Kitchen Chemistry

WebQuest Description: Make observations and determine whether changes in our pancakes are physical or chemical.

Grade Level: 3-5
Curriculum: Science
Keywords: physical change, chemical change, process, form, shape, matter
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Introduction

Hello students! Who enjoys waking up in the morning and finding out their parents surprised them with pancakes for breakfast? I know I sure do, but did you ever think what making pancakes has to do with science? What could you possibly call this process? FOOD SCIENCE! The next couple days we will be spending time on how pancakes relate to chemistry. We will begin by reading a book, Pancakes for Breakfast by Tomie dePaola. As we read this book, I want you to observe what is going on throughout the reading and possibly predict what may happen next. To find out how pancakes really do relate to science, we will later be making our very own classroom pancakes! Be sure to watch the video below to get an understanding of food science.

Tasks

While doing our think aloud with Pancakes for Breakfast, by Tomie dePaola and also reviewing the video of the book listed under resources, you will be making predictions throughout our think aloud. Observe what is happening in the pictures. What steps is the woman taking to make the pancakes? You will also be observing different physical or chemical changes in certain objects and answering questions on a worksheet that will be provided. Once you have completed these tasks, you will be able to determine how a delicious food like pancakes can relate to science.

Process

READ ALL STEPS BEFORE YOU BEGIN! Procedure 1: Groups- Day 1 Go to the Chemistry 4 Kids website listed under Resources and read about the differences in physical and chemical changes in objects. Once you understand the definition of each term you will get with your group and answer questions from the worksheet provided under resources. One group member will record all the answers on a separate sheet of paper and turn it in to me. Make sure all your names are on the sheet! Procedure 2: Ingredient Demonstration- Day 2 You will first watch a demonstration on how to make pancakes from scratch. (Resource 3) You will answer questions with your group while following along with the demonstration. You will record what happens first, second, third, and so on. (Go to resource 4 to access the worksheet). There are two parts to the worksheet, you will only need to do Part I for this demonstration. I want you to observe the individual events and determine which type of change occurs and why. I want to make sure you can provide evidence and back up your answers by recalling back to the book along with the terms you reviewed on the Chemistry 4 Kids website. While watching the video, try to predict what you think will happen next with each ingredient. Procedure 3: Making Pancakes-Day 3 After you have watched how pancakes are made, you will then watch a video on how to cook the pancakes. Be sure to observe the changes of the pancake as it cooks! In Part II of your worksheet you will simply answer one question "Is the cooking of the pancake a chemical or physical change?" Procedure 4: Sequence Chart- Day 2 & 3 While watching both demonstrations, be sure to fill out your sequence of events chart. (Resource 6) This will help you better identify the individual events and what change actually occurs. Procedure 5: Presentation- Day 4 With the previous activities completed, you will create your own appropriate demonstration of a chemical or physical change. You will present the steps throughout the process and show a clear understanding of the type of change you are presenting. Your demonstration will be presented in front of the class and must be approved by me! I will provide a sign up sheet along with possible options to choose from. Remember- you are to have fun while doing this but also be able to show your understanding of your demonstration! YOU MAY BEGIN. HAVE FUN!

Evaluation

This is the rubric that will be used to grade your observations and your understanding of chemical and physical changes. Grading Scale:Excellent........................................22-24 points Average...........................................19-21 points Developing........................................15-18 points Beginning........................................ < 15 points
### Conclusion

Congratulations, you now have an understanding of what chemical and physical changes are! You also have found out that all things around you can go through their own change, either chemical and physical, including food you eat! For completing this activity and what you have all been waiting for....we will now make our own classroom pancakes!! To start I need your help, so I need you to tell me the steps and processes I need to follow. Let's Eat!! Now what other possible edible experiments are there that involve chemical and physical change?? hmmmmmmmm....oh, I know! Below I have listed other experiments you can try at home along with fun filled activities to try during free class time!

### Teacher Page

Standards:

1. **3.2.3.A2**: Recognize that all objects and materials in the world are made of matter.
2. **3.2.3.A3**: Demonstrate how heating and cooling may cause changes in the properties of materials including phase changes.
3. **3.2.3.A4**: Use basic reactions to demonstrate observable changes in properties of matter (e.g., burning, cooking).

### Credits

### Other