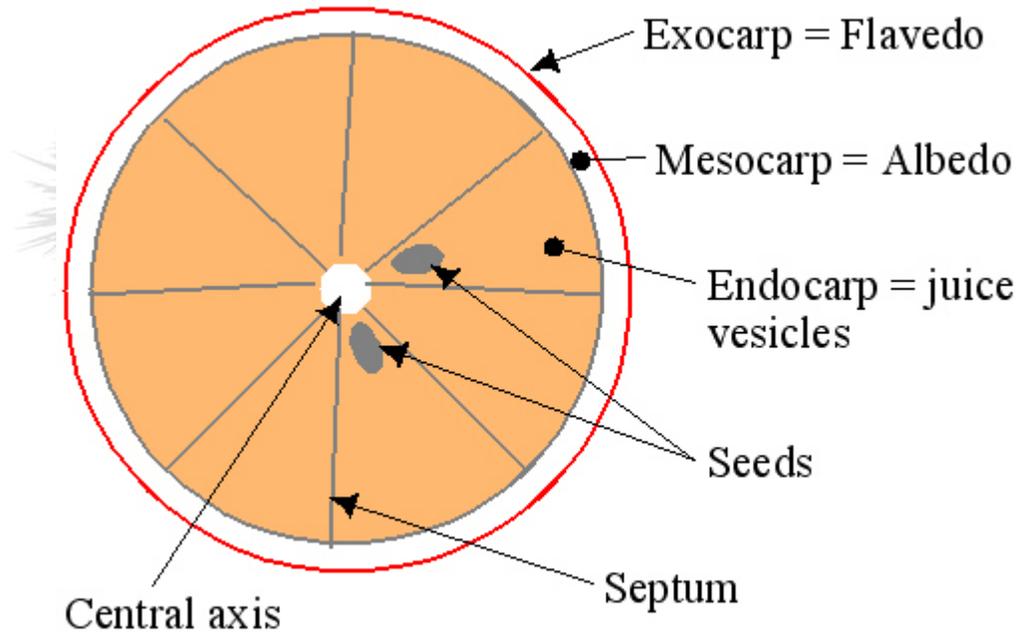




Post-Trip Lesson Plan Citrus

- I. Grade level: grades 6-8
- II. Objectives:
 - a. To understand the importance of the citrus crop in Florida.
 - b. To discover how citrus crops are grown in Florida.
 - c. To determine how shipment of citrus crops became important for the industry's survival.
- III. Standards:
 - a. Sunshine State Standards (2006):
 - 1) Social Science: Time, Continuity, and Change: Standard 1: Knows the relative value of primary and secondary sources and uses this information to draw conclusions from historical sources such as data in charts, tables, graphs.
 - 2) Social Science: Time, Continuity, and Change: Standard 6: Understands the history of Florida and its people.
- IV. Vocabulary:
 - a. Citrus: a tree or shrub that produces citrus crops, such as lemons and oranges.
 - b. Harvesting: the action of collection and gathering crops. This is usually done when plants have begun to ripen and are soon ready for consumption.
 - c. Shipment: Transferring goods from one area to another.
 - d. Freight: the goods or cargo that is being shipped in the shipment.
 - e. Flowers: Citrus trees create fragrant white flowers that pollinate before producing a citrus crop.
 - f. Pollination: The spreading of pollen to help germinate seeds and grow plants.
 - g. Exocarp: the outer most layer of the fruits wall.
 - h. Mesocarp: the middle layer of the fruits skin, usually a fleshy part.
 - i. Endocarp: the innermost layer of a fruits skin, in citrus this area is usually the part consumed
 - j. Seeds: a hard ovular shaped object, which is planted to grow new plants.
 - k. Septum: a dividing wall or thin membrane that divides the endocarp.
 - l. Central Axis: the core of a citrus fruit of which all of the other citrus parts surround.

