Materials List for Engineering a Pancake Recipe

Materials for each group:

tray for carrying supplies

small plastic container of dry complete pancake mix

18 oz. plastic cup to use as mixing bowl

plastic spoon for mixing

1 teaspoon

1 tablespoon

syrup

Materials for Cooking Station:

Electric griddle set at 350 degrees

Cooking oil spray

2-3 spatulas

paper plates

My 43 students went through seven 32 oz. boxes of complete pancake mix during this engineering process.

Here are some useful online resources for **teachers**:

<https://www.wired.com/2012/07/pancakes-served-with-a-side-of-science/>

<http://www.scientificamerican.com/article/bring-science-home-gluten-pancakes/>

<http://agrupamento-fajoes.pt/ficheiros/d7831821HNfPyfvyQE.pdf>

<http://www.seriouseats.com/2015/05/the-food-lab-how-to-make-the-best-buttermilk-pancakes.html>

<http://www.uni.edu/ceestem/recipes>

**Chemistry in Everyday Life: Engineering a Pancake Recipe Summative Assessment**

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Middle School students want to know you did a thorough job determining the best ratio of ingredients and the best time to flip a pancake. They have asked you to share your findings for what is needed for a good tasting pancake using the pancake mix. In order for them to believe you, you need to convince them that you have the evidence and understanding to back up your findings.

**Your task**: Share your findings. Develop a written explanation of the processes you went through to determine the best ratio of ingredients and the best time to flip a pancake for a good tasting pancake. In your explanation, be sure to clearly describe how the recipe engineering and design process was used and how claims and evidence from your engineering and design process and testing procedures were used to support and develop your findings. Also explain how talking with the dietician through a Skype session helped clarify your thinking.  Clearly explain that you understand the chemical ideas that are related to pancake making based on your experiences.

**Chemistry in Everyday Life: Engineering a Pancake Recipe Grading Rubric**

|  |  |  |
| --- | --- | --- |
| 2 Points | 1 Point | 0 Points |
| Student included clear and detailed information from testing best ratio of mix to water for a good tasting pancake. | Student included information from testing best ratio of mix to water for a good tasting pancake. | Student was unclear or included no information from testing best ratio of mix to water for a good tasting pancake. |
| Student included clear and detailed information about class argumentation over claims and evidence from testing best ratio of ingredients. | Student included information about class argumentation over claims and evidence from testing best ratio of ingredients. | Student was unclear or included no information over argumentation from testing best ratio of ingredients. |
| Student included clear and detailed information from testing best time to flip a pancake for good tasting pancake. | Student included information from testing best time to flip a pancake for good tasting pancake. | Student was unclear or included no information from testing best time to flip a pancake for good tasting pancake. |
| Student included clear and detailed information about class argumentation over claims and evidence from testing best time to flip a pancake. | Student included information about class argumentation over claims and evidence from testing best time to flip a pancake. | Student was unclear or included no information about class argumentation over best time to flip a pancake. |
| Student included clear and detailed information learned from talking with dietician. | Student included information learned from talking with dietician. | Student was unclear or included no information learned from talking with dietician. |
| Student clearly explained the chemical ideas that are related to pancake making based on their experiences. | Student explained the chemical ideas that are related to pancake making based on their experiences. | Student was unclear or included no explanation of the chemical ideas that are related to pancake making. |
| Student writing had 0-2 writing convention errors. | Student writing had 3-4 writing convention mistakes. | Student writing had 5 or more writing convention mistakes. |

Points earned \_\_\_\_\_\_\_\_\_ / 14 Points Possible