

## *American Chestnut*

**Keywords:** Chestnut, blight, nuts, forest history, tree disease

**Lesson Plan Grade Level:** 6<sup>th</sup> - 8<sup>th</sup>

**Total Time Required For Lesson:** 50 minutes as one continuous time block

**Setting:** Classroom

**Subjects Covered:** Science, History, Biology, And Environmental Science

**Topics:** American chestnut

### **Goals For The Lesson:**

Students will gain an understanding of the importance of the American chestnut tree.

Learners will realize the significance of the loss of the American chestnut tree population.

### **Materials Needed:**

*American Chestnut* fliers (From The Woods Series)

*American Chestnut Pre- Assessment* (one for each student)

*American Chestnut Post- Assessment* (one for each student)

Paper

Pencils

Appendix 1

Appendix 2

Appendix 3 – one copy for each group

Food Coloring – 2 yellow and 2 blue (the groups may share, or you may distribute a small amount to each group with an eye dropper)

8-12 Q- tips (depending on the number of groups)

4 -6 small glass jars or containers (depending on the number of groups)

Water- ¼ cup for each group

**State Standards Addressed:** *E&E Standards:* 4.2.7, 4.5.7, & 4.8.7, *S&T Standard:* 3.3.7

**Teaching Model:** Experiential Learning Model (Experience, Share, Process, Generalize, Apply)

### **Methods:**

#### **Preparation:**

Read through the entire lesson and appendices to ensure your understanding of the content and activity.

Prior to the reading you will be completing a K-W-L chart with the class, if you are not familiar with the chart see Appendix 1

Create four - six areas in the classroom. The students will be working in groups and should have a designated area to work. (Preferably three- four students per group)

## **Doing The Activity:**

Introduction to the lesson: Explain to the students that they will be learning about the American chestnut tree; why it was/ is valuable, how it has almost become extinct, and how certain groups are working to help the American chestnut population.

## **Steps:**

### **(Experience and Share Stages 25 minutes)**

1. Administer the pre- assessment to the students; explain the purpose of the pre- assessment is identifying the knowledge students already have acquired on American chestnut trees. (allow approximately 7 minutes for the test then collect)
2. Ask the students if they have any comments concerning the pre-assessment.
3. Write the letters K- W- L, on the chalkboard. See appendix 1 for guidance
4. Ask the students to fill in the 'K' section of the chart- what they know about American chestnut; then fill out the 'W' section- what they want to know.
5. Hand out the fliers to the students. Explain to the students that they will be reading the material together.
  - Be sure to go over the maps, and illustrations with the class.
  - Discuss key points throughout the reading Appendix 2
6. Complete the reading together, allowing each student a turn to read aloud.
7. Ask the students if they have questions concerning the reading.
8. Ask the students if they have ever heard of any other plants being crossed. Allow time for students to reply. Ask the students if there are any effects of crossing two living things?
9. Explain to the students that they will be completing an activity with food coloring to demonstrate what can happen when two things are mixed to one.
10. Separate the class into groups and designate the area each group should go to.
11. Hand out a copy of Appendix 3 to each group and go over the directions with the class.
  - make sure the students have the materials to complete the activity
12. Allow time for the students to complete the activity.
13. Monitor the students to ensure they are all participating.

### **(Share and Process Stages 25 minutes)**

13. After the groups appear to be done ask the students to share their findings, groups should report that when the 2 colors were mixed it turned green, but as more blue food coloring was added the color began to look aqua, not as blue as the food coloring but a shade of blue.
14. Ask the students how the activity relates to the material they just read about. Responses should include how organizations are trying to breed the American Chestnut with Asian trees and how it can affect the breed. Ask the students if they have any further comments regarding the activity.
15. Ask the students to return to the designated seats.

### **(Generalize and Apply Stages 12 minutes)**

16. After the educator has reviewed all the information concerning the flier and activities complete the 'L' section of the K-W-L chart. (prepare the students for the post- assessment complete discussion questions appendix 2 unless you completed them during the reading), again ask the students if there are any questions.
17. Administer the post-assessment. Allow the students time to complete then collect.

**Assessment:** The students will be evaluated through participation and upon completion of the activities and the post-assessment.

**Conclusion To The Lesson:** “This completes today’s lesson I hope that you have gained a more thorough understanding of the importance of American chestnut trees. Does anyone have any further comments concerning the lesson?”

**References and Resources:**

*American Chestnut* flier (From The Woods Series)  
The Pennsylvania State University  
112 Agricultural Administration Building  
University Park, PA 16802

Katie Roth, Pennsylvania Certified Teacher and Sanford Smith,  
Extension Specialist Penn State School of Forest Resources  
prepared this lesson.

## Appendix 1

### K- W- L Chart

**K** - stands for what they children already know (to be completed prior to the reading)

**W** – stands for what the children want to learn (to be completed prior to the reading)

**L** - stands for what the children did learn (to be completed after the reading and activity)

The chart should look similar to this on the board:

K

W

L

- Ask students to first come up with items they already know to list under the ‘K’
- Then, ask them to generate ideas they want to learn to list under the ‘W’
- After the group activity and discussion, complete the L section of the chart.

## Appendix 2

### Review Questions

1. Name a few states the American chestnut use to thrive in. (*see map illustration*)
2. What was the American chestnut best known for? (*its fruit/ nut*)
3. Why were the nuts so important? (*food for humans, livestock, wildlife; high in valuable protein; nuts could be sold or traded at markets*)
4. What are some use of the chestnut trees' wood and bark? (*wood is highly resistant to decay; used to make: fences and posts, log cabins, shingles, charcoal etc.; bark was rich in tannic acid used for softening and darkening leather*)
5. How did the American chestnut tree almost become extinct? (*a blight, (be sure students identify the meaning of the word blight- a disease which kills the flowers, leaves and stems of plants) nearly killed off the species.*)
6. How did the blight spread? How did the blight affect the tree? (*the disease spread by rain, on bird's feet, and rain*) (*caused cankers- sunken wounds on the tree's branches and trunks; the cankers destroyed the portions of the trees; the roots were not killed by the blight*)
7. Name 2 organizations, which have been formed to help the chestnut tree? (*The American Chestnut Cooperators Foundation and The American Chestnut Foundation*)
8. Explain what the organizations are doing to help regain the chestnut population. (*AACF- trying to breed disease –resistant trees, using only the American chestnut; TACF- attempting to breed the American chestnut with Asian trees; and again with American chestnuts*)