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V. Quick Facts:

- a. Today Florida produces 83 % of the citrus crop in the United States; Texas is the next largest producer in the United States producing 10% of the crops.
- b. The first shipments of citrus out of Florida began in the 1700s.
- c. Florida used either a train or ships to transfer citrus crops to their destination.
- d. The first railroad built in Florida expanded the amount of citrus crops that could be shipped out of the state as well as provided a quicker method of shipping.

Activity 1: Worksheet: Florida's Citrus Crop 1898

VI. Materials:

- a. Worksheet: Florida's Citrus Crop 1898
- b. Writing Utensil
- c. Paper, crayons, colored pencils, markers, other craft supplies (optional)

VII. Procedures: Pass out the worksheet: Florida's Citrus Crop 1898. Allow time for the students to complete the worksheet. Next separate the students into groups of two. Have each group create their own advertisement for the Citrus Crop based on the crops importance to Florida economy. (Students can draw/write an advertisement, or talk in front of the class and persuade the class).

VIII. Assessments: This activity can be graded based on participation, interpretation of the provided material, and completion.

IX. Open-Ended Questions:

- a. Why is citrus important today?
- b. How often do you eat citrus today?



- c. How often do you think people ate citrus in 1898? (think about how people use to eat citrus once a year during the holiday season)
- d. How does reading primary sources information (such as these excerpts) help give better insight to the subject you are studying?

Activity 2: Citrus

- X. Materials:
 - a. Worksheet: Citrus and Vocabulary
 - b. Large Styrofoam balls (1 per student)
 - c. Tissue Paper
 - d. Construction paper
 - e. Tooth picks
 - f. Crayons, Markers, Pencil Crayons
- XI. Procedures: Verbally generate a list of the various citrus crops with the class. Then review the list provided below. Hand out the worksheet Citrus and Vocabulary to the class, and allow time for the students to complete the worksheet and the craft project.
- XII. Types of Crops: lime, sour orange, pummelo, kaffir lime, lemon, wild orange, citron, calamondin, grapefruit, mandarin, sweet orange.
- XIII. Assessments: This activity can be based on the use of vocabulary words, following instructions, use of historical information, and creativity.
- XIV. Open-Ended Questions:
 - a. What types of Citrus do you eat?
 - b. How would you define citrus today?
 - c. What part of the fruit protects the fruit? (Exocarp)

Activity 3: Transportation of Citrus

- XV. Materials:
 - a. Citrus Fruits created in activity 2
 - b. Two large boxes (as metal cartons)
 - c. Two large Boxes (as boxes)
- XVI. Procedures: Review the history of the transportation of Fruit in 1898 provided below. Have each student take notes on the various steps while you read the steps to the class. Then Separate the class into two groups. Have each group pick a brand name for their shipping group as well as an address. Have each group pack the fruit that they created in activity 2 into a large box following the procedures from 1898. (This activity can be done as a competition between the two groups).
- XVII. History:
 - a. Do not pick oranges when the weather is damp or the fruit is wet
 - b. Do not pull fruit from the tree, cut the fruit down with clippers
 - c. Place the fruit into metal cartons while gathering
 - d. Next pack the fruit into boxes, lift each fruit individually never pour the fruit from the metal cartons into the boxes because the fruit will then spoil.
 - e. Store the fruit in a dry area until they are taken to packing houses, where the fruit will be dried for two or three days



- f. Next the fruit can be packed tightly into boxes without the threat of spoiling due to the fruit being dried.
 - g. While packing discard any damaged fruit. Place fruit in boxes with varying layers.
 - h. After being packed the fruit is wrapped. This is done with tissue paper
 - i. The name and address of the grower and the brand of the fruit is printed on the box.
 - j. The fruit is then taken to a train to be shipped as freight.
- XVIII. Assessments: This is a collaborative project within the classroom and can be graded based on assessing your students understanding of the history and vocabulary of transporting citrus crops.
- XIX. Open-Ended Questions:
- a. How long do you think it takes fruit to be packed and shipped today?
 - b. How long do you think it took the fruit to be packed and shipped in 1898?
 - c. Do you think using a train in 1898 would take longer than a truck today?
 - d. Also weather conditions could ruin the crop on a train because there is no climate control. For example, if a frost occurred many of the citrus crops would spoil. How has the use of a truck improved transportation for citrus crops?
- XX. Sources:
- a. Rieger, Mark. *Citrus: Lemon, Lime, Orange, Tangerine, Grapefruit-Citrus Supp.* University of Georgia. Retrieved on September 18, 2008 from <http://www.uga.edu/fruit/citrus.html>
 - b. Mann, A. S. "Gathering and Packing Oranges." *The Florida Agriculturist*. Dec. 17, 1890.



