

Title: Analyzing Foods

Introduction: You may know that different foods provide different types of nutrients for people. You may also know that some foods are “bad” for you for some reason. What is in foods and why would some be better or worse for you to eat. What is a “good” food? To answer these and other questions, let's review what we know about the **macromolecules** that the living things we eat are made from. Write a short description about the role of each molecule in your body:

Lipids (fats)-

Proteins-

Carbohydrates-

Nucleic Acids-

Prediction: Which of these macromolecules do you think will be most commonly found in foods you enjoy?

Procedures:

1. Test 3 of the foods provided and record your results in the data table. Use the tests described below to decide if the food has the macromolecule or not. Most foods will have more than one macromolecule.
2. For each food, make a prediction what you think it will have. Put a L for Lipid, P for protein, S for Sugar and St for starch in the prediction box on your data table.
3. Perform the tests as described and then clean up.

Food Test 1: Lipid Test

1. Take a small amount of the food and rub it on the paper towel or paper bag.
2. Wait 5 minutes to see if the mark dries out. If it does not dry out and make the paper more transparent, it is a positive test for a lipid.

Food Test 2: Protein -

Biuret solution is used to identify the presence of protein. Biuret reagent is a blue solution that, when it reacts with protein, will change color to pink-purple.

What to do.

1. To a test tube, add 40 drops of liquid to be tested.
2. If testing more than one liquid, label each test tube with a marker.

3. Add 3 drops of Biuret reagent solution to each test tube. Shake gently to mix.
4. Note any color change. Proteins will turn solution pink or purple.

Food Test 3: Sugar test

Benedict’s Solution is used to test for simple sugars, such as glucose. It is a clear blue solution of sodium and copper salts. In the presence of simple sugars, the blue solution changes color to green, yellow, and brick-red, depending on the amount of sugar.

What to do.

1. Mix small amount of each food sample with distilled water to make a test liquid.
2. To a test tube, add 40 drops of liquid to be tested.
3. If testing more than one liquid, label each test tube with a marker.
4. Add 10 drops of Benedict's solution to each test tube. Carefully heat the test tubes by suspending in a hot water bath at about 40-50 degrees celsius for five minutes.
5. Note any color change. If sugar is present solution will turn green, yellow, or brick-red, depending on sugar concentration.

Food Test 4: Starch Test

1. Place a small amount of the food in a beaker and add several drop of IKI solution on the food.
2. Look for a dark color to appear. If it does, the food has starch.

Data Table: Place a + for a positive test and a – for negative. To show a very strong test result, add more +++++.

Food	Prediction	Fat	Sugar	Protein	Starch

Analysis

1. Why might a test for nucleic acids not be used for foods?
2. How accurate were your predictions?

3. In general, what foods were high in carbohydrates?
4. In general, what foods were high in proteins?
5. In general, what foods were high in lipids?
6. Which macromolecules are “best” for you?
7. Which are “bad” for you?
8. Which macromolecules should a good diet include?

Conclusion: