

Community in the Classroom Presentation Plan

Lesson Name Please Play With Your Food

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Grade Level 5 Standards Connection(s) cells break down sugar to obtain energy and release CO₂ and water; develop testable questions; make quantitative observations; record data and make inferences

Abstract:

Everyone has questions. We will find out how to find answers ourselves. Using our tongues as well as yeast, we will answer the question "Which food has more sugar?" The students will propose a hypothesis based on a taste test and then test it using an instrument (the yeast) to show how to objectively answer questions. This lesson will demonstrate how scientists look at the world and how students can find their own answers to their questions.

Vocabulary/Definitions:

Yeast; carbon dioxide; microorganism; cell

Materials:

I will bring photos of yeast, Ziploc bags, yeast, several pipettes and cups, and food to test (probably cookies with and without artificial sweetener) cut into small pieces. I will also provide data sheets for the students for writing down observations and data.

I will need pens/pencils, rulers, whiteboard, water for adding to the yeast.

Classroom Set-up:

I am planning on having groups of 4 students, so that each group will test both foods and two students will be responsible for one bag/food. It will take approximately 10 minutes to start the experiment and 5 minutes to clean up. The yeast should take approximately 15-20 minutes to make CO₂.

Classroom Visit

1. Personal Introduction: 3 Minutes

Hi, I'm Richard. I make instruments for measuring cells so that we can answer questions about how cells work. Who knows what a cell is? How did you learn what a cell is? [If students don't know what a cell is, then tell them and skip to the following question.] And what did you do to find out the answer? [ask several students] Many times your parents or teachers know the answers, but sometimes no one knows the answer to your question. That's what scientists are for. They do experiments to answer questions that are very interesting.

Topic Introduction: 5 Minutes

Today we will be scientists and answer a question together. I brought this food with me and I need your help to find out which one has the most sugar. How can we find out? [get suggestions] Since sugar is sweet, we will use taste. But since many other things can be sweet, we will also use an instrument to measure the sugar. Who can tell me what yeast is? [write on board] Yeast is a microorganism that is used to give bread bubbles to make it soft. [show photos] It eats the sugar and then makes carbon dioxide [write on board] gas from it. People do the same thing. We eat food and then we breathe to get rid of carbon dioxide. We can measure the gas from the yeast to see how much sugar they have eaten. If there is a lot of carbon dioxide, then we know the yeast ate a lot of sugar.



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2. Learning Experience(s):

30-40 Minutes

Let's get started! There are two foods we will measure; everyone will need one bag and a piece of food. The bags already have yeast in them. Put one piece of food into each bag; write on the bag what food you put in. Add two squirts of water, close the bags (try to squeeze out any air), and mix up the yeast and food. Now let's wait and let the yeast eat.

Ok, now we will taste the food to see which is sweeter. Taste a little piece of each food and circle which one tastes the sweetest to you. [make a plot with a category for each food] Go to the board and [draw a blank bar graph with two categories for students to fill in] color in a box for the food that tasted the sweetest. It looks like food X is the sweetest according to the class. Which food do you think has the most sugar? Let's write that as our hypothesis.

Let's see how the yeast are doing. What do you see? We will measure the carbon dioxide. Take the ruler and measure the height of the bags. Write down the number for each bag. Let's graph the results. [draw a blank bar graph with two categories for students to fill in] Color in a box for the food that gave the most carbon dioxide. If we look at the height of the bars, we will see which food has the most sugar. And food X looks like it has the most sugar.

3. Wrap-up: Sharing Experiences and Building Connections 10 Minutes

Is this the result the same as from tasting it? Why or why not? Which is the correct answer? [spend some time talking about the experiment and the results and answer questions]

Some foods are made to taste sweet without sugar. To us, they all taste sweet, but only some foods have sugar. An experiment can test our hypothesis and an instrument can help us measure it. Graphs help us look at the results we get from an experiment.

You can make your own experiments to answer questions. It's a lot of fun. I do experiments like this every day in the laboratory (only I don't get to eat anything).

4. Close:

2-5 Minutes

Thank you for being such good scientists. Please throw away the bags and eat the rest of the food. I hope you had fun. [answer questions if there are any]

TOTAL 50 – 60 Minutes

Follow-up – After Presentation

What are you curious about? What do you want to know? Come up with a question you want to know the answer to. How can you find the answer? Can you design an experiment to find the answer?

If you want to learn more about yeast, artificial sweeteners, science instruments, or anything else, good sources of information are your teachers, your parents, the library, and the internet. Also, try the experiment we did using other foods you eat. Remember that the more carbon dioxide the yeast makes, the more sugar is in the food.



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