

FOOD CHEMISTRY

WHAT IS A FOOD SCIENTIST?

Refer to the handout given in class.

Looking for Starch

Starch is the main polysaccharide used by plants to store glucose for later use as energy. Plants often store starch in seeds or other specialized areas of the plant cells.

A simple chemical test for starch is with *Lugol's iodine*. Lugol's Iodine is naturally a brown in colour but will always change to a blue colour in the presence of starch. The colour change occurs when starch is mixed with iodine in water to form a starch/iodine complex. Many of the details of the exact reaction are unknown but it seems that the iodine molecule gets stuck inside the coils of the starch molecule. The starch forces the iodine atoms into a linear arrangement and there appears to be some transfer of charge. The spacing of the electrons in their energy levels of the iodine molecule are just right for absorbing visible light of a specific frequency, which gives the complex its intense blue colour.

With that in mind, you're going to look for starch in some of the foods commonly eaten at Playland.

Materials:

- Lugol's Iodine in a plastic dropper bottle
- Paper Towel
- Food Samples

Data:

Gather the food in samples that are to be tested.

- 1). Place a small sample of each food on the paper towel and label each.
- 2). Add a drop of Lugol's iodine to each food sample and record the result.

Food Sample	Colour of Iodine	Starch Present (Yes or No)
Mini Donut		
Hamburger patty		
Cotton Candy		
Popcorn		
Bun or Bread		
Food of your choice: _____		

Questions/ Discussion:

What is a food scientist?

1. Create a summary of a food chemist. (3-5 sentences)
2. What are the key ingredients of a food that food chemist test for?
3. What are some of the factors included in how a food tastes?
4. Take two food that you eat at Playland and be a food scientist. Describe the taste, smell, texture and temperature. What could Playland do to improve their foods?

Looking for starch?

1. Did any item that you tested surprise you? If so, why?
2. Chew a mini donut for a minute without swallowing it. Spit out the dough on the paper towel and test it again. What are the results this time? Explain your answer

Assignment:

In groups of 3, you must create a video that encompasses your entire project.

Your video must contain an effort from each member (ie. Everyone must appear at least ONCE!). The video must contain:

- the experiment in action (film yourselves testing for starch)
- observations (explain what you see)
- answer to the questions
- maximum 5 minutes!

No paper answer please- maybe do an interview format. Upload the video to Youtube and email the url to your teacher. Be sure to include the names of all group members!

Due: _____