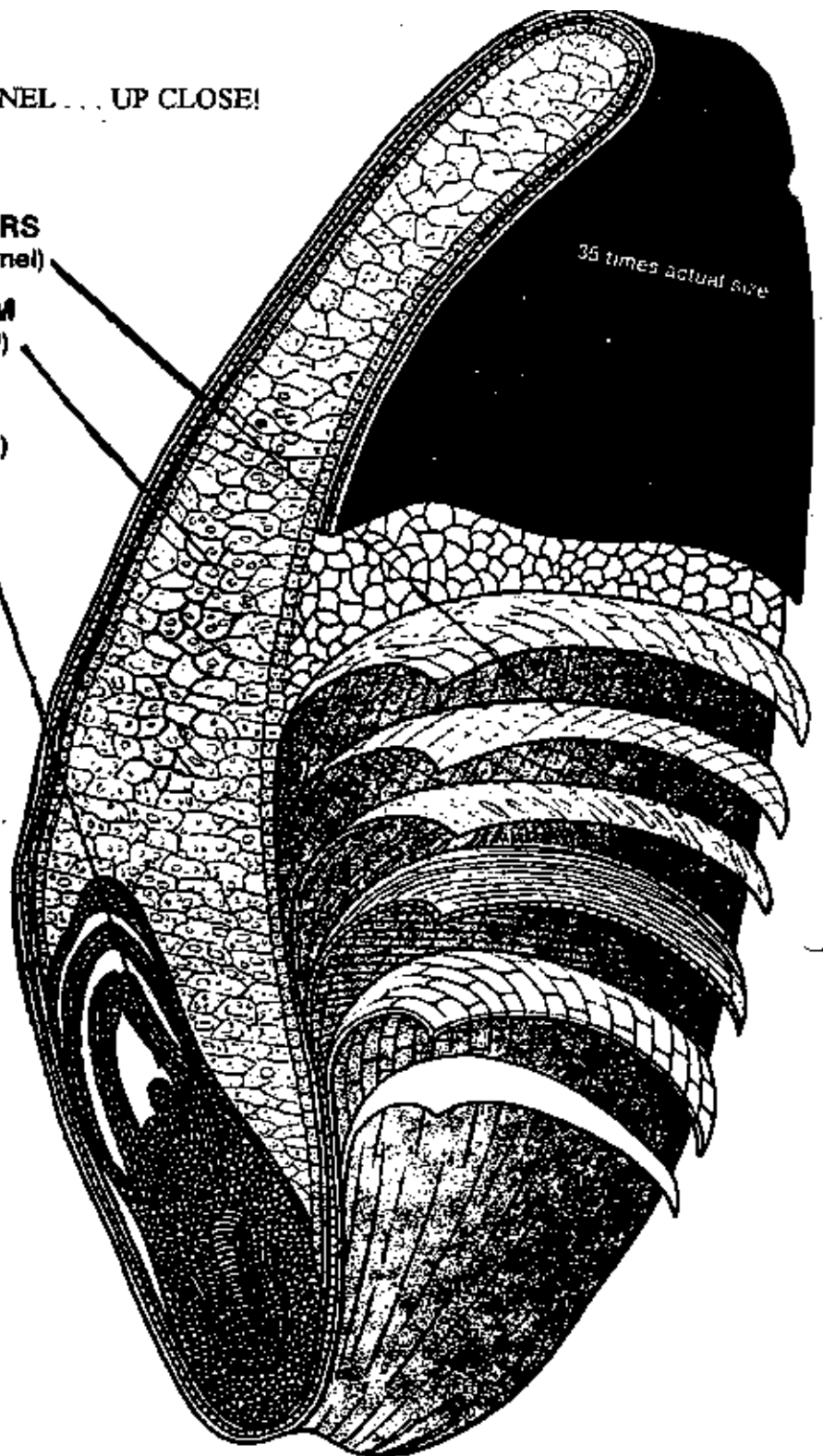
Germ: the part of the kernel that grows to make a new wheat plant when planted.

There are about 17,000 kernels in one pound of wheat. Now you see why it had to be blown up.

WHEAT IS GOOD FOR YOU!

The endosperm is milled or ground into white flour which may be used in making white bread. The bran and the germ are ground together with the endosperm to make whole wheat flour. The bran is also used in cereals and for livestock and poultry feed.

The germ sometimes is added to baked goods and casseroles. Wheat germ is rich in vitamin B and has lots of vitamin E. Those vitamins are important because they help people grow and stay healthy.



WHEAT - PARTS AND PIECES

SPIKE: an ear of grain (also commonly referred to as the head).

CULMS or STEMS: the jointed stem of grasses, usually hollow.

LEAVES: any of the flat, thin, parts of the plant growing from the stem. Leaves allow the plant to use sun and water.

ROOTS: the part of the plant below ground. The roots hold the plant in the soil and allow the plant to use nutrients and water from the soil.

WHEAT GERM: Added to baked goods and casseroles; high in vitamins B and E and high in fiber.

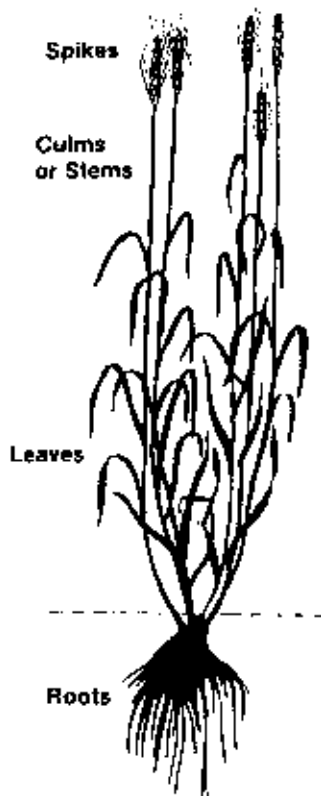
WHOLE WHEAT FLOUR: Made by grinding the bran, germ and endosperm together.

WHITE FLOUR: Made by grinding the endosperm.

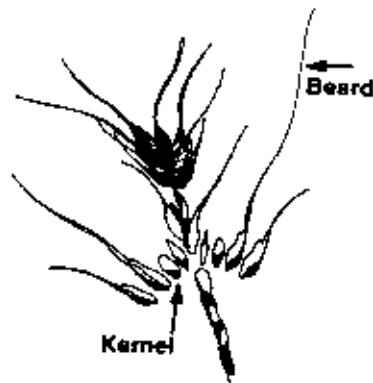
Find the part labeled "kernel". This is the wheat grain or seed and is the part made into good ingredients.

The wheat kernel is a storehouse of nutrients.

WHEAT PLANT



WHEAT SPIKE



WHEAT KERNEL



TYPES OF WHEAT

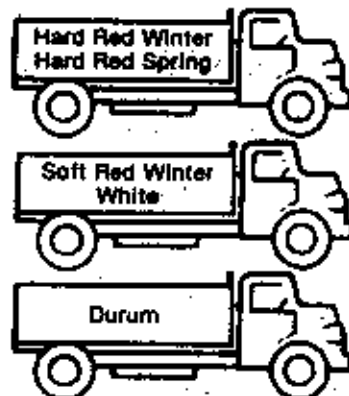
There are more than 400 different varieties of wheat grown in the United States, but they're all grouped into five classes based on three things: whether the grain is hard or soft, the color of the kernel and the time of planting.

The five classes of wheat grown are: hard red spring, durum, hard red winter, soft red winter, and white. Millers and bakers need to know what kind of wheat they're using, since each kind makes a different type of flour.

You probably like to eat cake and bread and macaroni. . . but did you know that different types of wheat are used to make each of those foods?

Read the next paragraph, then look at the list of foods below and see if you can figure out what type of wheat is in each one. Draw a line from the food to the correct truck.

Spaghetti
Hard Rolls
Cookies
Quick Breads
Lasagna
Yeast Breads
Cakes
Pastries
Rigatoni
Crackers



Hard wheat makes the best bread flour. Soft wheat and white wheat are used for cakes, cookies or crackers. Durum is the hardest wheat of all - it's used to make all kinds of pasta such as spaghetti, macaroni, and noodles.

WORDSEARCH

BRAN
PLANT
WHEAT
PASTA
BREAD
KERNELS
GRAIN
GERM
FLOUR
CEREAL
MILL
MACARONI
STEM
ROOT
PASTRY
EXPORT
PLOW
HARVEST
CAKE

B	B	D	E	T	A	E	H	W	X	F
Z	R	O	N	Q	R	X	C	B	L	U
N	I	A	R	G	E	P	Y	O	A	Y
I	L	K	N	D	E	O	U	T	E	P
P	A	S	T	A	C	R	F	Z	R	A
H	A	R	V	E	S	T	M	R	E	S
S	L	E	N	R	E	K	I	Q	C	T
G	T	K	M	B	O	P	L	T	O	R
H	Q	E	K	A	C	P	L	O	W	Y
J	W	I	M	A	C	A	R	O	N	I

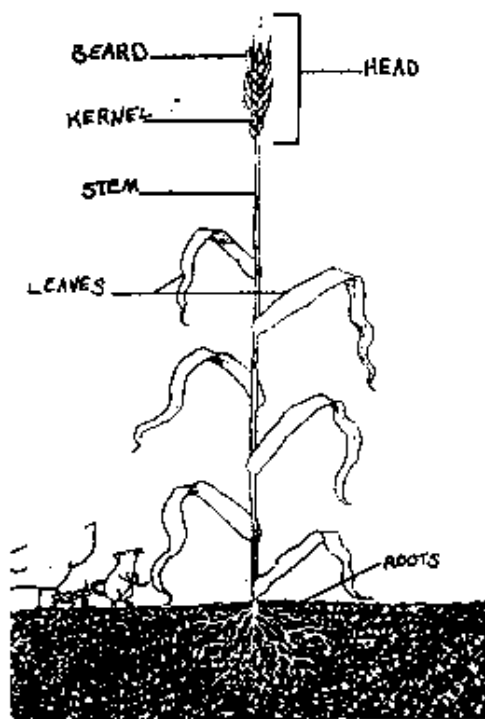
GROWING WHEAT

Before wheat is planted each spring, the farmer prepares the soil by using a field cultivator or chisel plow pulled by a tractor to kill weeds that grow early in the spring and to break the soil into small pieces. When a proper seed-bed has been prepared and the fields are ready, wheat is planted with a grain drill. The moisture in the soil is what makes the wheat plant start growing. At first, the germ - that's the growing part of the seed - gets its food from the endosperm. As the wheat plant grows bigger, it gets food from the soil through its roots, and also makes food from sunshine and nutrients from the soil in its green leaves.

Spring rains and warm temperatures make the wheat plants grow quickly. Soon the wheat fields look like a beautiful rolling green carpet. During the summer months, the wheat continues to need moisture and warm temperatures; however, it will suffer from very hot and dry conditions and will have difficulty producing full and plump heads of wheat.

Toward the middle of July, wheat fields begin to turn gold in color. You know the song "Oh beautiful for spacious skies, for amber waves of grain..." That is what it looks like when the wheat is ready to harvest. When the wheat is almost ripe, farmers have to move fast. They have to "race" with the weather to harvest the crop, because a ripe field of wheat is an easy target for wind, rain, hail, and even fire. Strong winds can tip over the plants so they can't be cut. Rain or hail can smash a whole field of ripe wheat in 5 minutes. Besides all of those problems, wheat can't be harvested if it's rainy and wet. The weather and the moisture content of the wheat have to be just right.

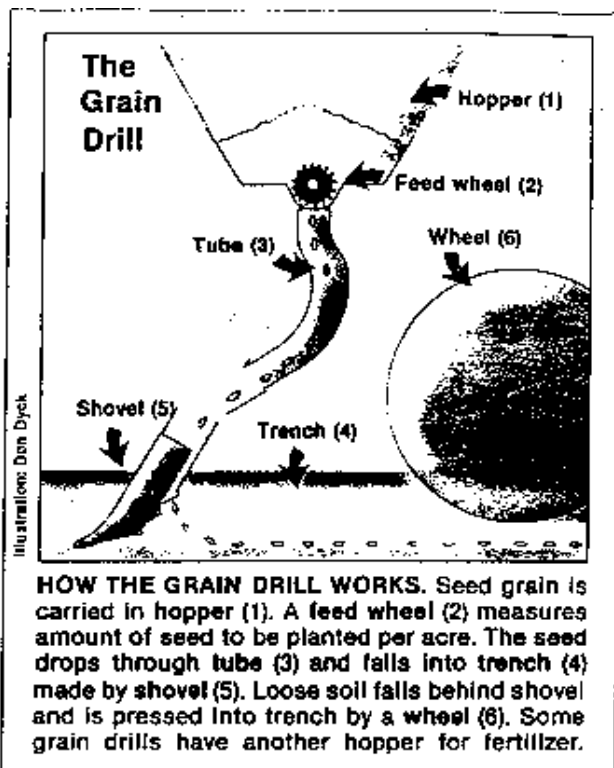
Is it Ready to Harvest?



