



Oklahoma's Berry Best!



<http://www.agclassroom.org/ok>

P.A.S.S.

Grade 1

Math Process-
1.1,2,3,4,5; 4.4; 5.1,2
Math Concept-5.2
Writing -1.1; 2.1
Science Process-1.1,2;
3.1,2,3
Life Science-2.1
Social Studies-2.4; 5.1

Grade 2

Math Process-
1.1,2,3,4,5; 4.4; 5.1,2
Math Concept-5.1,2
Writing 2.2abc
Science Process-1.1,2;
3.1,2,3
Life Science-2.1,2
Social Studies-2.3; 4.2

Grade 3

Math Process-
1.1,2,3,4,5; 4.4; 5.1,2
Math Concept-3.2c;
5.1abc
Reading-4.2a; 5.1b
Writing 1.1; 2.2,6abc

Science Process-1.1,2;
3.1,2,3
Life Science-2.1,2
Social Studies-2.1

Grade 4

Math Process-
1.1,2,3,4,5; 4.4; 5.1,2
Math Concept-5.1b
Reading-4.1b,3a
Writing-1.1; 2.2
Science Process-1.1,2;
3.1,2,3
Life Science-2.1,2,3
Social Studies-4.4; 5.3

Grade 5

Math Process-
1.1,2,3,4,5; 4.4; 5.1,2
Math Concept-3.2b;
5.1d
Reading-4.1b
Writing 1.1; 2.2
Science Process-
1.1,2; 3.1,2,3
Life Science-2.1,2
Social Studies-2.2

IT'S THE BERRIES!.....

Fresh berries are an Oklahoma treat in farmer's market and roadside stands beginning in May with strawberries and continuing throughout the summer with blackberries, raspberries and blueberries. Blackberries grow wild all over our state. High in Vitamin C and fiber, berries are also the best source for antioxidants, which may prevent cancer, heart disease and other ailments.

Most of the berries grown in Oklahoma are processed into jams, jellies and preserves. Most of the berry production in our state is in the eastern part of our state, where growing conditions are best for this delicious and valuable product.



Introduce your students to the delights of Oklahoma berries with the following activities and interesting facts about strawberries, blackberries, raspberries and blueberries.

In the box at left are some of the Oklahoma Priority Academic Student Skills covered in this packet. For more from Oklahoma Ag in the Classroom, go to our Web site.

STRAWBERRIES: FACT OR FICTION?.....

Strawberries are Oklahoma's state fruit.

Fact: In 2005 a group of fifth graders from Skiatook encouraged legislators to make strawberries Oklahoma's state fruit. The Legislature passed a bill approving the measure.

Birds plant more strawberries than people.

Fact: When birds eat wild strawberries the seeds pass through them intact and in good condition. The germinating seeds respond to light rather than moisture and therefore need no covering of earth to start growing.

Madame Tallien, a prominent figure in the court of the Emperor Napoleon, bathed daily in the juice of fresh strawberries.



Fiction: She didn't take a bath every day, but she did bathe in the juice of fresh strawberries - 22 pounds of strawberries per basin. How many pounds of fresh strawberries did she use in two months if she took a bath once a month? How many in three months? Six months? A year?

Madame Tallien would have been better off eating her strawberries. What is a strawberry good for?

Eight strawberries (a serving size) provide 140 percent of the Vitamin C a kid needs each day. Vitamin C is vital to the production of collagen, which is involved in the building and health of cartilage, joints, skin, and blood vessels. It helps protect the fat-soluble vitamins A and E as well as fatty acids from oxidation, aids in neutralizing pollutants, is needed for antibody production and has natural antihistamine properties.

STRAWBERRIES UNDER PLASTIC?

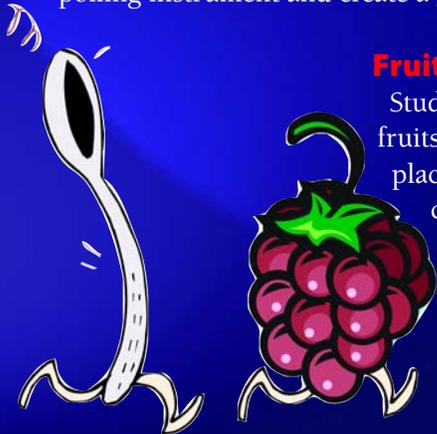
In Oklahoma, growers are experimenting with plasticulture to make the strawberry season longer. The soil is covered with black plastic. Holes are cut in the plastic for the plants. Experiment with plasticulture. On a sunny day, cover a piece of ground with black plastic. Measure the soil temperature in a bare spot and under the plastic. How would this affect the strawberry season?

