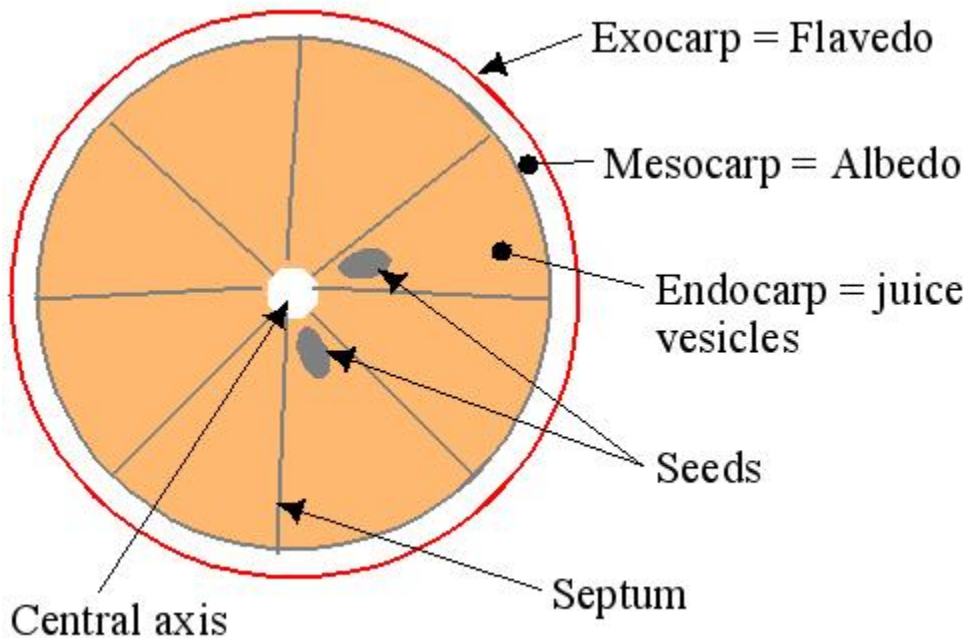




Post-Trip Lesson Plan Citrus

- I. Grade level: grades 1-2
- II. Objectives:
 - a. To understand the importance of the citrus crop in Florida.
 - b. To explore various methods of transporting citrus crops 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: People, Places, and Environments: Standard 1: uses simple maps, globes, and other three-dimensional models to identify and locate places.
 - 2) Social Science: People, Places, and Environments: Standard 2: Knows the modes of transportation use to move people, products, and ideas from place to place, their importance, and their advantages and disadvantages.
- 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 fruit's 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.



- 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: Florida's Citrus Crop

- VI. Materials:
 - a. Worksheet: Florida Citrus Farming Photographs
 - b. One sheet of paper per student.
 - c. Crayons, Colored Pencils
- VII. Procedures: Pass around a copy of the worksheet: Florida Citrus Farming Photographs. Then tell your students to draw a picture of a typical citrus farm in 1898 on a blank sheet of paper. Have each student present their picture to the class explaining what is in the drawing, and what makes this picture a picture representing 1898.
- VIII. Assessments: This activity can be graded based on participation, interpretation of the provided material, and completion.
- IX. Open-Ended Questions:
 - a. How often do you eat citrus today?
 - b. 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)
 - c. Do farms look different in 1898 compared to today's farms?
 - d. What do you think about looking at a photograph from the 19th century?

Activity 2: Citrus

- X. Materials:
 - a. One Large sheet of paper.
 - b. Marker
 - c. (or chalkboard and chalk)
- XI. Procedures: Create a list of various citrus fruits with your students. Then discuss how citrus was an important crop in Florida. Now let your students be creative and devise a new way of transporting citrus crops. Discuss these ideas as a class.
- XII. Importance: This crop provided income for citrus farmers, and was a main crop along with sugar cane and corn. However, transportation of this crop consisted of either being shipped in a boat or on a railroad. When the railroad came into the Florida it was used to deliver citrus crops quickly before the crops would spoil. However, climate control on trains was not good and during cold spells many of the citrus crops would spoil.
- XIII. Types of Crops: lime, sour orange, pummelo, kaffir lime, lemon, wild orange, citron, calamondin, grapefruit, mandarin, sweet orange
- XIV. 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 citrus.
- XV. Open-Ended Questions:
 - a. What types of Citrus do you eat?



- b. How would you define citrus today?
- c. What do you think the best way to ship fruit is?

Activity 3: Transportation of Citrus

XVI. Materials:

- a. Worksheet: Citrus Map
- b. Crayons, Colored Pencils

XVII. Procedures: Read the history of packing and shipping citrus fruit to the class. Then hand out the worksheet: Citrus Map to the class. Allow time for the students to complete the worksheet.

XVIII. 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.

XIX. Assessments: This activity can be graded based on completion and following directions.

XX. 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?

XXI. 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.