How does the farmer know when the wheat is "just right" for harvest? Most farmers simply take a sample of wheat to the local elevator for testing. There the wheat is checked to see if it's dry enough to harvest.

But many farmers will also use the "old-fashioned" method to check their wheat. They rub the wheat head in their hands, blow away the chaff and chew some of the grain. If the kernels are hard and make "gum" as they are chewed, then the farmers know the wheat is ready to cut.

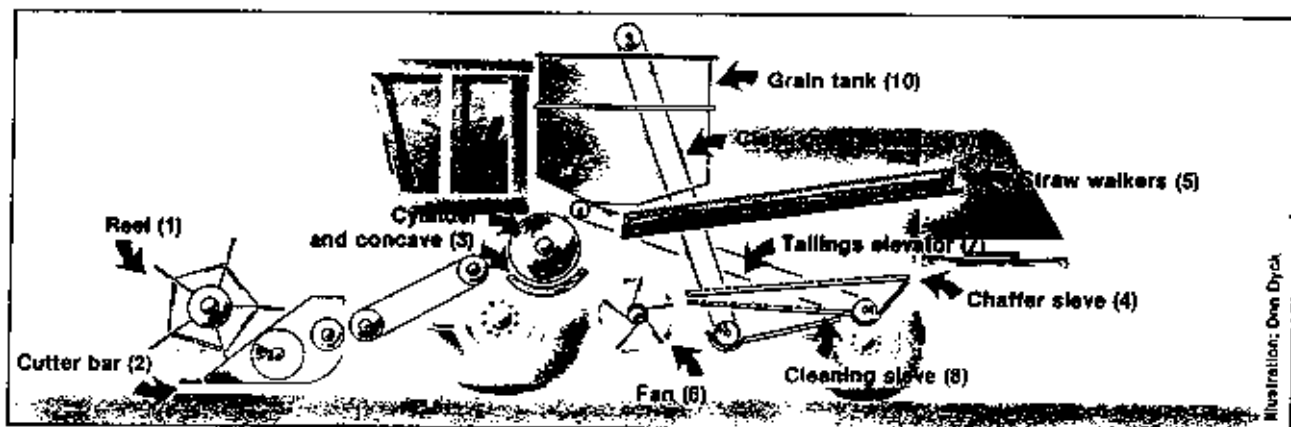
Wheat doesn't ripen at the same time everywhere in the United States. Harvest begins in May in the southern states like Texas and Oklahoma, and then moves north as the summer goes along. In North Dakota, the harvest begins in early August and lasts until mid September.



Wheat is harvested with a giant machine called a combine. It cuts, separates and cleans the grain all at the same time as it moves through the field.

Before the combine was invented, the farmer had to use two separate machines - a reaper or binder cut the grain, and a threshing machine separated kernels from the husks and stems. The combine is called that because it "combines" the jobs of both those old machines.

Combines have sure made wheat harvest faster and easier! It used to take about 3 whole days to cut and thresh an acre of wheat... but now a farmer with a large combine can harvest an acre of wheat in 6 minutes!

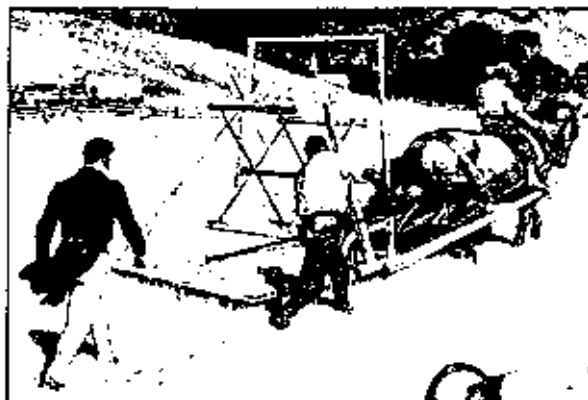


Farmer Invented Reaper

If COUNTRY KIDS had been around more than 150 years ago, we might have featured a farm boy named Cyrus McCormick as a "Country Super Star"!

Cyrus was only 15 when he started making inventions to help farmers like his dad... and one of his inventions is among the most important farm machines ever - the mechanical reaper.

Before Cyrus invented his reaper, farmers had to cut wheat by hand. Cyrus had the idea that if he used a knife with a saw-toothed edge and made it move back and forth while the grain was held against it, the knife would cut the grain just like a saw cuts wood. And Cyrus was right!



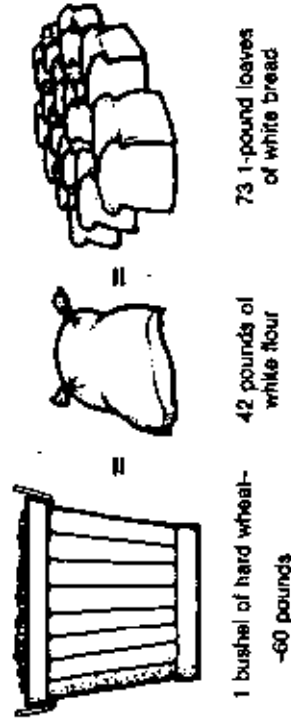
One Bushel of Wheat

One bushel of wheat weighs about 60 pounds when the farmer harvests his wheat.

From that one bushel of wheat, flour mills grind about 42 pounds of flour. Then it goes to the baker who can make 73 one-pound loaves of bread.

—73 loaves of bread from one bushel of wheat. The average one-pound loaf of bread has 16 slices.

—16 slices x 73 loaves = 1168 slices of bread. That many slices would make 584 sandwiches. If you ate a sandwich for breakfast, lunch and dinner it would take about 195 days to eat all of the bread from one bushel of wheat!



Who Gets the Dough?

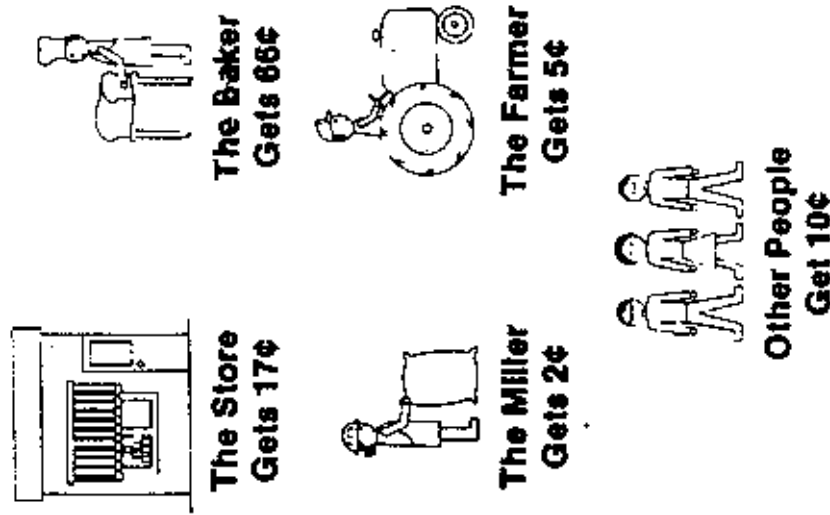
When the price of bread goes higher, some people say it is the wheat farmer's fault. But they don't realize the cost of wheat has very little to do with the cost of bread. Did you ever wonder where the money really goes when your family buys a loaf of bread?

Today a 1-pound loaf of white bread costs about \$1.00. But the farmer gets only about 5 cents of that for the wheat in the bread.

All the rest of the money — about 95 cents — goes to other people.

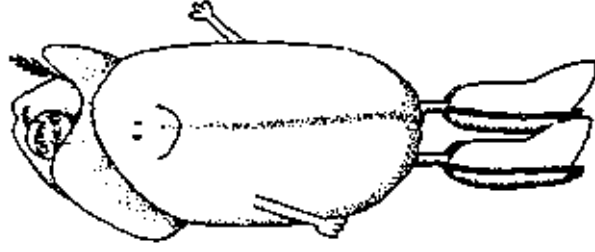
Look at the chart below to see where the \$1.00 goes when your family buys a loaf of bread at the store.

Cost Breakdown



See Wheat Turn into Flour

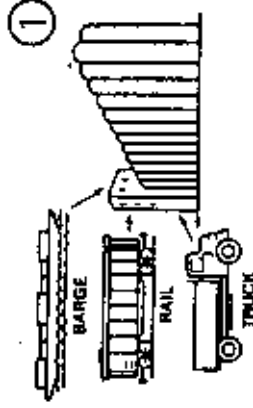
Let's take a tour of how wheat becomes flour.
Kirby Kernel will be our tour guide.



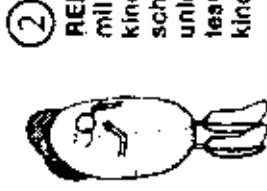
PEOPLE who make flour are called millers. If your last name is Miller, chances are someone in your family a long, long time ago worked in a flour mill! In the olden days, people's last names also told what they did.

Old-fashioned flour mills had giant stones turned by oxen or horses that ground wheat kernels into flour. Modern mills are a lot different...you'll see!

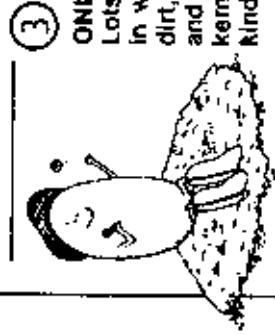
Remember that wheat kernels have three different parts—the endosperm, the bran and the germ. The endosperm is the part of the wheat kernel that most people like to eat, and it's the part that's made into white flour. You'll find out how it's done during our tour of a modern flour mill.



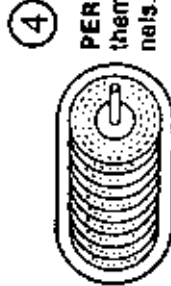
1 STARTING POINT. Wheat from the farm (like me!) comes to the mill in trucks, trains or barges and is stored in giant bins. Workers keep an eye on us wheat kernels to make sure we stay cool and dry so we won't spoil.



2 REPORT CARD TIME. At the mill, we're put through all kinds of tests (it's a lot like school) even before we're unloaded into the bins. The tests tell the miller what kind of flour we'll be best for.



3 ONLY WHEAT ALLOWED. Lots of things can get mixed in with us wheat kernels—dirt, stones, pieces of metal and weed seeds. So we wheat kernels are put through all kinds of cleaning machines.



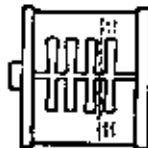
4 PERFECT FIT. These disks have dents in them the right size to catch only us wheat kernels. Other things won't fit and get spun away.



GIANT MAGNET. This machine pulls out metal pieces like nuts or rivets from farm machines that may have gotten in with wheat.

(5)

HOW ABOUT A BATH? In this special "wheat bath", stones drop to the bottom and other light materials float away. Now, we wheat kernels are nice and clean.



DOWN THE "FLOUR" PATH. wheat kernels like me go between heavy rollers with grooves that break the grain up into pieces.

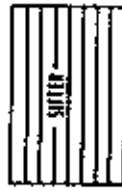


GIANT SIEVE. After each of many trips through the rollers, the wheat pieces are shaken through a series of screens to make them finer.



(7)

WINDY WHEAT! Another fancy sieve at the mill uses air currents to blow the bran from the rest of the wheat.



(8)

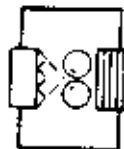
IT'S A GRIND. It's no simple job for us wheat kernels to become flour. These smooth rollers grind the wheat finer and finer.

WHOLE LOT OF SHAKING. These huge sifters have as many as 27 screens, each with smaller openings than the one before it.