Ninety-four percent of United States households consume strawberries. More than 53 percent of seven to nine year olds picked strawberries as their favorite fruit.

Are strawberries the favorite in your class? Conduct a poll to find out. Have students brainstorm the fruits they eat and the fruits they like best to decide which to include in the poll. Then have students design their own polling instrument and create a graph to represent their findings.

Fruit Basket (game)

Students sit in a circle, with a caller in the center. The caller assigns the names of the fruits in your poll to various circle players. He/she then calls out “All apples change places with all pears,” or similar. While the two groups scramble to change places, the caller tries to get one of the seats. The caller may also call out the names of several kinds of fruits at once. “Fruit basket turn over” means all students must change seats.



How Far Did They Travel?.....

Strawberries are grown in every state in the US. Oklahoma-grown strawberries are available from farmer's markets in May. The flavor of a strawberry is influenced by weather, the variety and the stage of ripeness when the strawberry is harvested and eaten. Strawberries eaten at the peak of ripeness are usually the most flavorful. Ripe strawberries are delicate, requiring gentle handling to prevent bruising. Strawberries grown to be shipped long distances are picked before they are ripe. Very large commercial growers have produced hybrid berries known for their ability to withstand shipping. With today's shipping technology, strawberries are available year round, but at a cost. Discuss why strawberries cost more when it is not their normal growing season.

Most of the strawberries in Oklahoma grocery stores come from California or Florida. Some come from Arkansas. Use a road atlas to find how many miles strawberries travel to get to grocery stores in your town?

Salinas, California, to your town _____ miles

Plant City, Florida, to your town _____ miles

Bradford, Arkansas, to your town _____ miles

Nearest farmer's market to your mouth _____ miles

Have students interview the produce manager in one of your town's grocery stores to find out where they get their strawberries. Students should take notes and report on the interview.

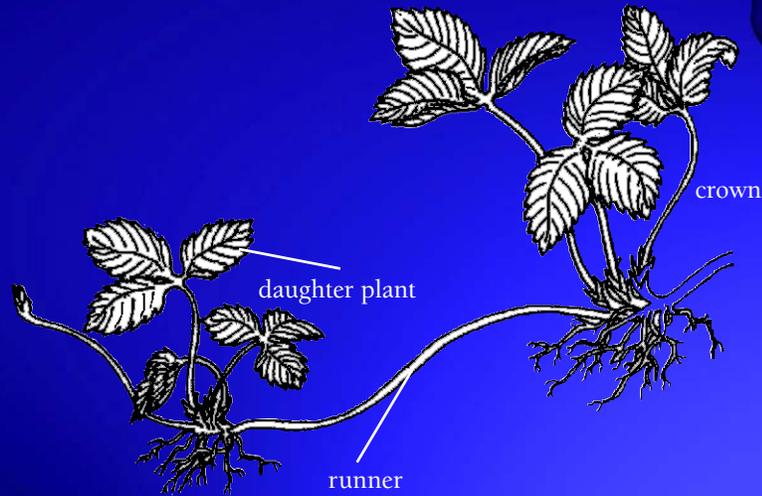


INSIDE-OUT FRUIT.....

Strawberry plants purchased for planting are called “crowns.” Once the crown is planted it becomes the mother plant, sending out runners, which take root and form new plants. New plants from runners produce fruit the year after they take root.

Strawberries are the only fruit with seeds growing on the outside. On average, there are 200 seeds on a strawberry.

If there are 200 seeds on one strawberry, how many seeds are in a cup of strawberries? Develop a strategy for counting the seeds on a strawberry.



WHY ARE THEY CALLED “STRAW” BERRIES?

No one knows for sure. Here are some theories.



It is named after the straw used as mulch around the plants.



It refers to the plant’s habit of “strewing” its runners about.



Children in England poked straws in the berries as a convenient way to carry them in open markets and sell them.

What do you think? Write your own theory.

Strawberry Cornbread?

The American Indians were already eating strawberries when the colonists arrived. The crushed berries were mixed with cornmeal and baked into strawberry bread. After trying this bread, colonists developed their own version of the recipe, and strawberry shortcake was created.

