FUN FACES OF WISCONSIN AGRICULTURE
BERRY BUNCH'S STRAWBERRY FAST FACTS

Production Information

Commercial strawberries are the cross of two wild American strawberries. They are a cool-weather crop and sensitive to photo-period. The length and amount of daylight determines the plants ability to blossom and to produce runners. They will grow in a wide variety of soil types. Sandy soils do provide good water drainage which is important because strawberries don't tolerate wet conditions. They also require full sunlight.

In Wisconsin, spring planting is the best. Plants should be put into rows about 2 feet wide with a 4 foot aisle between each row of plants. Plants are placed 6-10 inches apart. Mulching the aisles will reduce weed growth and help maintain moisture. Strawberry growth comes from the crown (the top) of the plant. Strawberry crowns are perennial (live more than 2 years) but the roots are annual. Each year the strawberry plant sends out new roots from the crown. Older plants need to have soil added around them as the roots get higher and higher on the crown. Plants spread by runners or stolons.

The first year the plant should use all of its energy for plant growth- so blossoms should be picked off. Mulch the plants after the first hard frost to protect the plant. In the spring, the bees will spread the pollen from flower to flower. It will take about 30-45 days from flowering until the fruit are ready to be harvested.

Wisconsin Production

In 2006, Wisconsin ranked #9 in strawberry production. 43,000 pounds of strawberries were harvested on 680 acres. There were 830 acres planted. Yield per acre was 63 hundredweight. California is the leading producer.

In central and southern Wisconsin, June bearing strawberries are usually ripe between June 1 and July 10. In northern Wisconsin, they are ready June 20 to July 15. A listing of berry growers can be found at www.wiberries.org.

Career Information

Producers will grow and harvest the berries. They may operate "pick your own" markets or they will harvest the crop and sell it to stores and markets. Plant breeders help develop hybrids that will bear good berries. Crop scouts will help producers with pest and weed control and proper fertilization. Careers in the food industry include developing new uses for berries, processing them, and packaging and marketing them to consumers.

Trivia

- There are 200 seeds in a strawberry.
- The average consumption of strawberries is 4.85 pounds.
- The strawberry is the only fruit with the seeds on the outside of the fruit.
- One cup of strawberries is only 55 calories.

Other Information

Junebearers are the most productive type of strawberry and the best for home gardens. They will produce fruit before the dry part of the summer. Everbearers will produce two crops of strawberries – one in the summer and one in the fall. The fall crop is usually better than the summer crop.

Strawberries are a member of the rose family. The flavor of a strawberry is influenced by weather, the variety and state of ripeness when harvested. When you pick strawberries, you should pinch the stem between your thumb and forefinger and pull with a twisting motion leaving the stem on the fruit. Don't wash strawberries until you are ready to eat them. 94% of the households in the United States consume strawberries and they are grown in every state.

FUN FACES OF WISCONSIN AGRICULTURE
MATH - BERRY LESSON PLAN

STUDENT'S NAME:

Answer the questions below. Show your work.

1. Your mom is making a fruit salad with Cranberries, Strawberries and Cherries. If she has 8 Cranberries, 7 Strawberries, and 16 Cherries, how many berries will be in her salad?

2. Your summer job is picking strawberries. If you get paid $2 for each bucket of berries and you can pick 8 pails in one day, how much money will you have at the end of the day? At the end of a 5-day week (you don't pick on the weekends)? At the end of the month (4 weeks)?

3. If the strawberry season is 6 weeks long, did you make enough money to buy an Ipod?

4. One barrel of cranberries can hold 100 pounds. If you have 23 barrels, how many pounds of cranberries do you have?

5. There are 7000 cherries on a tree and it takes 250 cherries to make a cherry pie. About how many pies can each tree make?

6. If you cut one of the pies into 8 pieces, and you and your sister each eat a piece, what fraction of the pie is left?

7. You visit your sister in Door County and she takes you shopping. You stop at a cherry stand to buy some cherries. The sign says 10 cherries for $.50. If you have $2.00, how many cherries can you buy? If your sister gives you $3.00 more, how many cherries can you buy?