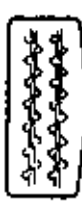
NOW, REPEAT AFTER ME.

Purifier—roller—sifter; purifier—roller—sifter. We wheat kernels repeat these three steps until we're mostly flour. Most wheat becomes flour, but some, mostly bran and germ, is used to make animal food.

(9)



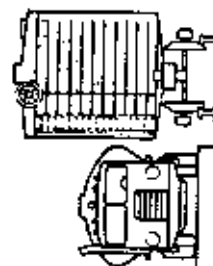
(10)



GETTING OLDER. Years ago, new flour was stored to make it better for baking and to whiten it. Now, a special ingredient does that job.

ENRICHING. The miller adds B-vitamins and iron to most white flour, since many Americans don't get enough of those important nutrients.

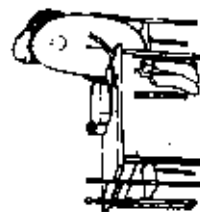
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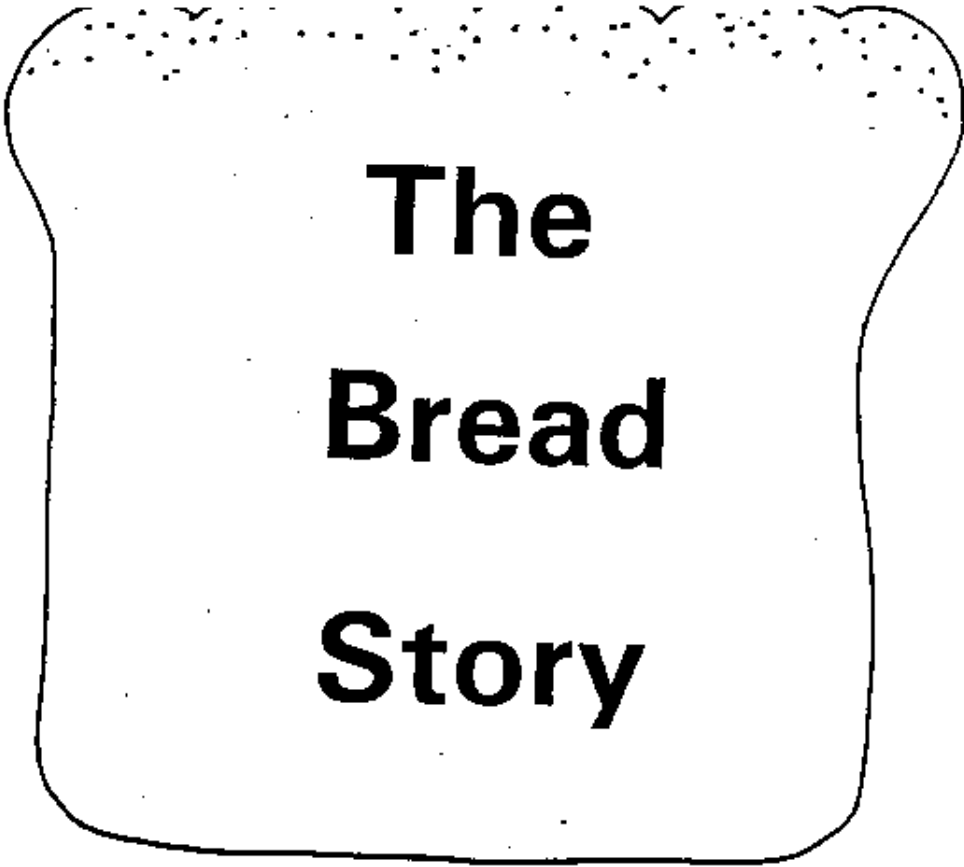
READY FOR BAKING. Well, now we've been through the mill. Flour leaves the mill in many ways—from 2-pound bags like you find on the grocer's shelf to big railroad cars.

Goosh, that tour made me hungry. I'm going to the kitchen to get a thick slice of fresh bread...how about you?

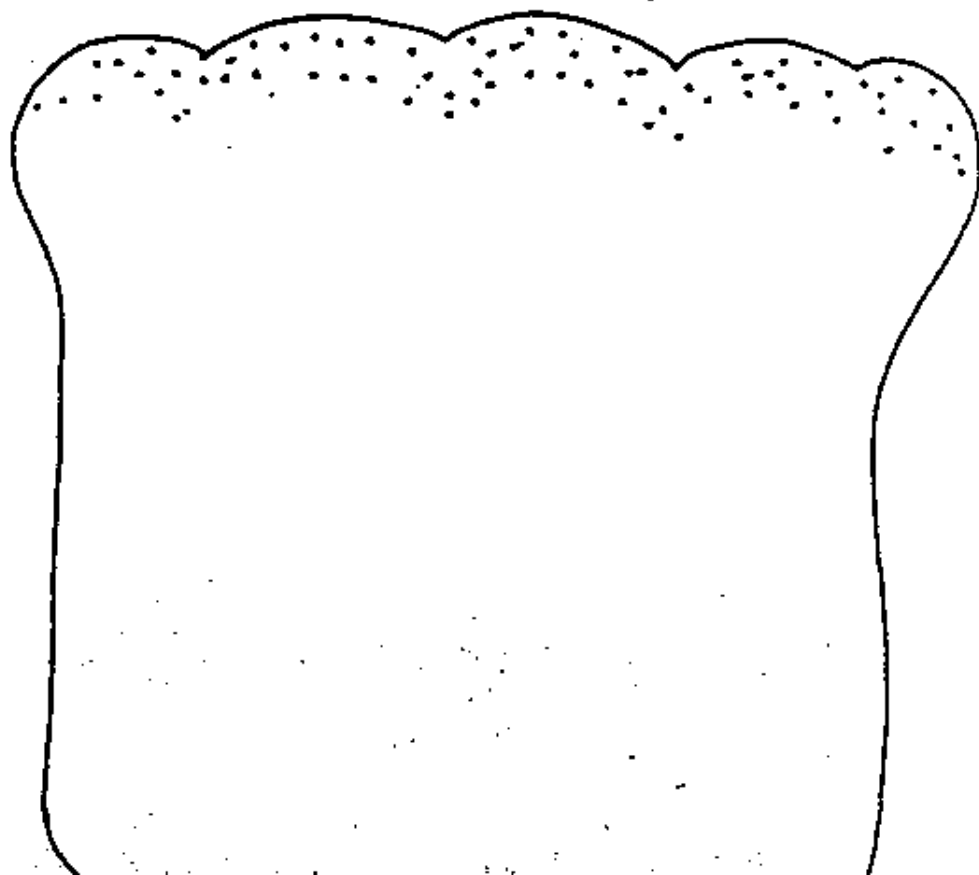
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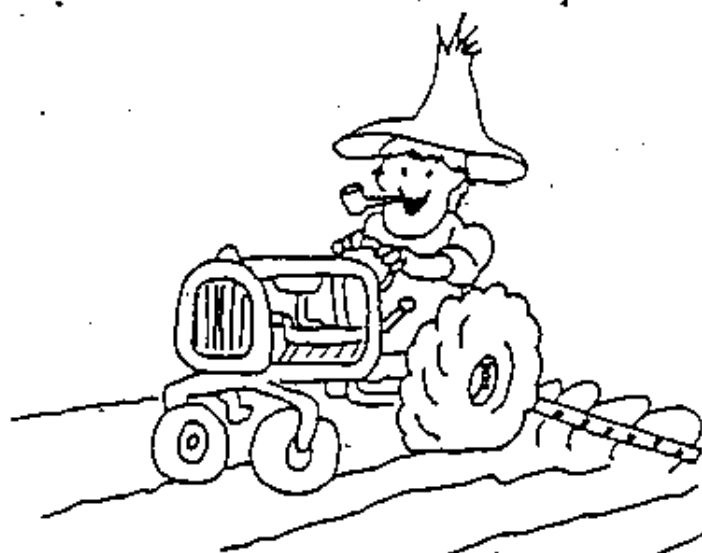


Let's Eat!

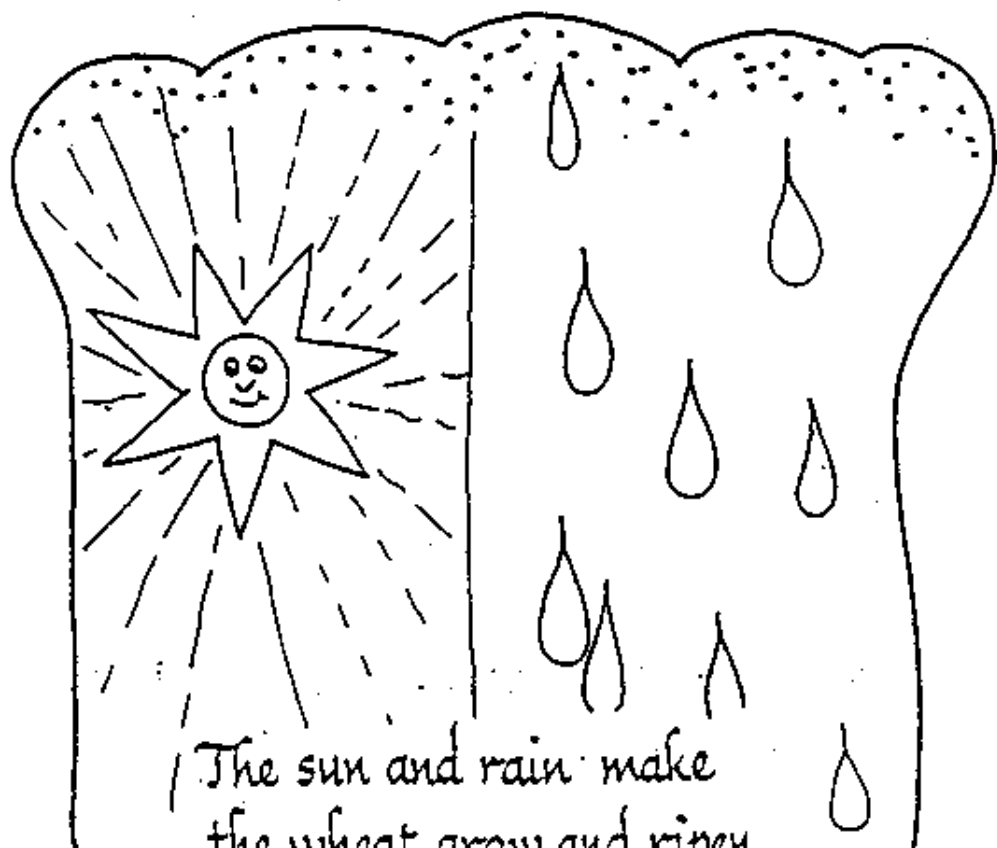


The Bread Story





The farmer plows the field
and plants the seeds.

