

# Identifying Organic Compounds

Name .....

Period .....

Date .....

## Introduction

The most common organic compounds found in living organisms are lipids, carbohydrates, proteins, and nucleic acids. Common foods, which often consist of plant materials or substances derived from animals, are also combinations of these organic compounds. Substances called *indicators* can be used to test for the presence of organic compounds. An indicator is a substance that changes color in the presence of a particular compound. In this investigation, you will use several indicators to test for the presence of lipids, carbohydrates, and proteins in various foods.

## Essential Question

What are the major types of organic compounds in some common foods and what tests are used to identify them?

## Pre-Lab Discussion

Read the entire investigation. Then, work with a partner to answer the following questions.

1. What is an indicator? How are indicators used in this experiment?
2. What is the purpose of using distilled water as one of your test substances?
3. What is the controlled variable in Part C of the lab practical?
4. What is the purpose of washing the test tubes thoroughly?
5. You have added Sudan III stain to each of the test tubes. What change indicates the presence of lipids?

Complete the table below. Use the (v) space to indicate if substance tests positive, leave blank if negative.

## Data Table

Substance	Lipid Test			Carbohydrate Test				Protein Test	
	Sudan color	Paper bag (v)	Lipids present (v)	Iodine color	Starches present (v)	Benedict's color	Sugars present (v)	Biuret color	Proteins present (v)
Water									
Honey									
Egg white									
Corn oil									
Lettuce									
Gelatin									
Butter									
Potato									
Apple juice									
Unknown									

Record the actual "observed" color each substance turned after the indicator was added to the solution.

## Analysis and Conclusions

### *Classifying, Inferring & Observing*

1. Which test substances contain lipids? State test tube number and its name.
2. Which test substances contain starch? State test tube number and its name.
3. Which test substances contain simple sugar? State test tube number and its name.
4. Which test substances contain protein? State test tube number and its name.
5. Which test substances did not test positive for any of the organic compounds? State test tube number and its name.
6. What was the margin of error in your experiment? Explain.
7. People with diabetes are instructed to avoid foods that are rich in carbohydrates. How could your observations in this investigation help you decide whether a food should be served to a person who has diabetes?
8. Your brown lunch bag has a large, translucent spot on the bottom. What explanation could you give for this occurrence?
9. What conclusion could you make if a positive test for any of the organic compounds occurred in the test tube containing only distilled water?
10. Suppose a very thin slice is removed from a peanut and treated with Sudan III stain. Then a drop of Biuret reagent is added to the peanut slice. When you examine the peanut slice under a microscope, patches of red and blue-violet are visible. What conclusions can you draw from your examination?