Make strawberry bread by adding frozen strawberries to your favorite cornbread mix.

or

Make strawberry shortcake in an assembly line. Use strawberries, biscuits and whipped cream. Discuss what agricultural commodities are used in making strawberry shortcake. Then share the facts and the shortcake with parents or another class.



WHAT DO YOU DO WITH THE SEEDS?.....

Blackberries have lots of tiny seeds that are difficult to remove. Most people just tolerate the seeds and eat them along with the blackberries in cobbler and other blackberry treats. Divide students into groups and have them develop strategies for removing the seeds from a cup of blackberries.

Bring blackberries, blueberries and strawberries to class for students to compare. Have students create charts showing how they are different and how they are the same.

What do you call the tiny segments of fruit all clustered together in blackberries and raspberries?

Blackberries and raspberries consist of clusters of tiny fruits called “drupelets,” which grow around a core known as “the receptacle.”



raspberry



blackberry

How is a Raspberry Different from a Blackberry?

Some blackberries are actually red, so how is a raspberry different from a blackberry? In a raspberry, the fruit receptacle (core of the berry) remains on the plant when you pick the fruit, so the raspberry is hollow when you eat it. In a blackberry, the receptacle is part of the fruit that you eat; the fruit has no opening as raspberry fruit does.



THE MEANEST BERRY.....



Blackberries are bramble fruits. Bramble bushes send up long, arching canes. The canes carry short, curved, very sharp thorns. The branches root from the node tip when they reach the ground. The thorns dig into clothing and flesh when the victim tries to pull away from them.

Why so mean? Brainstorm reasons for thorns in nature.

Thorns help protect the fruit carrying the seeds so the seeds have a chance to live and start more fruit. The thorns on brambles help the plant take hold in new locations to start new plants. Some of the new cultivated varieties are actually thornless.

What other plants have thorns?

Roses have thorns and are actually in the same family as blackberries and strawberries.

How are blackberries like the pilgrims?

They are colonists. Blackberries grow wild all over Oklahoma. They are very pervasive and grow at fast daily rates in our woods, scrub, hillsides and hedgerows. They colonize large areas in a relatively short time. Since blackberries tolerate poor soil, they are early colonizers of wasteland and building sites.

Why are blackberry bushes so common in the Oklahoma landscape?

They tolerate poor soil and spread quickly.





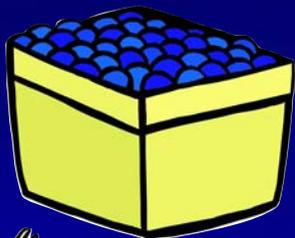
THE SONG OF THE BLACKBERRY QUEEN...

My berries cluster black and thick
For rich and poor alike to pick.
I'll tear your dress, and cling, and tease,
And scratch your hand and arms and knees.
I'll stain your fingers and your face,
And then I'll laugh at your disgrace.
But when the bramble-jelly's made,
You'll find your trouble well repaid.
-Cicely Mary Barker

Discuss this poem with students. Have students write poems about their favorite berries or write an acrostic poem with the word "BERRIES."

Blackberries are good in cobbler.
Everyone loves strawberries.
Raspberries are so good for you.
Runners are the way strawberries reproduce.
Ice cream is good with all kinds of berries.
Eastern Oklahoma is where berries grow best.
Spring and summer is when berries are most delicious.

Many people who grew up in our state have fond (and not so fond) memories of picking wild blackberries in the summer. Most of the stories involve heavy clothing worn to avoid thorns, chiggers and ticks. Blackberries can also stain fingers and clothing. Have students interview senior citizens in your community about picking blackberries. Share the stories. Many u-pick orchards now grow the thornless blackberry varieties and a few of the more favorite thorny kind. These orchards keep the rows between mowed so guests do not have to experience the not-so-fond past memories, but instead develop new memories of sweet, juicy, healthy treats free of thorns and can leave the orchard with no chiggers or ticks.



BLUEBERRIES

The blueberry is a native American fruit. Early settlers cherished it as a staple ingredient in foods and medicines. They incorporated the berries into their diets, eating them fresh off the bush and adding them to soups, stews and many other foods. Early American colonists made grey paint by boiling blueberries in milk. The blue paint used to paint woodwork in Shaker houses was made from sage blossoms, indigo and blueberry skins, mixed in milk.