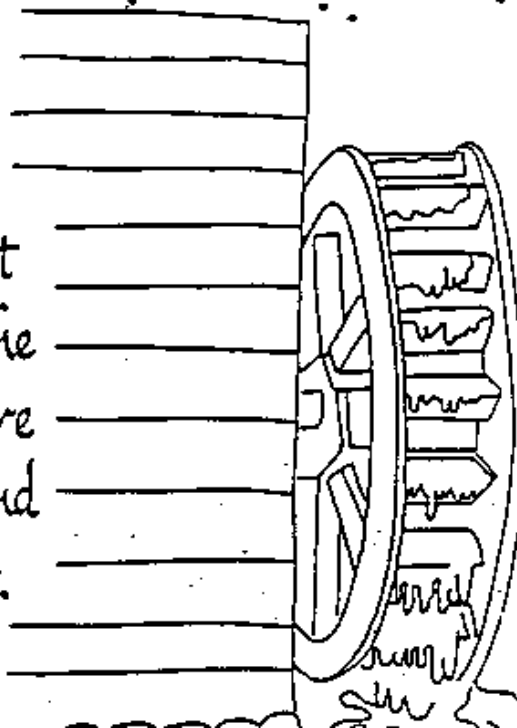


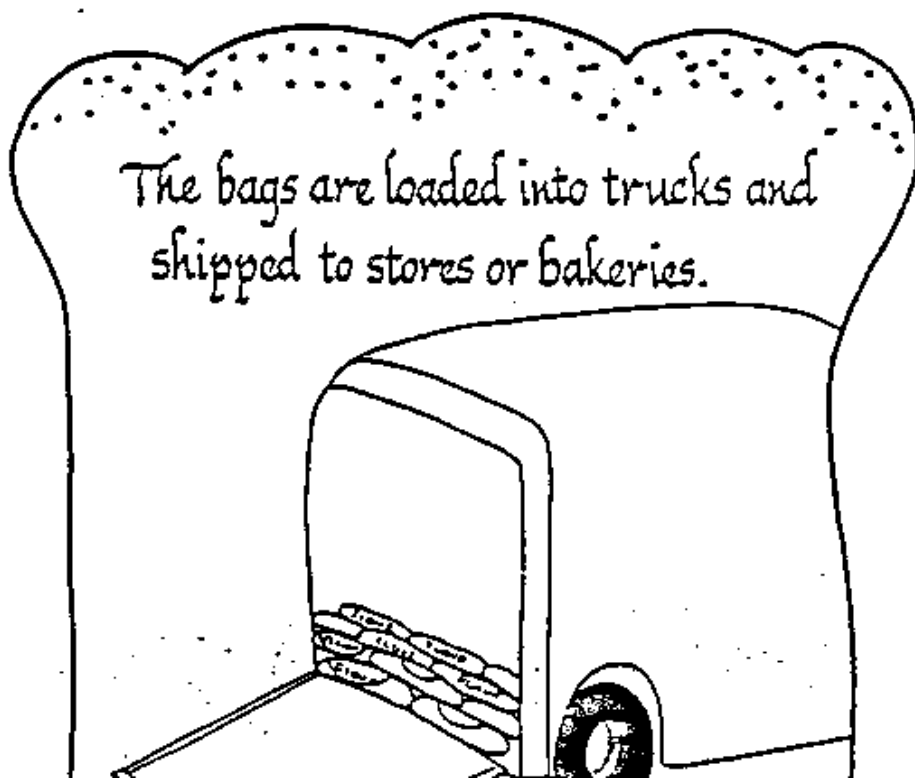
The sun and rain make
the wheat grow and ripen.

When the wheat
is yellow
and ripe,
it is cut.



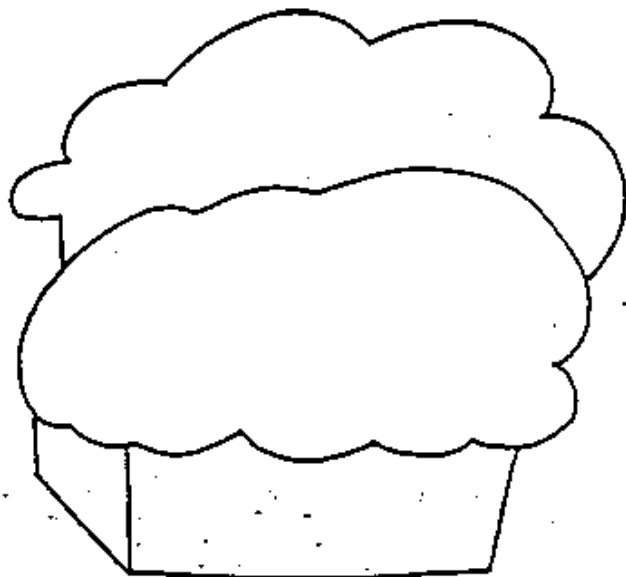
The wheat
goes to the
mill where
it is ground
into flour.

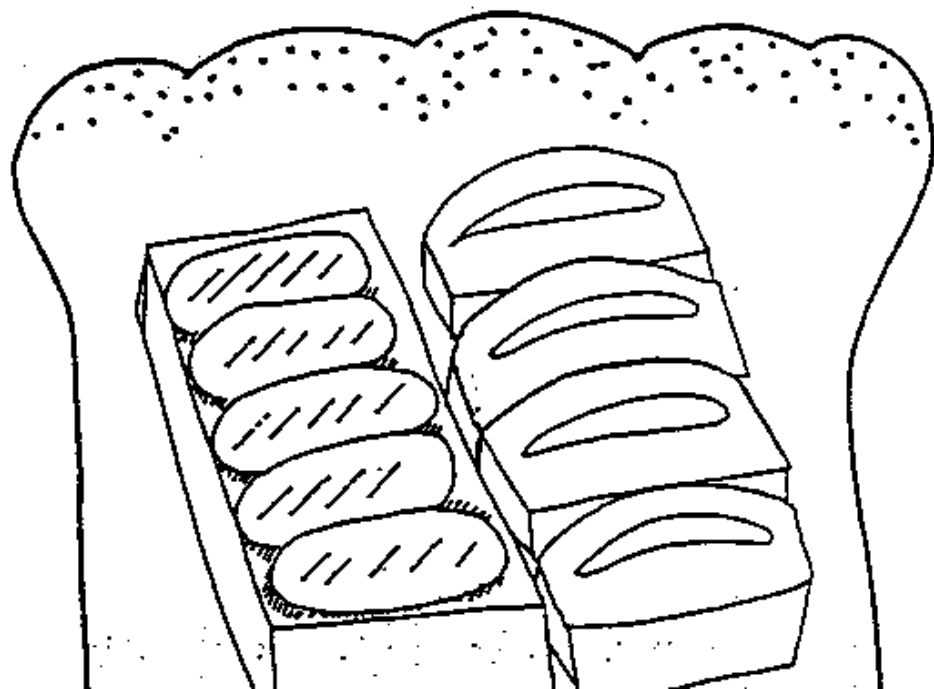


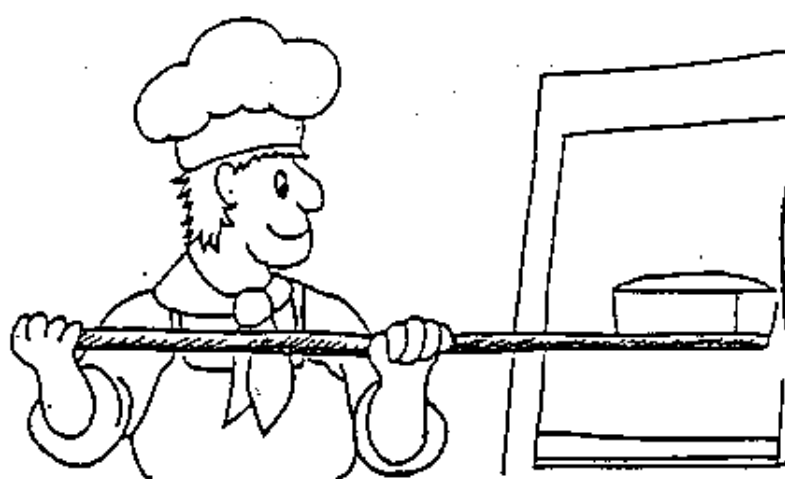




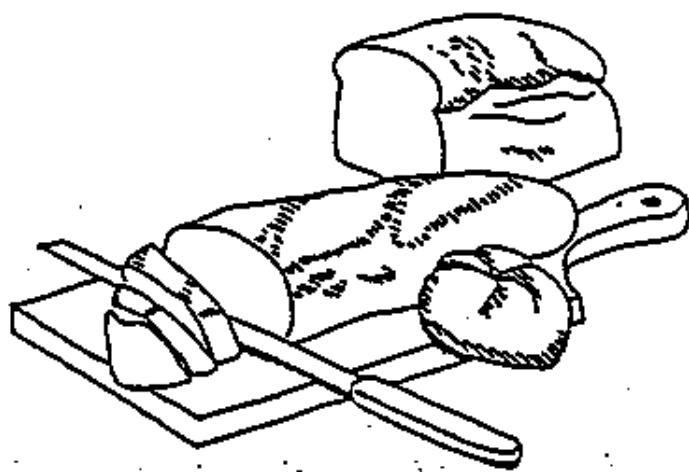
The baker mixes sugar, milk,
and yeast with the flour.

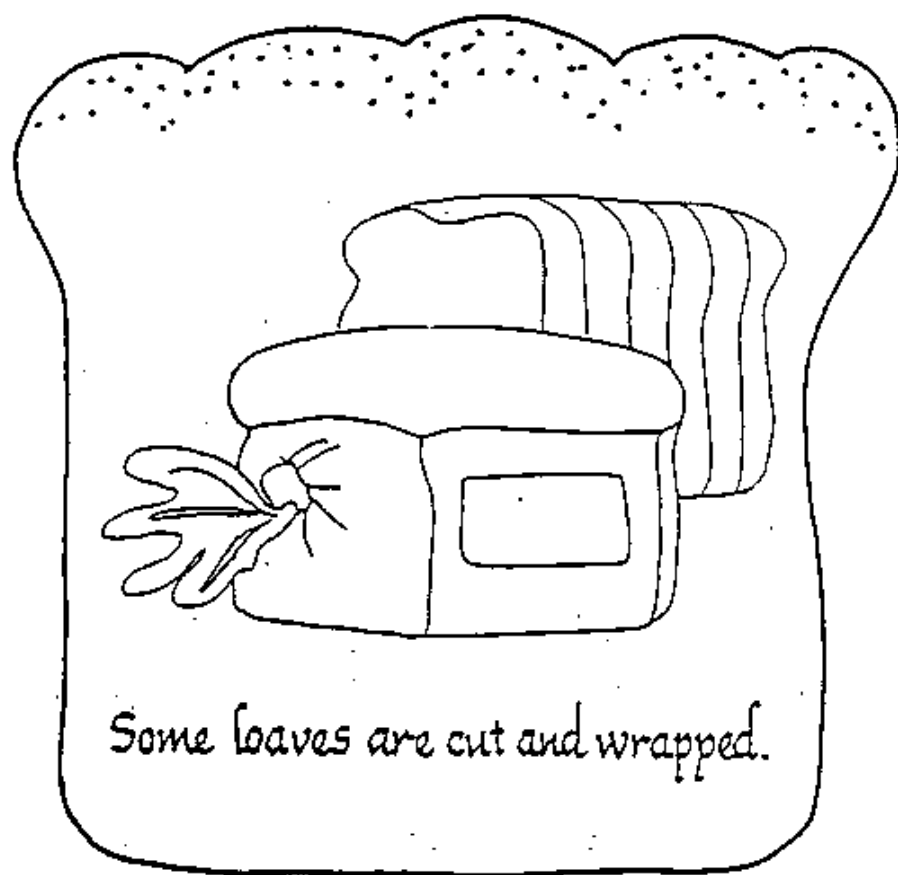




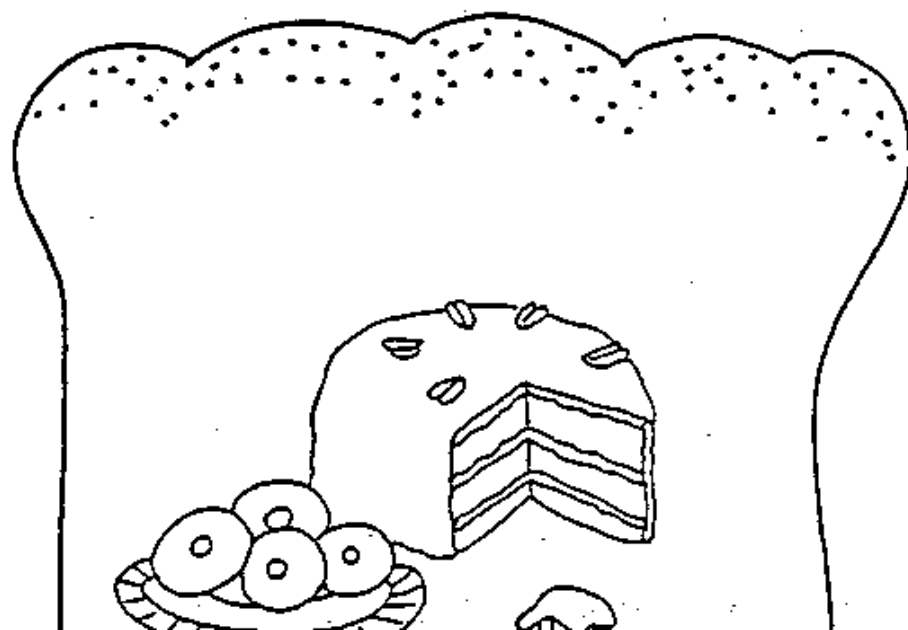


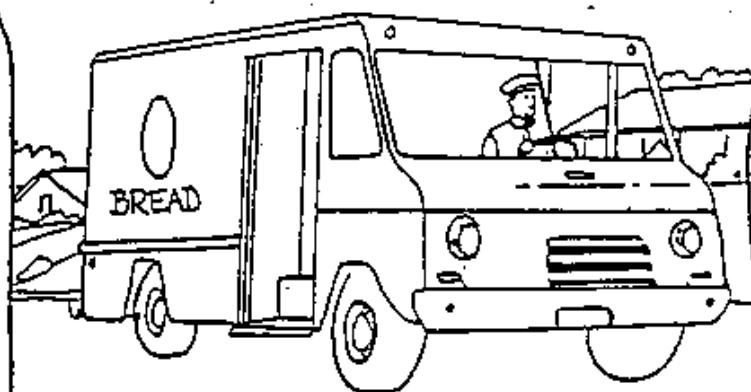
The loaves are baked in a hot oven.