8. One barrel of cranberries is 100 pounds. If an acre can produce 300 barrels, how many pounds is that? If there are 450 cranberries in a pound, how many pounds are produced in one acre?

9. Americans eat 500 million pounds of cranberries each year. If Wisconsin farmers grow 300 million pounds, is this more or less than half of what Americans eat?

10. Wisconsin ranks fourth in the United States production of Tart Cherries. The following states also account for the cherry production with the following percents:

- Michigan: 73%
- Utah: 8%
- New York: 5%
- Wisconsin 4%
- Washington, Oregon, Pennsylvania (together): 10%

If 650 million pounds of tart cherries are produced each year, how many pounds of cherries are produced by the above states?

Create a pie graph showing the distribution of tart cherry production in the United States, using the numbers above.

ANSWER KEY

1. Your mom is making a fruit salad with Cranberries, Strawberries and Cherries. If she has 8 Cranberries, 7 Strawberries, and 16 Cherries, how many berries will be in her salad?

31 berries in the salad

2. Your summer job is picking strawberries. If you get paid $2 for each bucket of berries and you can pick 8 pails in one day, how much money will you have at the end of the day? At the end of a 5-day week (you don't pick on the weekends)? At the end of the month (4 weeks)?

$2 X 8 = $16 each day
$16 X 5 = $80 each week
$80 X 4 = $320 each month

3. If the strawberry season is 6 weeks long, did you make enough money to buy an Ipod?

$80/week X 6 = $480 over 6 weeks
Regardless of what type of Ipod, yes

4. One barrel of cranberries can hold 100 pounds. If you have 23 barrels, how many pounds of cranberries do you have?

100 pounds X 23 Barrels = 2300 pounds of cranberries

5. There are 7000 cherries on a tree and it takes 250 cherries to make a cherry pie. How many pies can each tree make?

7000 cherries / 250 per pie = 28 pies

6. If you cut one of the pies into 8 pieces and you and your sister each eat a piece, what fraction of the pie is left?

8/8 – 2/8 = 6/8 or ¾ of the pie

7. You visit your sister in Door County and she takes you shopping. You stop at a cherry stand to buy some cherries. The sign says 10 cherries for $.50. If you have $2.00, how many cherries can you buy? If your sister gives you $3.00 more, how many cherries can you buy?

10 cherries X 4 = 40 cherries with $2.00
10 cherries X 6 = 60 cherries with $3.00

40 cherries + 60 cherries = 100 cherries with $5.00 total

8. One barrel of cranberries is 100 pounds. If an acre can produce 300 barrels, how many pounds is that? If there are 450 cranberries in a pound, how many cranberries are produced in one acre?

100 pounds X 300 barrels = 30,000 pounds in one acre
30,000 pounds X 450 cranberries = 13,500,000 cranberries/acre

9. Americans eat 500 million pounds of cranberries each year. If Wisconsin farmers grow 300 million pounds, is this more or less than half of what Americans eat?

More than half (250 million pounds)

10. Wisconsin ranks fourth in the United States production of Tart Cherries. The following states also account for the cherry production with the following percents:

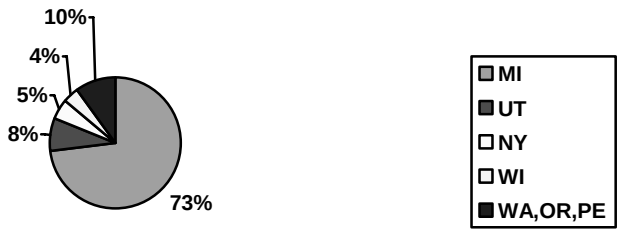
- Michigan: 73%
- Utah: 8%
- New York: 5%
- Wisconsin 4%
- Washington, Oregon, Pennsylvania (together): 10%

If 650 million pounds of tart cherries are produced each year, how many pounds of cherries are produced by the above states?

Michigan: .73 X 650,000,000 =474,500,000 pounds
Utah: .08 X 650,000,000 =52,000,000 pounds
New York: .05 X 650,000,000 = 32,500,000 pounds
Wisconsin: .04 X 650,000,000 = 26,000,000 pounds
Washington, Oregon, Pennsylvania (together): .1 X 650,000,000=65,000,000 pounds

Create a pie graph showing the distribution of tart cherry production in the United States, using the numbers above.