Name: _____ Date: _____

Post-Trip Lesson Plan Citrus and Vocabulary

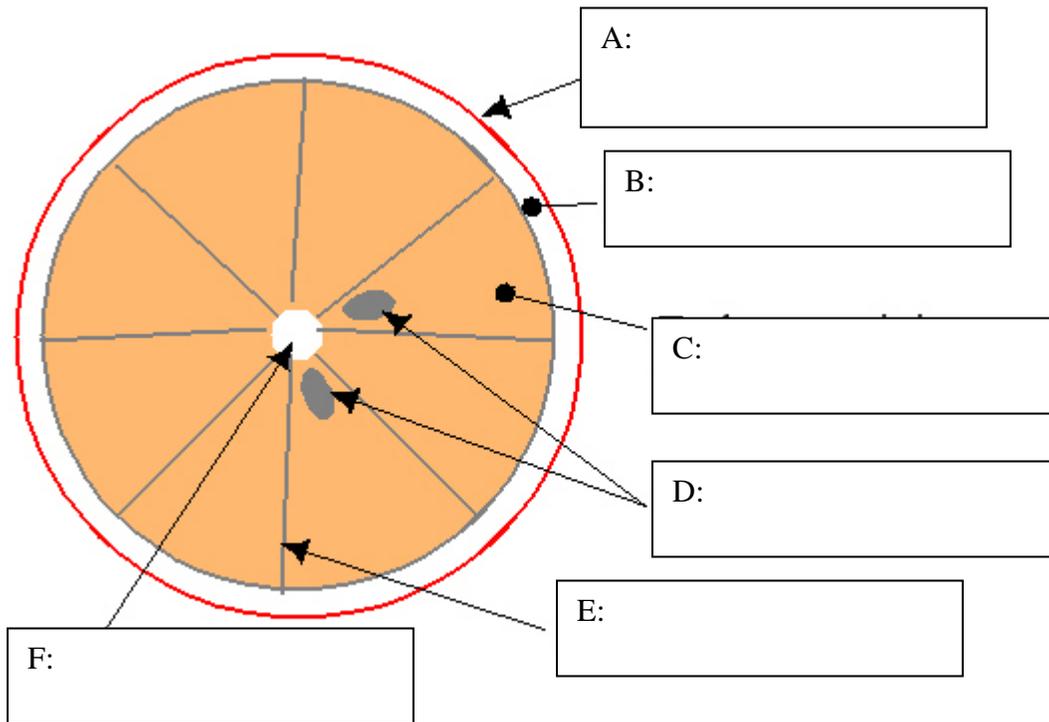
Instructions: Review the vocabulary provided below. Then complete the worksheet.

1. Citrus: a tree or shrub that produces citrus crops: such as lemons and oranges.
2. Harvesting: the action of collection and gathering crops. This is usually done when plants have begun to ripen and are soon ready for consumption.
3. Shipment: Transferring goods from one area to another.
4. Freight: the goods or cargo that is being shipped in the shipment.
5. Flowers: Citrus trees create fragrant white flowers that pollinate before producing a citrus crop.
6. Pollination: The spreading of pollen to help germinate seeds and grow plants.
7. Exocarp: the outer most layer of the fruits wall.
8. Mesocarp: the middle layer of the fruits skin, usually a fleshy part.
9. Endocarp: the innermost layer of a fruits skin, in citrus this area is usually the part consumed
10. Seeds: a hard ovular shaped object, which is planted to grow new plants.
11. Septum: a dividing wall or thin membrane that divides the endocarp.
12. Central Axis: the core of a citrus fruit of which all of the other citrus parts surround.