Like other berries, blueberries are a good source of fiber. They are the best of all fruits and vegetables for antioxidant activity. Foods containing antioxidants may prevent cancer, heart disease and other ailments. Unlike blackberries and strawberries, blueberries grow on bushes, not from runners or brambles.

What is an Antioxidant?

Humans need oxygen to live. We breathe in oxygen as O₂-two oxygen molecules atomically bonded together. The biological processes in the body use oxygen for reactions, frequently creating single, or free, oxygen particles as a byproduct. Free oxygen particles have a high electric charge which can damage cells if they are not eliminated quickly. Antioxidants (anti-oxygen compounds) look for free oxygen particles to neutralize.

Oklaberrynana Smoothie

In a blender place one banana, one cup of frozen berries and one cup of plain yogurt. Puree until all the ingredients are blended. Serve in small cups.

VOCABU-BERRY.....

antihistamine - any of various compounds that counteract allergic reactions (as hay fever) and cold symptoms

antioxidant - a substance that opposes oxidation or prevents or makes difficult reactions made easier by oxygen

cartilage - an elastic tissue which composes most of the skeleton of the vertebrate embryo and much of which is changed to bone later in life

collagen - a protein that occurs in the form of fibers, does not dissolve, is found in connective tissue and forms glue and gelatin upon boiling with water

crown - the region of a seed plant at which stem and root merge

bramble - any of a large genus of usually prickly shrubs (as a raspberry or blackberry) that are related to roses

germinate - to begin to grow: sprout

node - a point on a stem from which a leaf grows

oxidate - to combine with oxygen

pervasive - spread throughout so thoroughly as to be seen or felt everywhere

runner - a slender creeping stem that arises from the base of a plant; a plant (as a strawberry) that forms or spreads by runners

soluble - capable of being dissolved in a liquid

staple - something in widespread and constant use or demand

tariff - a list of taxes placed by government on imported, and in some cases, exported goods.



Which of the following words can you add to the word "berry" to form a word:

