Science in CTE Lesson Plan

Lesson Title: Enzymatic Browning	**Length:** 45 mins	**Grade Level:** 7-12
Career Cluster and Pathway: **Hospitality & Tourism**	**Unit of Study:** Fruit	**Course:** Foods
National FCS Standard: 8.5.7-Prepare various fruits using safe handling and professional preparation methods		
Lesson Objective(s): Compare the various methods for prevention of enzymatic browning		
Essential Question(s): How do the methods for preventing enzymatic browning compare? What causes enzymatic browning?		
Lesson Overview: This lesson allows students to use different methods for preventing enzymatic browning of fruit. Students draw conclusions from a data table used to record their results.		

Supplies Per Kitchen Unit	1-Apple &/or Banana 1/3 c. lemon juice	3/4 c. granulated sugar 1-200 mg. vitamin c tablet
Time Required:	Experiment needs 30 mins.	

Introduction	What causes apple and banana slices to turn brown?
Pre-assessment	Predict – the least effective method- the method that will work best…etc
Activity 1	Enzymatic browning lab
Activity 2	Fruit dip lab-
Evaluation/Assessment	Completed data table and process questions
Sources	"Lab enzymatic Browning."***Food Science Activities for Middle School***. Learning Zone Express. pg. 27-30. Act. #3 "Enzymatic Browning of Apples." ***Enzymes in Food Systems***-Institute of Food Technologists.1996. "No More Bananas" ***Exploring Science in the Food Labs.*** Goodheart-Willcox 2000. pg. 91-96.
Additional Notes	Research questions answers-Citrus acid lowers the pH of fruit. Sugar syrup coats the fruit prevent fruit surface from contracting oxygen.