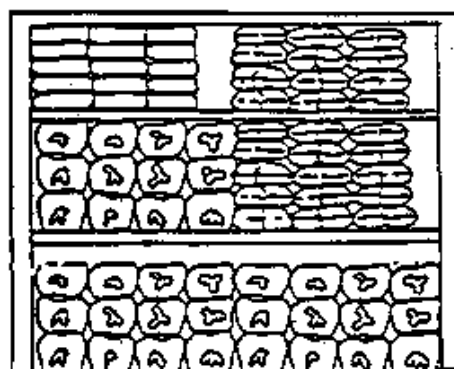


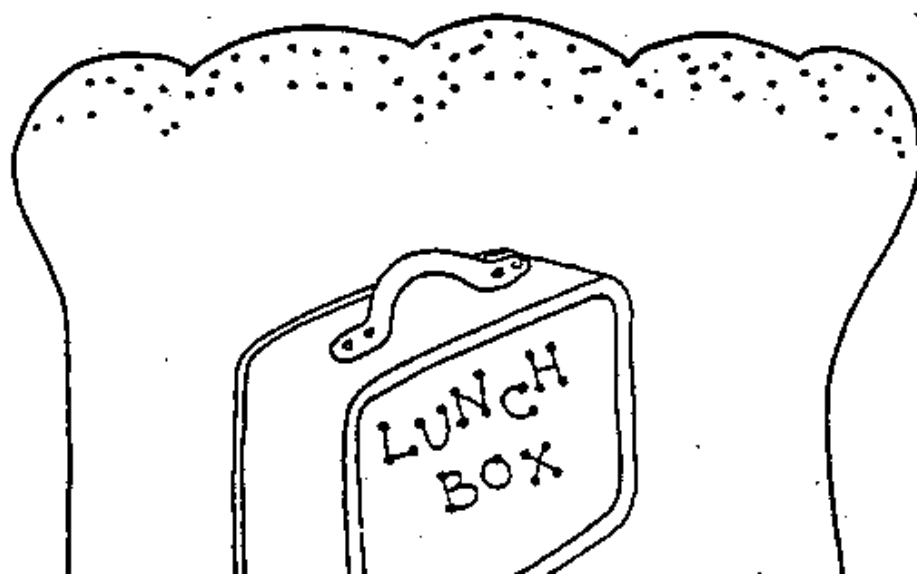
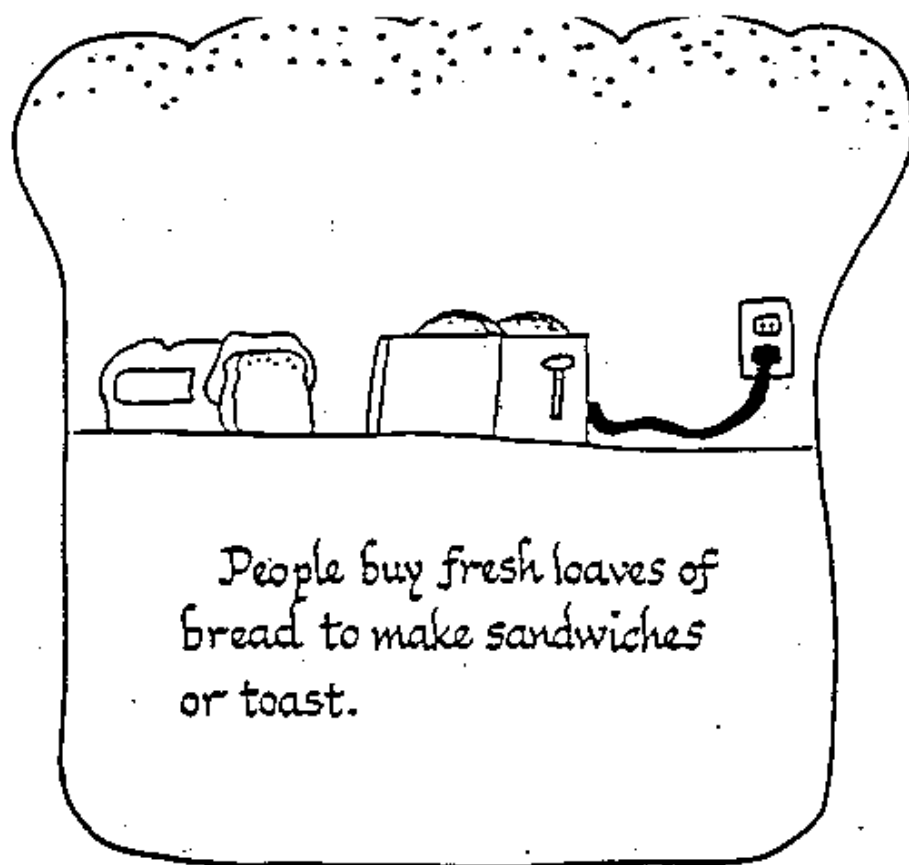
Some loaves are cut and wrapped.





A truck takes the bread to the store.

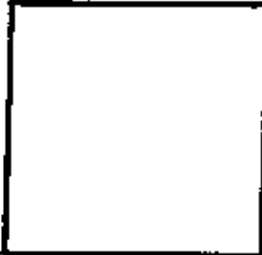


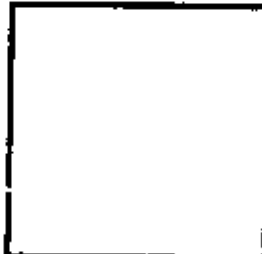


MAKING BREAD

Many people help us get our food. Some of these people are shown in the pictures at the bottom of the page. Cut out the pictures. Paste them in the boxes in the sentence that describes their jobs.

1. The  grows the wheat.

2. The  grinds the wheat into flour, and puts it into bags.

3. The  brings the bags of flour to your school

4. The  bakes the bread for your lunch.



Eleven Ways To Say Bread

Can you match the bread with the country? It's bread (or pasta) any way you say it.

- | | |
|-----------------|-----------|
| 1. Pita | German |
| 2. Tortilla | Mexican |
| 3. Lefse | Irish |
| 4. Soda Bread | Norwegian |
| 5. Spaghetti | American |
| 6. Brioche | Arab |
| 7. Bagel | Scottish |
| 8. Wonton | Jewish |
| 9. Scones | Chinese |
| 10. Stollen | Italian |
| 11. Johnny Cake | French |

WHEAT FEET

Grow some wheat feet. Learn what wheat looks like and how to take care of it.

Here's how:

1. Buy wheat seed at a health food store or garden store.
(If you can't find wheat seed, use grass seed or popcorn.)



2. Fill an old tennis shoe with dirt or potting soil.



3. Sprinkle several seeds on top.



4. Cover the seeds with a dusting of soil. Water gently.



**STUDENT
PAGE**

Name _____

YEASTY BEASTIES

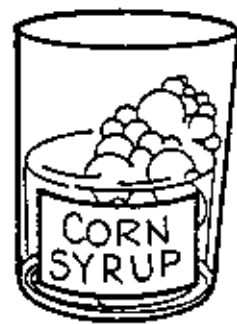
Many bread batters double in size before they go into the oven.
Why? They contain tiny, tiny plants called yeast.
Here's an experiment for you to try in a science laboratory—
your kitchen!

Objective: to meet some yeast and learn what makes it tick

Materials: two packages of dry yeast, three glasses, sugar, corn syrup, water, soda bottle, balloon

Part I: Good food

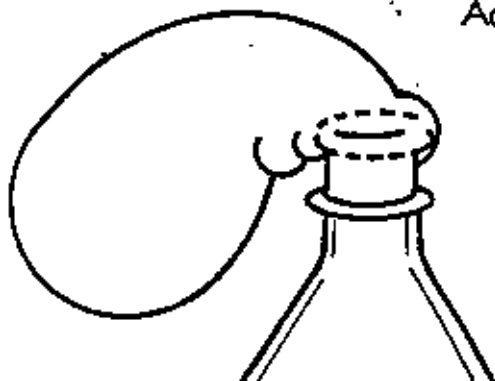
- Label three glasses as shown.
- Fill each glass with 1 cup of warm tap water.
- Add 1 tablespoon of corn syrup to the second glass.



Add one tablespoon of sugar to the third glass. Stir both glasses.

- Divide one package of yeast between the three glasses.
- Study the yeast bubbles. Record your observations.

Explanation: Yeast needs a food called glucose. Corn syrup and sugar both have glucose, but the glucose in sugar is harder for the yeast to get to. The yeast that foams the most and fastest has the best food.



IT'S MAGIC! IT'S MAGIC! IT'S MAGIC!

Nothing tastes quite as good as a big slice of fresh bread. . .it's so soft and fluffy and chewy-good!

Have you ever wondered why flour made from wheat - instead of some other grain - is used most often to make bread? Flour can be made from other grains, too, like rye, oats, and barley. But bread bakers usually choose wheat flour.

That's because wheat contains a magical protein called gluten. Other grains have some gluten, but not as much as wheat.

We will see how gluten works . . . but first you need to know about another ingredient in bread - yeast. Besides flour, yeast is the most important thing in bread. Yeast is what makes bread fluffy and light.

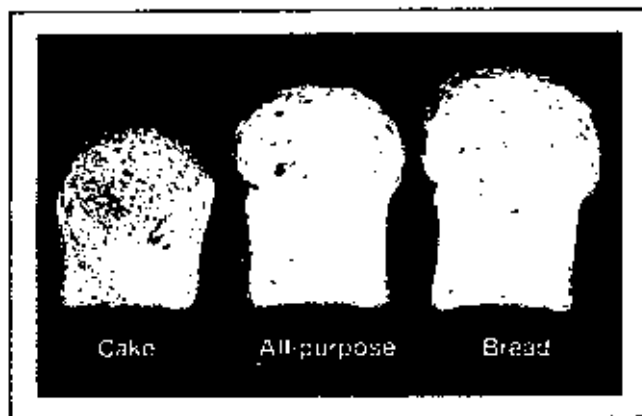
When yeast is mixed with warm water and flour to make bread dough, the yeast gets "active" and makes lots of tiny bubbles. These bubbles need to be trapped in the dough so it will rise and become light. That's where gluten comes in. Gluten is very stretchy - sort of like bubble gum! The gluten traps air bubbles from the yeast and keeps them in the dough. When you see all those tiny holes in a slice of bread, that's where the gluten "bubbles" were.

Since other grains don't have as much gluten as wheat, bread made from other grains doesn't get as soft and fluffy.

THIRSTY EXPERIMENT

You can see for yourself how much gluten is in different kinds of flour with a simple experiment. You'll need 1 cup of wheat flour and 1 cup of rye or barley flour for this experiment.

Gluten is a "thirsty" protein - it soaks up lots of water. First mix enough water with the flour to make a smooth dough like clay. Next, mix exactly the same amount of water with the rye (barley) flour. You'll find that it stays sticky and wet - there isn't enough gluten to soak up all that water!

