



# KIDS connection

## Wonderful Wheat

Why is Kansas called the “wheat state?” It’s because Kansas farmers usually produce more wheat than farmers in any other state. The top five wheat-producing states are Kansas, North Dakota, Montana, Washington and Oklahoma. Wheat, a member of the grass family of plants, is a cereal grain. That means the plants produce seeds used as food by people. In fact, worldwide, wheat is the most widely consumed cereal grain. Much of that wheat is grown right here in Kansas!

### Where can you find wheat?

Wheat is in a variety of products, both edible and nonedible. Which ones do you use most often?



Garbage  
Bags



Insulation



Pizza  
Dough



Laundry  
Soap



Food  
Trays and  
Containers



Wallboard



Bread



Waffles



Packaging  
Materials



Newspaper  
Print



Paper



Pet Food



Fiber  
Board



Roofing  
and  
Building  
Materials



Shooting  
Targets



Cookies



Eating  
Utensils



Pancakes

### Nutrition Facts

Whole wheat grain contributes many nutrients to your diet, including:

carbohydrates  
energy  
protein  
fiber  
iron  
thiamine  
manganese  
selenium  
zinc  
copper  
phosphorous

### FUN FACT

All the wheat grown in Kansas in a single year would fit in a train stretching from western Kansas to the Atlantic Ocean.



# WHEAT GROWTH CYCLE

Seed



Seedling



In addition to the main plant and stem, a wheat plant's root system can develop many other side plants. Each of those "tillers" may produce a stem with a seed head but still shares the same root system.

Tillering



Jointing



As a plant's stem grows, nodes (swollen bumps) appear where leaves or branches may develop. Wheat is at the "jointing" stage when the first node can be seen and the seed head begins pushing up the stalk (stem).



Heading

Flowering/



Pollination

Ripening/



Maturity

Wheat is ready to harvest when the seeds are fully developed. At this point, the wheat plants have died and changed into the beautiful golden color. That color change signals that the plant is dry and will be easier to cut.

For a pizza making activity, visit [Kansas Wheat](https://www.kansaswheat.com).

## CAREER CORNER: Careers in the Wheat Industry

**Wheat Researcher:** Helps develop technology to speed up process of creating a wheat plant with characteristics that help it flourish and produce nutritious food. Classes in math, science, chemistry and biology help prepare for this career.

**Grant Writer:** Helps find funding to pay for supplies, technology and people to advance cutting edge research that helps build a better wheat plant. Needs good marketing, communication skills and organizational skills.

**Food Safety Specialist:** Preserves the food supply by assuring it is safe and wholesome. Enforces Food and Drug Administration guidelines for food safety in food production facilities.

## FUN FACT

The round-shaped cylinders (storage bins or silos) of most grain elevators are 100 to 120 feet tall, about the same height as a 10- or 12-story building.





# Label the parts of the wheat kernel!

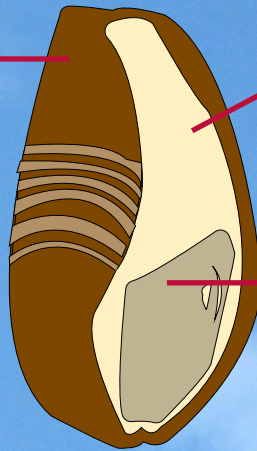
#1

The outer skin, or pericarp, that is the protective covering, seed coat, that surrounds the entire seed. It makes up about 14 percent of the whole grain.

## WORD BANK

Germ Endosperm Bran

Key: 1. Bran 2. Endosperm 3. Germ



#2

This is the food source for the embryo, and the source of carbohydrates or energy when consumed. The largest part of the kernel, it is the source of white flour.

#3

This is the embryo or "beginning of" a new plant which sprouts upon germination. It is the only living part of the seed.

# Label the parts of the wheat plant!

#1

**H e a d**

Each of these grows six to 12 V-shaped rows. Each row can produce two to three seeds, called kernels.

## FUN FACT

Kansas farmers produce nearly

**20%**

of the wheat grown in the U.S.

#2

When healthy, these collect water and nutrients. Photosynthesis—how a plant produces its own food—takes place in them.

## FUN FACT

Kansas stores more wheat than any other state.

#3

Wheat plants have this fibrous system. They are numerous, shallow, small and branching. These keep the plant in place and absorb water and nutrients.

#4

These are long stiff extensions that protect the kernels.

#5

These are the "fruit" of the wheat plant which can be planted to grow new wheat plants or used in wheat foods, animal feed and consumer products.

#6

A wheat plant's root system can produce many of these, each of which may develop a seed head at the tip. On a wheat plant, these are also called stalks. After harvest, some farmers will bale these stalks into "straw bales" and use it for animal bedding.

## WORD BANK

Awn

Roots

Stem

Leaves

Seed

Head

Key: 1. Head 2. Leaves 3. Roots 4. Awn 5. Seed (Kernel) 6. Stems



# DO THE MATH

On average, Kansas produces about 328 million bushels of wheat. A bushel of wheat weighs 60 pounds. That's nearly 20 BILLION pounds of wheat EACH year!

There are 12,000 wheat seeds in one pound. How many wheat seeds are Kansas farmers producing every year?

12,000 seeds/pound

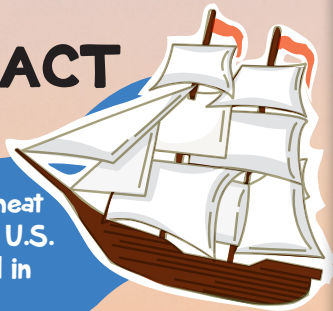
20,000,000,000 pounds/year

Answer: 240,000,000,000,000 seeds

## FUN FACT

Christopher Columbus brought the first wheat to the Americas in 1492.

The first wheat grown in the U.S. was planted in 1777.



## FUN FACT

George Washington was one of the first major wheat growers in the U.S.! Growing the grain was so important to him that he designed a unique 16-sided barn that helped make separating the wheat kernels from the rest of the plant easier.



# FROM FARM TO TABLE

Kansas farmers grow winter wheat. This type of wheat is planted in September or October and starts growing. The plants go dormant (stop growing) in the winter before starting to grow again the spring. In Kansas, winter wheat is harvested in June or July.

#1



planting

#2



young wheat plants

#3



green wheat in spring

#4



harvesting

#5



delivered to elevator for storage

#6



delivered to flour mill for processing

#7



cleaned and milled into flour

#8

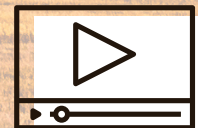


transported to food factory and made into products

#9



final product sold at stores



See wheat harvest in action! To watch the Peterson Farm Brothers harvest wheat on their family farm in Kansas, visit: [bit.ly/wheat harvest video](http://bit.ly/wheat harvest video)



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[www.ksagclassroom.org](http://www.ksagclassroom.org).