Cherry Production in the United States



FUN FACES OF WISCONSIN AGRICULTURE
STRAWBERRY FLOWERS AND PLANTS

Activity Length:
How does a flower become a fruit? – 30 minutes
The Flower as an Art Form – 20 minutes for lesson, art activity will vary in length
Berry Math Lesson – 30 minutes

Student Objectives:
1. Students will understand the parts of a flower and how fruit is formed
2. Students will discover the parts of a real flower through dissection
3. Students will create their own picture of a flower and draw the steps it goes through to reach fruit formation

Wisconsin Model Academic Standards:

English	A.4.1					
Math	A.4.1	B.4.1	B.4.5			
Science	A.4.5	B.4.3	B.4.1	C.4.1	A.4.2	A.4.1

Introduction: Berry Bunch's Strawberry Fast Facts

Important Terms:
- Stamen- male part of the flower
- Pistil- female part of the flower. Consists of the stigma, style, ovary and ovule.
- Pollination- Transfer of pollen from the stamen to the stigma.
- Runners- A creeping stem that roots at intervals along its length
- Crown- Thick area in the center of the plant
- Junebearers- A strawberry plant that only fruits once during the season – usually in early summer
- Everbearers- A strawberry plant that bears fruit twice during one season- usually in the spring and later in the fall
- Perennial- A plant that lives for two years or more
- Annual- A plant that lives for only one year

Materials for this activity:
- Flowers (Sweet peas work well or any flower that has parts that are easily identified)
- Stick pins to dissect the flowers with
- Flower diagram
- Strawberries, raspberries and apples
- Poster board or large paper
- Markers, paints, cotton balls, yarn or other materials to create the Art Show displays
- About The Strawberry and About The Strawberry Plant handouts from the Wisconsin Berry Grower's Association (www.wiberries.org)
- Let's Grow Strawberries handout

Lesson Outline:

How does a flower become a fruit?

Students will learn the parts of a flower and the process of a flower becoming a fruit.

1. Using the Flower Parts Diagram, introduce the terms that are found on a flower.
2. Refer to information about strawberry growth found on the Wisconsin Berry Grower's Association (www.wiberries.org)

3. Talk about the transfer of pollen and the role of the pistil and stamen.

4. Observe strawberries, raspberries and apples- looking at the exterior and then cutting them open and looking inside. Take responses for different types of seeds in fruits (strawberries—lots on the outside, raspberries—lots in the middle, apples—some on the very inside of the fruit).

5. Print copies and review About The Strawberry and About The Strawberry Plant from the Wisconsin Berry Grower's Association website.

6. Discuss how the seeds form from the flower into the fruit.

7. Complete the handout Let's Grow Strawberries!

The Flower as an Art Form

Utilizing real flowers and stick pins, students will be allowed to take apart flowers to see what the inside parts look like.

1. Before this activity, be sure to instruct students on the importance of safety and the proper use of the pins. Their desk/table is about to become a science lab and science labs have strict safety rules. Distribute one sweet pea flower (or other flower) and one stick pin to each student.

2. As a class, carefully remove the various parts of the flower and take time to inspect each part and review the role that it serves in the flower as it is discovered. Some flowers may be easier to see parts of than others, so encourage students to share what they find with their neighbors and partners.

3. As you finish this activity, be sure that you have identified all parts and answered any questions before moving on to the last activity.

4. Distribute one large piece of paper to each student and give them instructions create a poster identifying flower parts and describing pollination.

5. Be sure that they include all the parts of the flower. Have sand, cotton balls, yarn… available for them to include for pollen or to decorate the petals of their flower.