straw

hay

black

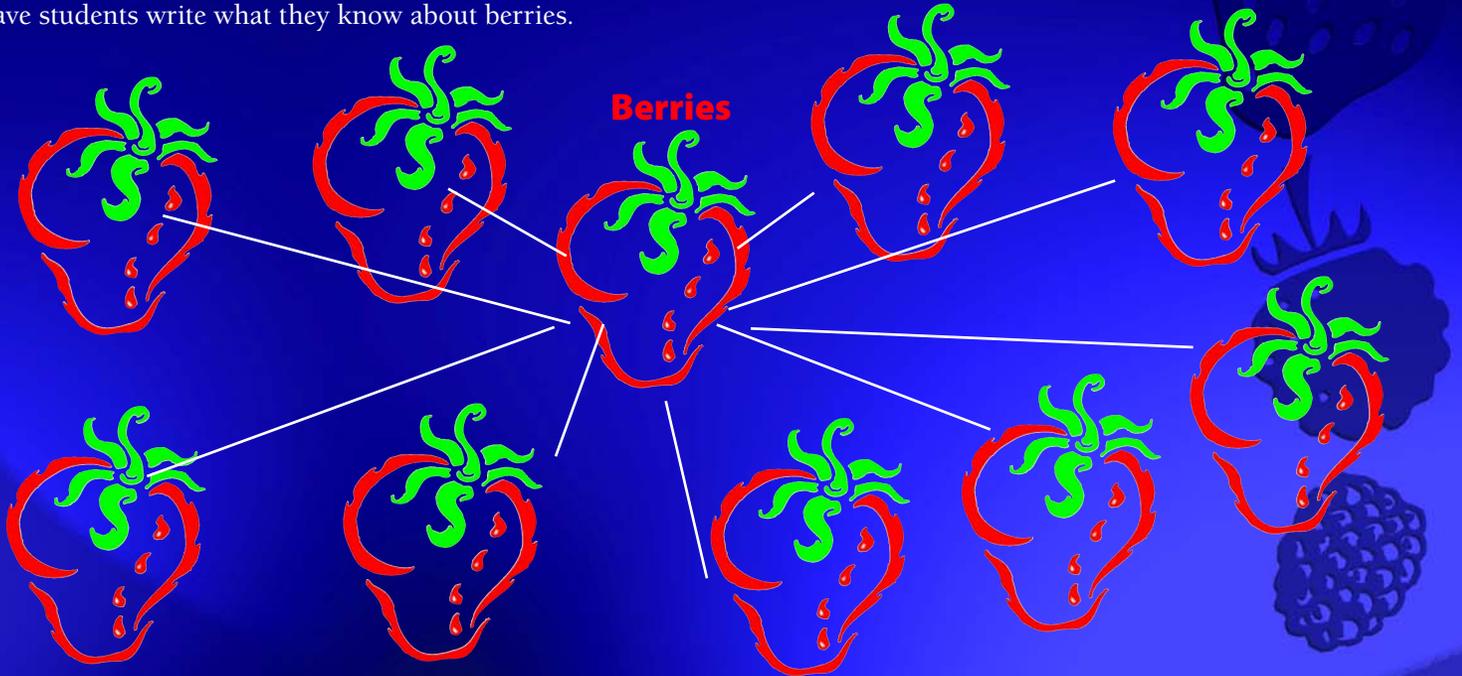
cow

blue

good

BERRY PATCH

After you have shared the information and activities in the packet, have students write what they know about berries.



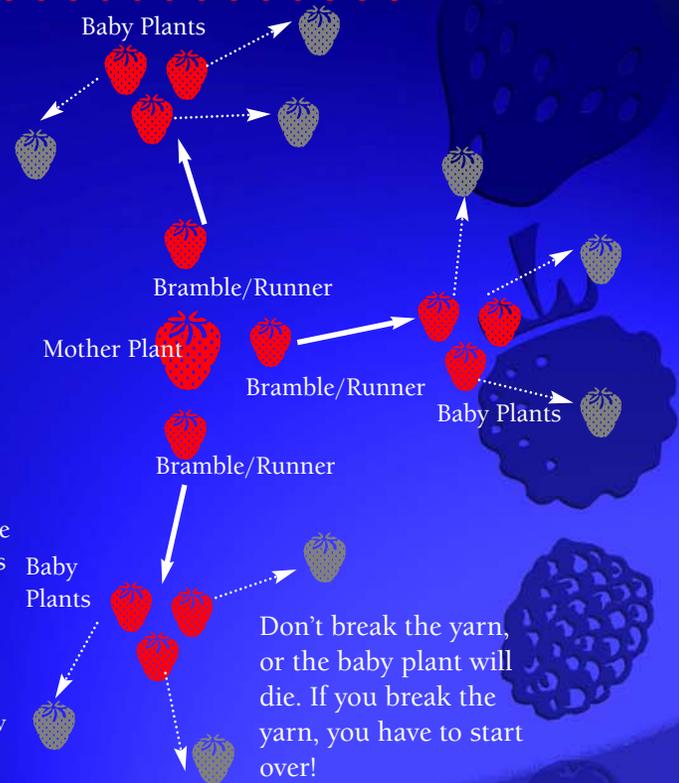
Have students write a paragraph about berries based on their Berry Patch webs.

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RUN, RUN, BERRIES.

Berries spread by sending out runners (strawberries) or brambles (blackberries). Play this game to find out which is quicker (in your classroom, anyway).

- Divide the class into teams, one of Brambles and one of Runners.
- For each team, designate a “Mother Plant” to stand in the center, surrounded by three Runners or Brambles.
- Tie a piece of yarn loosely around the waist of the Mother Plant and around the waist of each Runner/Bramble.
- Arrange the other players on each team in three clusters of three (the baby plants) some distance from the Mother Plant, as shown.
- Provide all Runners/Brambles and baby plants with equal lengths of yarn to hold in their hands.
- Tie one end of the yarn held by each of the three Brambles/Runners to the yarn tied around the waist of the Mother Plant. Tie the other end to the yarn around the waist of each Bramble/Runner.
- When you call “Run, run, Berries,” the three Brambles/Runners go to the clusters of baby plants, taking care not to break the yarn which connects them to the Mother Plant.
- As they make it to the Baby Plants, Brambles/Runners stand in the center of the Baby Plants while the Baby Plants each tie one end of his/her yarn to the yarn tied around the new Mother Plant’s waist and then carry the other end of the yarn as far as they can to establish a new plant.



WHERE DO THEY GROW?



The counties with the most acreage of berry production are in eastern Oklahoma, in Adair, Cherokee, Ottawa, LeFlore and Tulsa counties. Oklahoma and Pottawatomie counties also rank high in berry production.

Find these counties, and color them the color of your favorite berry.

Then find the county where you live and color it your favorite color.



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**www.agclassroom.org/ok
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