Objective
Students will read about the importance of agriculture in Oklahoma and explore metaphors to describe it. Students will design and create posters based on the theme “Agriculture—The Heartbeat of Oklahoma.”

Background
As you ride along Oklahoma roads you see agriculture everywhere. Look to your right and you see cattle or sheep grazing in a field. Look to your left and you see waving wheat, green fields of soybean or the beautiful yellow flowers of canola. Later in the season you will see white fields of cotton. In the distance you see tall grain elevators that store harvested grain waiting to be sold. On the road, you may pass a silver milk truck or a truck packed with giant cylinders of hay or a slatted cattle truck full of cattle on the way to market.

Agriculture is the heartbeat of Oklahoma. Just as your beating heart keeps you alive by pumping blood through your body, agriculture pumps life through our state. Agriculture gives us the food and other materials we need to survive, jobs to keep the economy healthy and even seasonal celebrations that make Oklahoma a great place to live.

Like the beating heart in your body’s circulation system, agriculture moves food and other products through our food system. Most farmers and ranchers sell what they produce to collection points—grain or produce terminals or stockyards. The terminal or stockyard sells to processing companies, which process and package the products we buy in the grocery store. Finished food products are moved by truck or rail to warehouses. From warehouses the products are shipped to the stores where we buy our groceries and other products.

And all along the way, agriculture pumps jobs into Oklahoma communities and helps keep our economy moving. According to a 2008 study* at Oklahoma State University, farm employment was 8.8 percent of total employment in our state, with 188,294 jobs. Agriculture also helps support other segments of the economy—manufacturing, energy and wholesale and retail trade. Farmers and ranchers buy seed, fertilizer, equipment, fencing and more. When they sell their commodities, they turn around and spend that income on things like cars, furniture and clothing. Without agriculture, the study estimated our economy would lose one in 12 employees.

Oklahoma agriculture keeps our hearts beating with a reliable and heart-healthy food supply. Farmers markets offer Oklahoma-grown fruits and vegetables with nutrients important for heart health. Wheat farmers grow healthy whole grains. Animal agriculture provides healthy sources of protein—beef and dairy products, pork, lamb, chicken and eggs. Pecan and peanut producers provide other sources of heart-healthy protein.

With the regularity of a heartbeat, Oklahoma agriculture inspires
celebrations of the seasons. In spring we celebrate new life. On the farm the fields start to turn green, and there are baby animals everywhere. Farmers plant most of their crops in spring. The summer sun makes everything grow. It is the busiest time on the farm. Mid-summer celebrations provide rest from summer chores and relief from the heat. Fall celebrations began as harvest festivals. In winter work on the farm slows down. It is time for planning for the following growing season. Winter celebrations remind us that the dark, cold days will not last forever, and that the cycle will soon bring spring.

Agriculture truly is the “Heartbeat of Oklahoma.” Without it, how would we survive?


### English Language Arts

1. Read and discuss background and vocabulary.
   — Hand out copies of the Reading Page.
   — Students will find two or more central ideas in the text and analyze their development. Students will provide an objective summary of the text.
   — Students will outline the passage and analyze the structure and organization. How does it contribute to the development of the theme?
   — Students will draw a diagram to illustrate the movement of agricultural commodities through the food system.

2. Discuss the theme “Agriculture: The Heartbeat of Oklahoma.”
   — Discuss the difference between literal and figurative language. Is agriculture literally the heartbeat of Oklahoma or figuratively? What kind of figurative language does the phrase represent? Discuss metaphor.

3. Explain that metaphor is a kind of word picture.
   — Students will draw pictures to illustrate the theme “Agriculture—The Heartbeat of Oklahoma.”
   — Students will use their illustrations to create posters based on the theme.

### Math

1. Students will write equations to solve the following problem:
   — If one in 12 jobs in Oklahoma would be lost without agriculture, how many jobs would be lost in your classroom? Your school? Your city?