6. Hold an art show where they can view other student's projects.

Berry Math Lesson

1. Distribute Berry Math Worksheet as a classroom activity or homework assignment

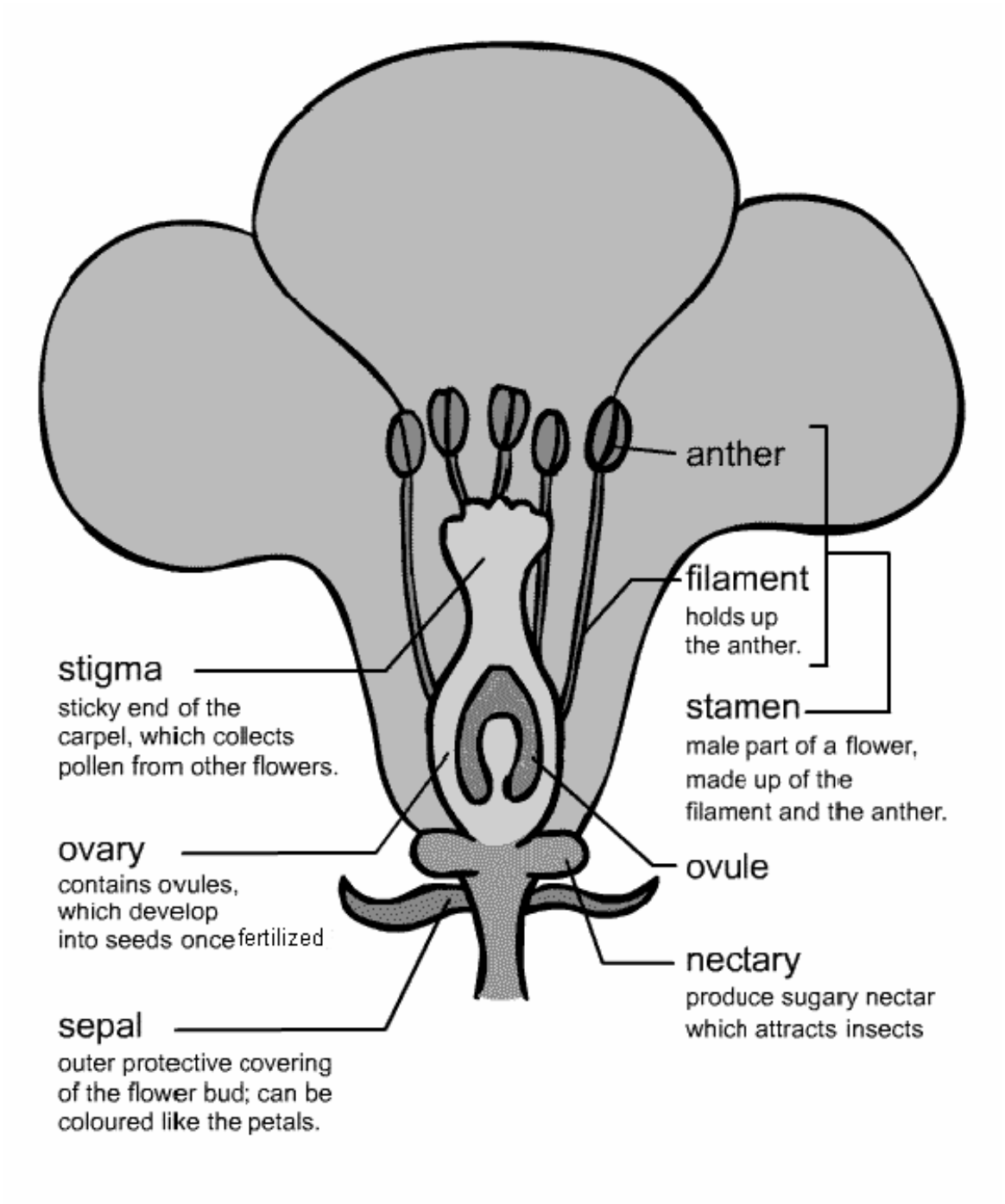
Additional Worksheets:

- Careers Guide related to strawberries
- Ag Statistics Lesson Plan related to strawberries

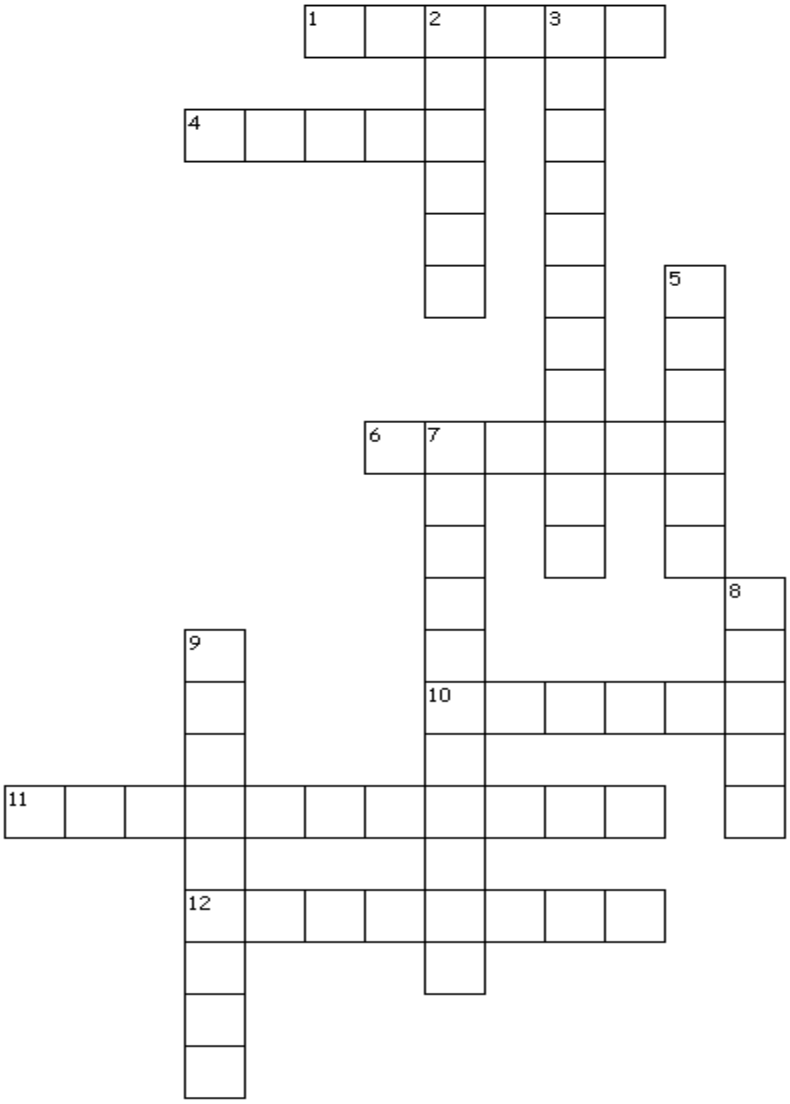
Related activities:

- Encourage students to explore further the different types of seeds that can be found and to create a poster of the different types of fruits.
- If the lesson is taught in the spring, encourage the students to plant several strawberry plants at home in their garden, pot or in a raised bed. Refer to Wisconsin Berry Grower's Association (www.wiberries.org) and click on Strawberry Activities.
- *Strawberry Word Find* found on Wisconsin Berry Grower's Association website (www.wiberries.org)

Flower Parts Diagram



Let’s Grow Strawberries



Across

1. Male part of the flower
4. Thick area in the center of the plant
6. Best time to plant strawberries in Wisconsin
10. Female part of the plant
11. Strawberry plant that bears fruit once a year
12. Plant nutrient often needed for strawberries

Down

2. Plant that lives for one year
3. Strawberry plant that bears fruit twice a year
5. Sticky end which collects the pollen from other flowers
7. The plants response to light
8. Protective covering used to protect plant's roots in the winter
9. Plant that lives for two or more year

Answers to: Let’s Grow Strawberries

Across

1. Male part of the flower - **Stamen**
4. Thick area in the center of the plant - **Crown**
6. Best time to plant strawberries in Wisconsin - **Spring**
10. Female part of the plant - **Pistil**
11. Strawberry plant that bears fruit once a year - **Junebearing**
12. Plant nutrient often needed for strawberries- **Nitrogen**

Down

2. Plant that lives for one year - **Annual**
3. Strawberry plant that bears fruit twice a year - **Everbearing**
5. Sticky end which collects the pollen from other flowers - **Stigma**
7. The plants response to light - **Photoperiod**
8. Protective covering used to protect plant's roots in the winter - **Mulch**
9. Plant that lives for two or more years - **Perennial**