Name: _____ Date: _____

Instructions: Use the vocabulary words and definitions provided above to fill in the blanks.



Citrus Craft:

Instructions: using the list the class created naming the various types of citrus crops choose one and write in the space provided below. Next collect all the materials you will need for the craft.

My Citrus Crop Is: _____

Materials:

1. 1 Styrofoam Balls
2. Tissue Paper
3. Construction paper
4. Tooth picks
5. Crayons, Markers, or Colored Pencils
6. Modeling Clay
7. Glue

Instructions: Use the Diagram you filled in above to create a 3-d diagram

8. Cut the Styrofoam ball in halve.



Name: _____ Date: _____

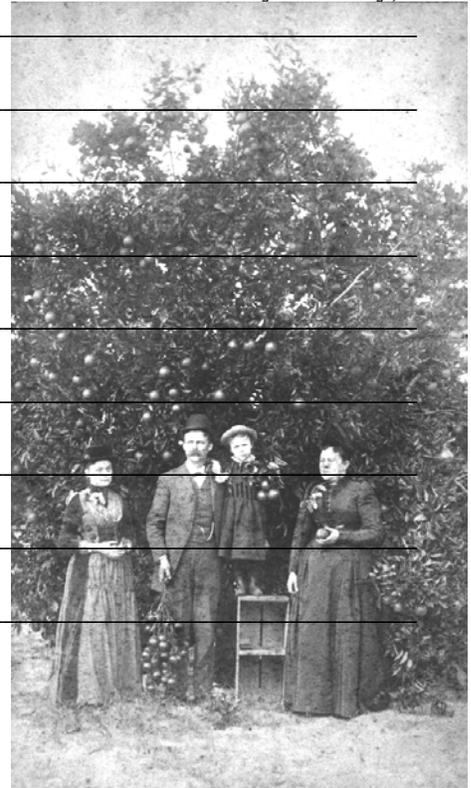
9. Next color the exocarp with tissue paper that is the color of your citrus fruit (Ex: Lemons would have yellow tissue paper) and glue.
10. On one half of the fruit put clay in the mesocarp and a small dot of clay in the central axis.
11. Using 6-10 toothpicks create the septum. This is done by sticking the ends of the toothpick into each sides of the clay in the mesocarp and the central axis.

Short Story:

Instructions: Next choose one vocabulary list above and write a short story.

Vocabulary Word: _____

Short Story: (Think about if you were a citrus farmer in 1898 how you would use this word, and what kind of importance this word has in your daily life. Use the word three times in your story).





Name: _____ Date: _____

Post-Trip lesson Plan Florida's Citrus Crop 1898

Instructions: Read the passage below from the Treatise and hand-book of orange culture in Florida, Louisiana and California, 1886.

As the fruit of a grove begins to ripen, let the gardener pass through, and, taking tree by tree, take from it all fruit that shows such defects as will lead him to conclude that it will never come to perfection. Let him gather all specked fruit. This can be done week after week, always selecting the ripest of such fruit. As such is the first to ripen there is always a market for it, and, rightly managed, at a paying price. If such fruit is allowed to remain on the tree it will get no better, and its presence will damage the fruit which should remain longer on the tree. Before the better oranges begin to ripen the gardener should be well acquainted with the quality of the fruit of each tree, so that he can classify them according to quality of flavor, from the acid to the sweet, from the dry to the juicy, and various varieties.

Gallesio, Giorgio and T. W. Moore and H. & W.B. Drew Compay. Treatise and Hand-book of Orange Culture in Florida, Louisiana and California. New York: E. R. Pelton & Co. 1886, 139.

From this excerpt write a short essay (1 paragraph) arguing whether or not Citrus is an important crop in Florida. (Hint: think about the amount of attention and care the citrus crop gets from the gardener).
