**Unit 2 –Food Chemistry Layered Curriculum Experiences**

**(Chapters 8, 9, 10, 11, 19, 20, 21, 22, 23 & 24)**

**Before turning this in, be sure you have at least one activity for each of the following units:**

* **Proteins**
* **Leavening agents**
* **Chemical reactions and physical changes**
* **Energy**
* **Acids and bases**

**Level 1 - Basic Learning and Skills Activities**

**Choose activities to earn a maximum of up to 20 points**

**A=18-20 Points; B=16-17 Points; C=14-15 Points; D=12-13 Points**

**Target Completion Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** (end of class)

\_\_\_\_\_ Guided note taking – video or lecture, PPT (**required**) (3 points)

\_\_\_\_\_ Make a Venn diagram comparing and contrasting chemical reactions and physical changes be sure to include 5 examples of each (3 points)

\_\_\_\_\_ Create flash cards/online flashcards for the vocabulary in this unit (4 points)(3 words from each chapter)

\_\_\_\_\_ Create a crossword puzzle and answer key for the vocabulary in this unit (4 points) (3 words from each chapter)

\_\_\_\_\_Compare and contrast mechanical, chemical and biological leavening agents; explain what they do and how they are used (4 points)

\_\_\_\_\_ List and define 10 food additives, explain what each is used for, and distinguish if each is natural or synthetic (5 points)

\_\_\_\_\_ Create an online review game for all of the vocabulary in this unit (5 points)

­­­­\_\_\_\_\_ Write and perform a song about the essential amino acids (5 points)

**Level 2 - Application Activities** **Choose activities to earn up to 30 points**

**A=28-30 Points; B=24-27 Points; C=20-23 Points; D=18-19 Points**

**Target Completion Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** (end of class)

\_\_\_\_\_ Soap is an emulsifier. Create a visual explanation of how soap is used to wash dishes and get them clean (4 points)

\_\_\_\_\_ Compare methods of heat transfer and the pros and cons of each (5 points)

\_\_\_\_\_ Create a PPT demonstrating why cream whips into a better foam if chilled, while egg whites produce a better foam at room temperature; be sure to include an explanation of each, pictures will enhance your power point (5 points)

\_\_\_\_\_ Research issues concerning the water supply. How does that water supply issue affect individuals and society? Discuss problems and solutions (5 points)

\_\_\_\_\_ Research well known national and regional dishes based on complementing proteins such as Lebanese Tabouleh and Louisiana Red Beans and Rice. What plant proteins are used and how does the dish represent the culture? (6 points)

\_\_\_\_\_ Design and conduct an experiment showing the effects of enzymatic browning on 5 foods and explain ways to prevent each. (6 points)

\_\_\_\_\_ Demonstrate why fresh diced pineapple cannot be used successfully in making Jello. Make Jello using fresh diced pineapple and canned separately. Compare the results and discuss why there is a difference. (6 points)

\_\_\_\_\_ Identify 10 foods’ acids and bases, explain the properties of acids and bases within those foods. Write an explanation of how each affects your body. (8 points)

\_\_\_\_\_ Analyze 10 food labels, compare additives in each, and create a chart showing which are the healthiest and the most harmful (8 points)

**Level 3 - Analyzing Activities Choose 1 activity to earn up to 50 points**

**A=48-50 Points; B=44-47 Points; C=40-43 Points; D=36-39 Points**

**Target Completion Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** (beginning of class)

\_\_\_\_\_ Compare and contrast two bread recipes, one designed for a bread machine and one traditional recipe. Make both recipes and create a chart to analyze how they are different regarding taste, leavening, appearance, and mouth feel. Be sure to take pictures during the process to include in your chart. Create a blind taste test for the class, have each participant evaluate both products. Present and explain your findings.

\_\_\_\_\_ Conduct an experiment of the effects of acids on proteins. Analyze the results to determine differences between proteins cooked in water and those in an acidic substance. Explain how you might apply findings to the preparation of other foods.

\_\_\_\_\_ Design your own experiment to test when in the baking process gluten is most vulnerable to collapse. Present your findings in a data table.

\_\_\_\_\_ Make pickles or sauerkraut and explain the fermentation process. Create an interactive power point with pictures of **you** preparing, and explaining the process step by step.