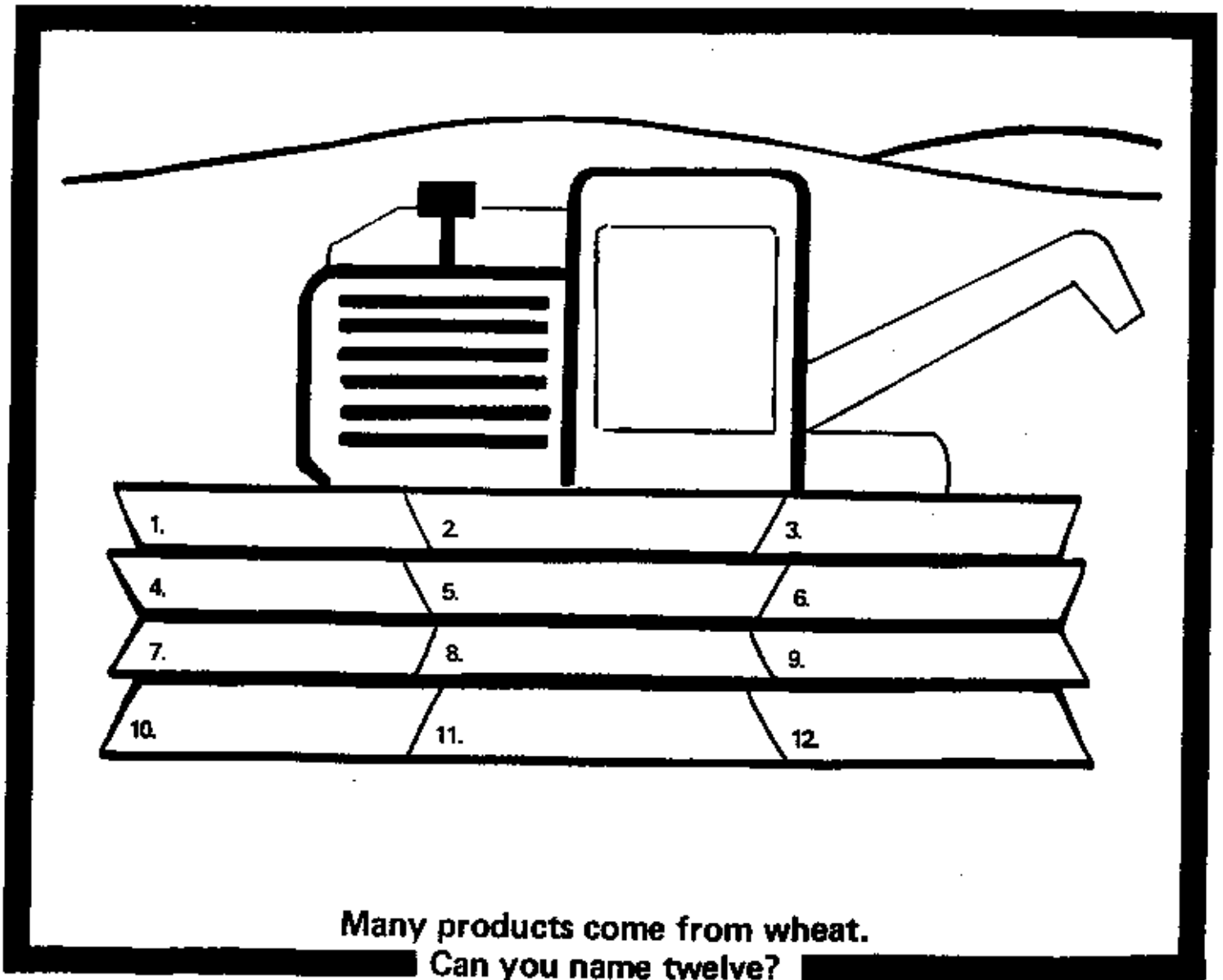


Rising of bread depends on how much gluten flour has.

GLUTEN
A gray, sticky, nutritious substance found in wheat flour and other grains. Gluten gives dough its tough, elastic quality.

Make bread dough crafts. Here's the recipe:

OLD MACDONALD grew only
enough grain to feed his family and livestock.



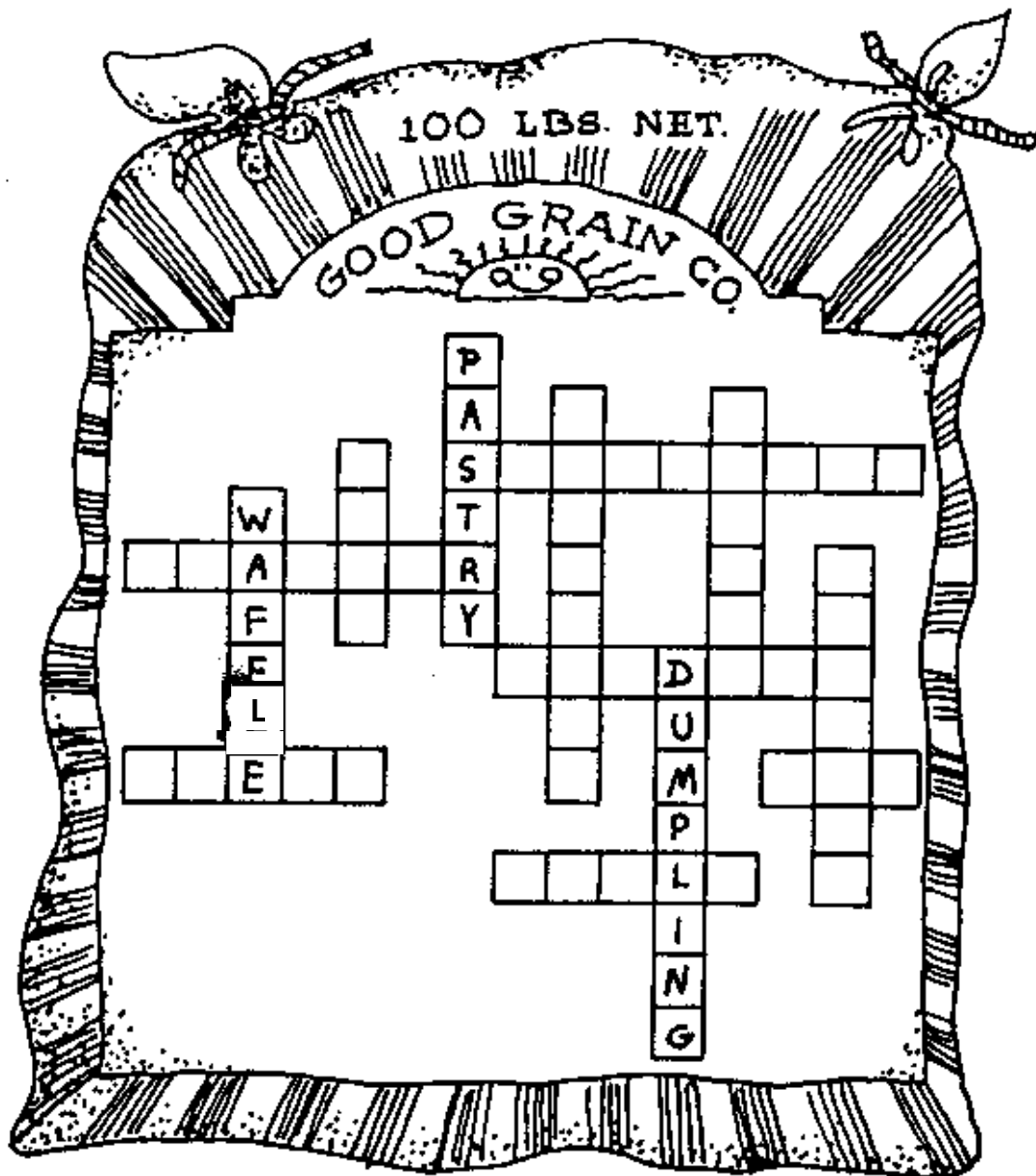
TODAY there are many farms that grow only wheat . . . enough to feed the United States and export to many other countries around the world.

Did you know? Today 1 combine can harvest enough wheat in 9 seconds to make 70 loaves of bread!

Answers: cake, cookies, bread, cereal, noodles, pizza, spaghetti, crackers, flour, pie, pancakes, wheat nuts, rolls, cupcakes.

Name _____

FILL THE FLOUR SACK



THE FLOUR SACK above is filled with all kinds of good things to eat made from wheat. How many of the items listed below can you fit into the correct spaces? The first three have been done to get you started.

Pastry
Waffle
Dumpling

Rolls
Bread
Bun

Cereal
Cake
Biscuit

Cracker
Noodles

Spaghetti
Macaroni

PLANT
WHEAT
PASTA
BREAD
KERNELS
GRAIN
GERM
FLOUR
CEREAL
MILL
MACARONI
STEM
ROOT
PASTRY
EXPORT
FLOW
HARVEST
CAKE

B B D E T A E H W X F
Z R O N Q R X C B L U
N I A R G E P Y O A Y
I L K N D E O U T E P
P A S T A C R F Z R A
H A R V E S T M R E S
S L E N R E K I Q C T
G T K M B O P L T O R
H Q E K A C P L O W Y
J W I M A C A R O N I



Classroom Activities

- *At lunch time have each person name the foods in his or her lunch that are made from wheat.
- *Plan a day's menu. Try to have a wheat food at each meal.
- *Make a poster of labels from foods made from wheat. Show the class how you can pick the most nutritious foods by reading labels.
- *Make a chart called "From the Farm to Your Table." Show all the places where wheat goes before you can eat it in a food product. Hint: page 11 will help you.
- *Figure out how much 13 loaves of bread would cost at your grocery store and then figure what the farmer's share is. See "Who Gets the Dough."



MAKE A FARM ANIMAL FROM WHEAT FLOUR

Wheat Flour is great for baking a cake - but you can use it to have fun, too! By mixing flour and water into a paste and dipping newspaper strips into it, you can make your own papier-mache craft.

You can make just about any farm or ranch animal using papier-mache. Maybe you'd like to make a little porker, as Country Kid Pam is doing.

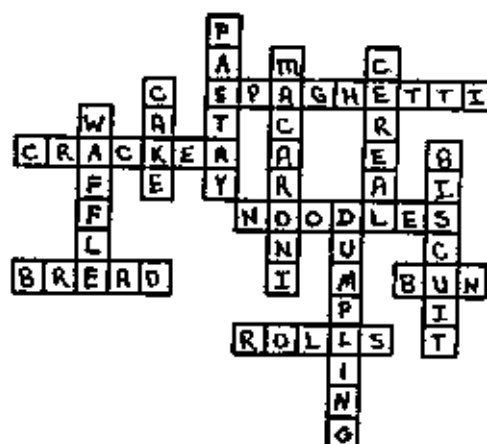
Materials Needed:

Flour, Water, Newspaper
Balloons (1 large and 1 small)
Paper towel tube, masking tape

Directions

1. Mix 1 cup flour and 1 cup water until you have a creamy paste. If paste is too thick, add a bit more water.
2. Blow up large balloon for animal's body and small one for head. Knot ends.
3. Rip newspaper in big strips 2 x 6 inches and small strips 1 x 3 inches. (Don't cut newspaper. Tearing gives it a ragged edge that helps make paste stick.)
4. Dip big newspaper strips one at a time in flour paste on both sides. Rub strip along edge of paste bowl to take off extra paste. Paste strips over each balloon until balloon is completely covered. Smooth them out.

Answers to the "Fill the Flour Sack" puzzle



Answers to the type of wheat quiz:

Hard Red Winter and Spring—hard rolls, yeast breads.

Soft Red Winter and White—cookies, quick breads, cakes, pastries, crackers, snack foods.

Durum—spaghetti, lasagna, rigatoni.

TEACHER KEY TO THE STORY OF BREAD

1. The farmer plows the field and plants the seeds.
2. The sun and rain make the wheat grow and ripen.
3. When the wheat is yellow and ripe, it is cut.
4. The wheat goes to the mill where it is ground into flour.
5. The flour is packaged into bags and sacks.
6. The bags are loaded into trucks and shipped to stores or bakeries.
7. The baker mixes sugar, milk, and yeast with the flour.
8. The yeast makes the dough rise.
9. The baker kneads the dough.
10. The dough is shaped into loaves.
11. The loaves are baked in a hot oven.
12. The loaves of bread are crusty and brown.
13. Some loaves are cut and wrapped.
14. The bakery also makes rolls, donuts, and cakes with the flour.
15. A truck takes the bread to the store.
16. The loaves are placed on the store shelves.
17. People buy fresh loaves of bread to make sandwiches or toast.
18. Boys and girls eat sandwiches for lunch at school.

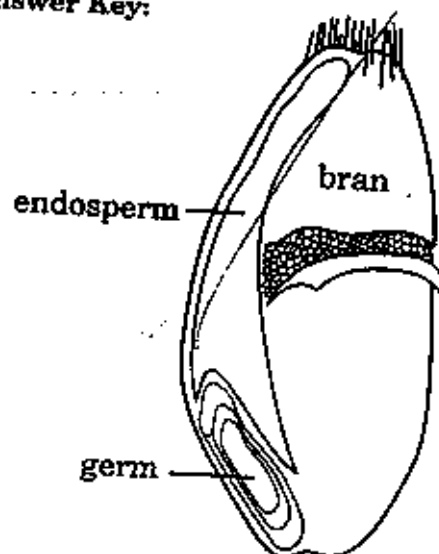
Eleven Ways To Say Bread

Can you match the bread with the country? It's bread (or pasta) any way you say it.

- | | |
|-----------------|-----------|
| 1. Pita | German |
| 2. Tortilla | Mexican |
| 3. Lefse | Irish |
| 4. Soda Bread | Norwegian |
| 5. Spaghetti | American |
| 6. Brioche | Arab |
| 7. Bagel | Scottish |
| 8. Wonton | Jewish |
| 9. Scones | Chinese |
| 10. Stollen | Italian |
| 11. Johnny Cake | French |

Source: American Museum of Natural History, 1964

Answer Key:



Kernel Counting



FOOD FOR AMERICA

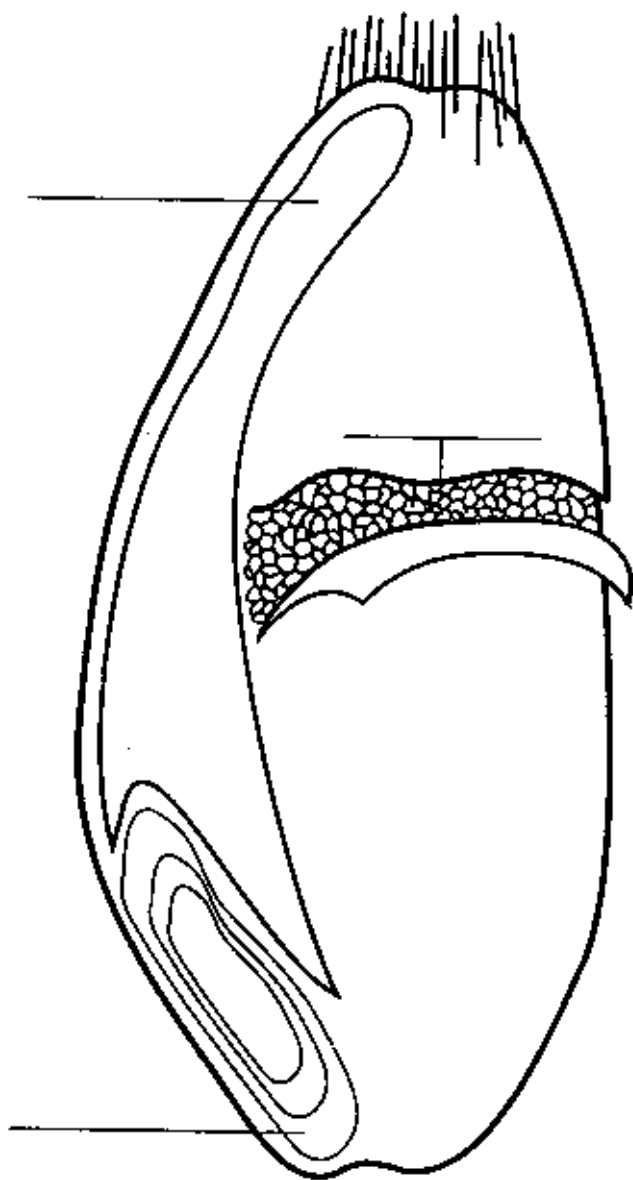
Identify the endosperm, bran and germ of this wheat kernel then complete the math problems related to wheat.

Name _____

1. An acre is about the size of a football field. Joe raised 37 bushels per acre of wheat in his 75-acre field. How many total bushels of wheat did he produce? _____
2. Ann has 1,800 bushels of wheat stored in a bin on the farm and decides to sell it at \$2.70 per bushel. What is her gross income on the sale? _____
3. John sold 1,500 bushels of wheat for \$3,900. His expenses for that wheat were \$1,634 for land rent; \$1,032 for seed, fertilizer and pesticides; \$688 for fuel, machinery repairs and equipment depreciation; and \$516 for taxes, interest and other expenses. What is John's net profit? _____
4. One bushel of wheat can produce 70 loaves of bread. How many bushels are needed to produce 5,740 loaves?

5. After milling, the weight of the flour is 76% of the original weight of the wheat. How many pounds of flour can be milled from 1 ton (2,000 pounds) of wheat?

6. One ton of wheat costs \$87, and 1 ton of flour costs \$210. How much value was added to the wheat by processing into flour? _____
7. A large bakery can produce 18 dozen hamburger buns per minute. How many buns can be produced per hour? _____



THE FARMER IN THE WORLD MARKET

Grade Level:	Primary
Economic Concepts:	Interdependence, Trade, Division of Labor, Producer, Consumer
Skills:	Language Arts
Time Frame:	Two class sessions

The students will demonstrate their understanding that some of the food and fiber produced in this country is sold to other countries by:

- A. Listening to a short story of marketing grain and then completing a handout tracing the steps of wheat production to exportation.
- B. Completing a word search activity in which agricultural products and terms that relate to this concept are included.

Vocabulary:

Marketing, transportation, elevators, storage, wholesale, packaging, politics, Winnipeg, St. Paul, Minneapolis, New York, Canada, Red River Valley, England, products, foreign, steamships, depots, barges, harvest.

Materials:

- A. Story of marketing grain (included) and the handouts on wheat production to exportation (included), scissors, paste, crayons.
- B. Word search puzzles for each story.

Procedures:

- A. 1. Read the following information to the children.

"FROM FARM TO MARKET"

Marketing is a system of businesses that takes a product, such as wheat, from the farmer's field to the consumer's table. It is a complex (very hard) system that involves transportation and storage of products, time and methods of selling, prices, politics, foreign markets, manufacturing, packaging, and wholesale and retail sales.

North Dakota's story of marketing began in the 1870's with the construction of the railroad. Commercial grain trade started in 1876 when a rail line was built between Winnipeg and St. Paul. The demand for Red River Valley wheat grew in New York, eastern Canada, and England, and helped make Minneapolis the largest flour milling center in the United States. The railroads grew and grew. By 1885, nearly all parts of the Red River Valley were within 15 miles of a railroad. Railways were planned so that no farmer was more than 25 miles from a railroad track.

Today, farmers haul their grain to a local elevator which is located by a railroad track. An elevator is the place where farmers store and sell their grain (the elevator gets its name from the fact that the grain is raised or elevated to the top of a high tower and dropped into it for storage).

First the farmer's grain truck is weighed with its load. Then the grain is dumped through an iron grate and into an underground bin. From there the grain is conveyed to the tall bins. The truck is weighed again and the difference between the first weigh-in and the second is the weight of the load of grain. After the grain is sold, it is shipped to market by railroad or grain trucks. Sometimes the grain goes to a flour mill; other times it is shipped to big grain storage depots that have elevators many times larger than the local elevators. Many railroad cars, river barges, trucks, and steamships are involved in transporting the grain harvest.

2. Provide each student with a copy of handout entitled "From Farm to Market" and a "Farm to Market" cycle sheet.

3. Read the class the following set of directions.

Today you are going to pretend you are a grain grown in North Dakota. Trace the steps you would undergo from planting to being exported. Study the illustrations on your handout. Cut them out and arrange them according to the proper sequence in the spaces provided.

4. Allow students time to place the illustrations in the spaces provided.

5. Once all the students have finished, discuss their answers. COME TO A GROUP CONSENSUS ABOUT THE BEST ORDER FOR THE CYCLE.

1. Seed bag
2. Planted field
3. Growing wheat
4. Harvesting
5. Local elevator
6. Transportation
7. a. Mill
b. Port
8. The World

6. You may want to discuss with the class why number seven has two answers. Lead a discussion on what happens to the grain once it leaves the elevator. It could be transported to the mill to be made into flour or taken to port to be exported abroad to another country.

7. The students may now paste their illustrations in the correct spaces, thus completing their cycle.

8. For closure, it may be nice for more able learners to share their completed worksheet with another class in school or with their librarian. Remind the class that this is trade and interdependence.

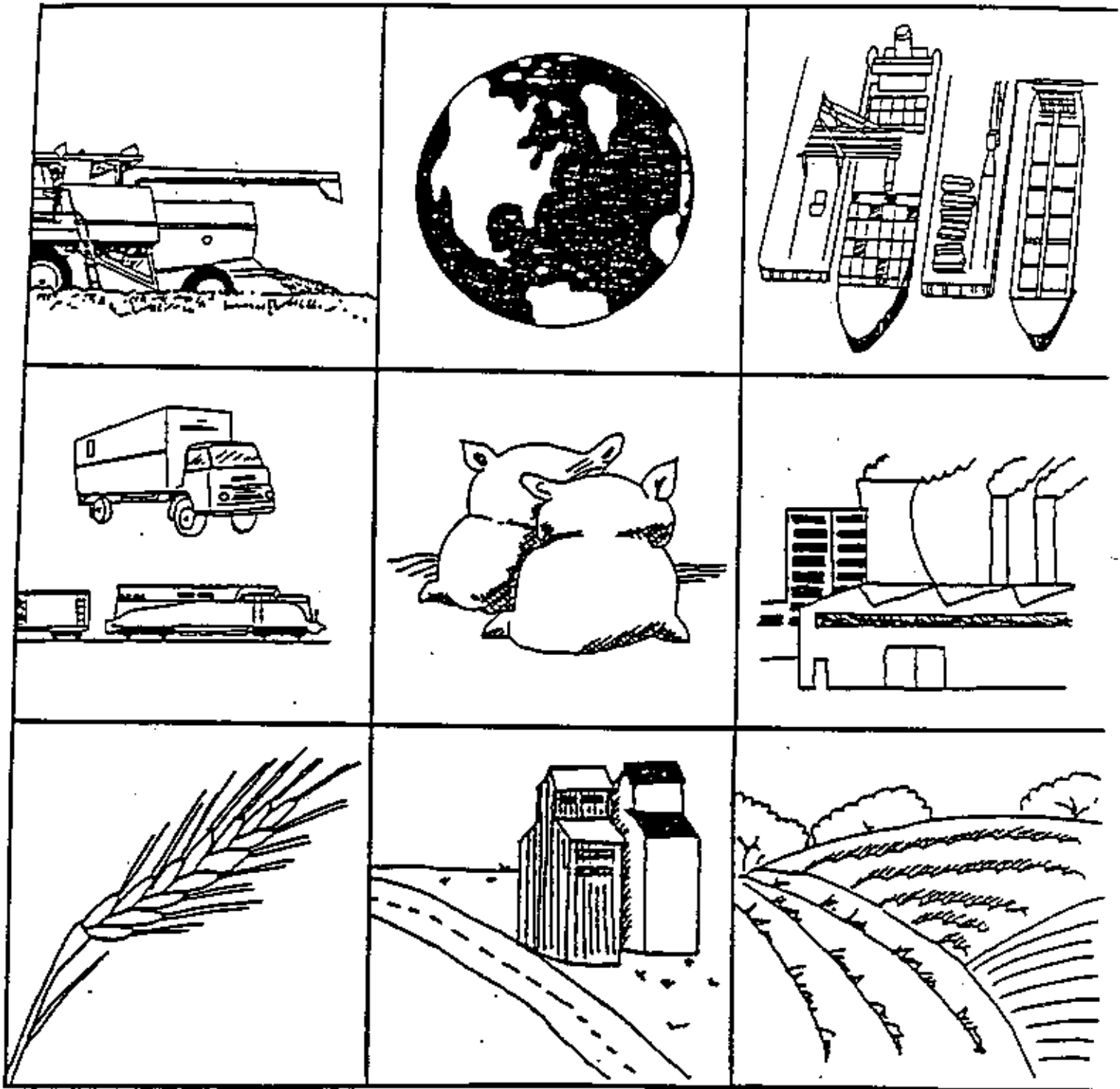
B. 1. Discuss the terms import and export with the class. Make a list as children brainstorm, as to the agricultural products that the United States exports to other countries. Wheat, rice, cotton, soybeans, feed grains, tobacco, lemons, and limes are good examples of exported products.