FUN FACES OF WISCONSIN AGRICULTURE
STRAWBERRY THANKSGIVING

Activity Length:
Strawberry Thanksgiving- reading time will vary (if in or out-of-class); discussion 30 minutes
Create your own legend- Two- 50 minute class periods to prepare. Presentations-5 minutes per group.
Let's Write and Proof! – 60 minutes or 10 minutes to explain assignment and sent home as homework.
Berry Math Lesson – 30 minutes

Student Objectives:
1. Read and analyze a piece of literature
2. Create a story of their own based on what was previously read
3. Using props, present the story to their peers
4. Students will be able to write various types of short stories and poems about strawberries.
5. Ability to proof-read stories and poems.

Wisconsin Model Academic Standards:

English	A.4.1	A.4.2	A.4.3	A.4.4	B.4.1	C.4.1	C.4.2	C.4.3
Math	A.4.1	A.4.3	A.4.4	B.4.1	B.4.2	B.4.3	B.4.5	
Science	F.4.3							
Social Studies	A.4.4	A.4.6	A.4.7	D.4.3				

Introduction: Berry Bunch's Strawberry Fast Facts

Important Terms:
- Legend: An unverified story handed down from earlier times, especially one popularly believed to be historical.

Materials for this activity:
- *Strawberry Thanksgiving*. By Paulla Jennings (1992) Modern Curriculum Press. The book is written by a Niantic Narragansett educator, historian and author. If the book is not available, another book that talks about legends could be used. *Strawberry Thanksgiving* talks about the origination of strawberries so it relates better to this lesson.
- Student chosen props for their own legends

Lesson Outline:
Strawberry Thanksgiving
Students will read a legend that tells the Native American origination of strawberries.
1. As a class, or individually, or in small groups read *Strawberry Thanksgiving* by Paulla Jennings.

2. After complete, discuss the truth behind the story and the definition of a legend. Why were legends created?

3. Refer to University of Illinois Extension (http://www.urbanext.uiuc.edu/strawberries/history.html) Also available in Spanish- for information on strawberry history and lore.

4. What purpose did legends serve in the Native American culture?

<u>Create your own legend</u>

Utilizing the style of writing previously read, students will create their own fictitious legend about another Wisconsin product.

1. In small groups (2-3 students per group) have students briefly summarize the important parts of the *Strawberry Thanksgiving* story and the steps in formation of the plot. If the book was not available, there can be class discussion about how inventions or new products are created.

2. Each group will choose its own product originating in Wisconsin and create a legend on how that product originated. Students may want to research the product or commodity on the Internet to see the actual history of the product.

3. Encourage students to follow the same story line as the *Strawberry Thanksgiving*.

4. Include the elements of plot and setting, sequence of events, and character roles in the stories.

5. Allow the use of one prop to help illustrate the main point of the story.

6. With the use of their written story and one prop per group member, the students will come before the class and share their legends with their peers.

<u>Let's Write and Proof!</u>

Students will be able to write various types of short stories and poems about strawberries and practice their proof-reading skills.

1. Students can determine the type of writing assignment they'd like to complete: short story or poem.

2. Students are instructed as to the format of the paper. This can follow the teacher's established rules or could include: student's name, date, topic, and assignment.

3. Students create their writing assignment in pencil. Their work must focus on strawberries- facts, history, use of strawberries, a fond memory related to strawberries, or other strawberry-related topic.

4. Students proof-read their own work in red ink.

5. Students exchange papers or have one parent proof-read their assignment making comments in black ink.

6. Final copies will be turned into the teacher for grading.

7. Optional activity-
    a. Create a bulletin board with student's writing projects.
    b. Students share their work with the class.

Berry Math Lesson

1. Distribute Berry Math Worksheet as a classroom activity or homework assignment

Suggested Reading Materials:

- University of Illinois Extension (http://www.urbanext.uiuc.edu/strawberries/history.html) Also available in Spanish

Additional Worksheets:

- Careers Guide related to strawberries
- Ag Statistics Lesson Plan related to strawberries

Related activities:

- Allow students to further explore different legends and create individual legends on their family name or the history of their hometown.
- Refer students to the *Growing a Nation – The Story of American Agriculture* (www.agclassroom.org/gan) to learn about agricultural history.