### Science

1. Read and discuss the information provided on the “Healthy Hearts, Healthy Bodies” page.
2. Provide each student with a toothpick and a very small ball of dough, www.agclassroom.org/ok
about the size of a marble, formed from bread. Students will conduct the following demonstration to observe their own heartbeats (pulse). Students will watch carefully while you demonstrate before trying the demonstration on their own.
—Lay your left hand, palm up and still, on a flat surface.
—Find your wrist pulse.
—Stand the dough ball on top of the pulse point and carefully watch the tip of the toothpick.
—You should see the toothpick twitch with each pulse.
—The number of twitches you count in 15 seconds, multiplied by four, should be in the 65-75 range, the normal pulse rate for adults.
—Students will work in groups of two or three so they can perform the experiment while other members of the group watch and count. Students will find that a child’s heart rate is considerably faster than that of an adult.
—Students will repeat the experiment after running in place, jumping, hopping, and spinning.
—Students will record the results of their experiments with appropriate graphs or charts.

3. Students will conduct a taste test with heart-healthy foods like carrots, apples, whole wheat bread, and broccoli.
—Conduct a poll to find out which foods students like best.
—Students will design appropriate graphs to show the results of the poll.

Extra Reading
Cleary, Brian P., and Martin Goneau, Macaroni and Rice and Bread by the Slice: What is in the Grains Group? (Food is CATegorical), Millbrook, 2011.
Head, Honor, Salad (On Your Plate), Franklin Watts, 2007.
King, Hazel, Carbohydrates for a Healthy Body (Body Needs), Heinemann, 2009.
McClure, Nikki, To Market, To Market, Abrams, 2011.
Powell, Jillian, Fats for a Healthy Body (Body Needs), Heinemann, 2009.
Royston, Angela, Vitamins and Minerals for a Healthy Body (Body Needs), Heinemann, 2009.
Russ, Ayon, Angela, We Eat Food That’s Fresh, OurRainbow, 2009.
Thompson, Gare, What is Supply and Demand? (Economics in Action), Crabtree, 2009.
Webster, Avril, Off We Go to the Grocery Store, Woodbine, 2011.
Agriculture—
The Heartbeat of Oklahoma

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Your heart is a muscle about the size of your fist, located a little to the left of the middle of your chest. You have many muscles all over your body—in your arms, in your legs, in your back, even in your behind. But the heart muscle is special because of what it does. The heart sends blood around your body. The blood provides your body with the oxygen and nutrients it needs. It also carries away waste.

Your heart is like a pump, or two pumps in one. The right side of your heart receives blood from the body and pumps it to the lungs. The left side of the heart does the exact opposite: It receives blood from the lungs and pumps it out to the body.

How does the heart beat? Before each beat, your heart fills with blood. Then its muscle contracts to squirt the blood along. When the heart contracts, it squeezes. Try squeezing your hand into a fist. That is similar to what your heart does so it can squirt out the blood. Your heart does this all day and all night, all the time.

Most kids are born with a healthy heart, and it’s important to keep yours in good shape. Here are some things that you can do to help keep your heart happy:

- Remember that your heart is a muscle. If you want it to be strong, you need to exercise it. How do you do it? By being active in a way that gets you huffing and puffing, like jumping rope, dancing, or playing basketball. Try to be active every day for at least 30 minutes! An hour would be even better for your heart!
- Eat a variety of healthy foods and avoid foods high in unhealthy fats, such as saturated fats and trans fats (reading the labels on foods can help you figure out if your favorite snacks contain these unhealthy ingredients).
- Try to eat at least five servings of fruits and vegetables each day.
- Avoid sugary soft drinks and fruit drinks.
- Don’t smoke. It can damage the heart and blood vessels.

Conduct a taste test with heart-healthy foods like carrots, apples, whole wheat bread, and broccoli. Which one do you like best? Which do your classmates like best? Create graph to show which heart-healthy foods are class favorites.