2. Hand out word search puzzles. Go over word list with the students. Be sure to point out that those products listed in the word search are some of the goods exported from the United States.

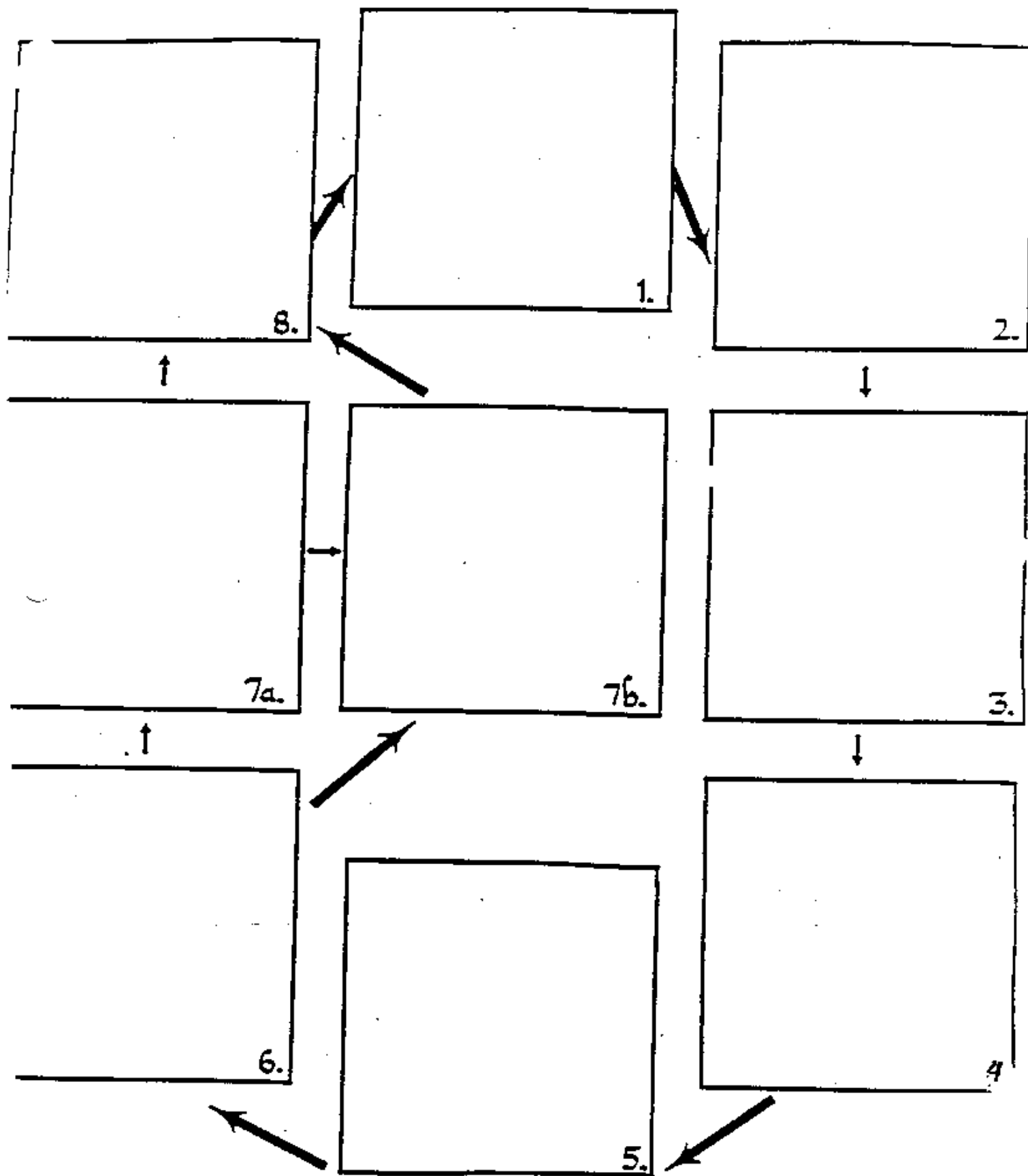
Extended Activities:

1. Invite a resource person to talk with the students about the food and fiber products your state exports. He might include information such as:
 - Which products are exported from your state and which countries import the products.
 - How the products are transported to the foreign countries.
 - The workers who have jobs because the products are exported: farm workers as well as people involved in transportation, financing, and warehousing.
 - Why farmers want to export their products. For example, they have new markets for their products, exports bring money into our country and provide jobs for our workers. They also want to help feed hungry people worldwide.
2. Provide each student with a copy of a world map (included in handouts). Allow them to color the countries which import the agricultural products from your state.
3. Write letters to the different states to learn more about agricultural products which are exported from the United States.
4. Display a world map on the bulletin board. Place ships around the map to show products which are exported from the United States. Each American farmer supplies food for 28 people overseas (ship patterns are included in handouts).
5. Guide a discussion so that the students will understand that each country in the world produces what they produce best (specialization) and then trade with other countries. Climate, physical features, and natural resources help determine what each country produces. Remind the students that nations become interdependent as they specialize and trade.

“From Farm to Market” Student Ditto

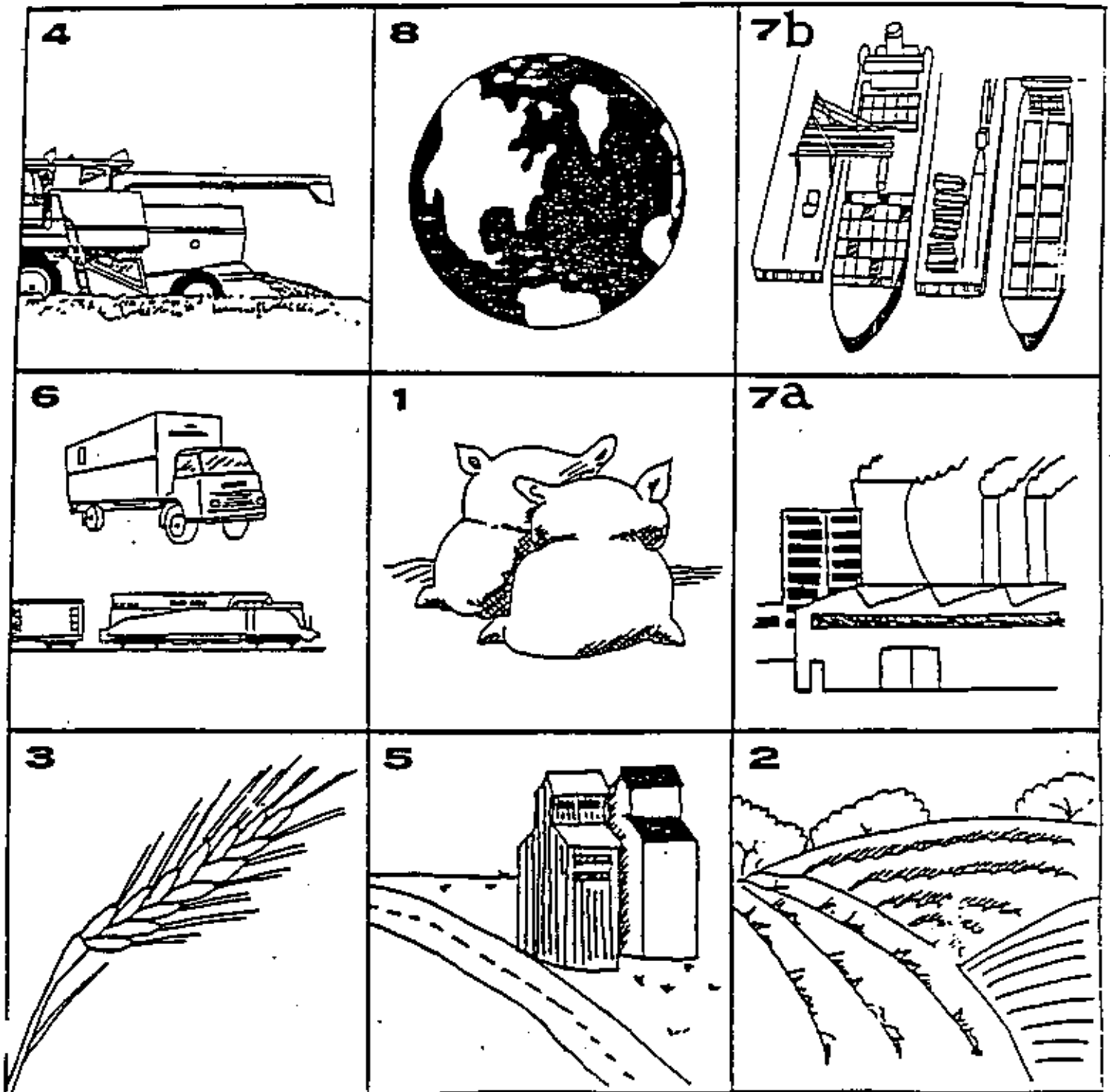


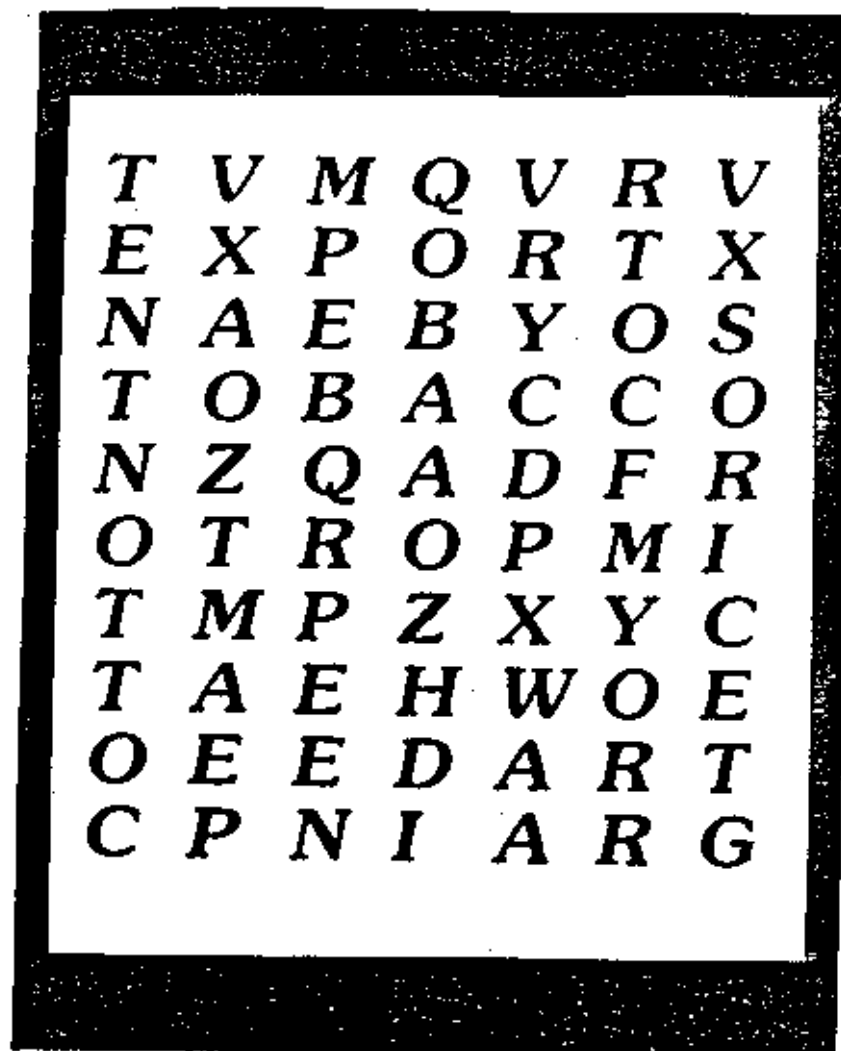
"Farm To Market" Cycle Sheet



Teachers Key

“From Farm to Market” Student Ditto





**Export
Soybean
Tobacco**

**Wheat
Import
Rice**

**Cotton
Trade
Grain**

**These words are hidden in
the puzzle. See if you can
find them.**

