

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Period: \_\_\_\_\_

## Identifying Macromolecules

Week # \_\_\_\_\_

In this unit we have discussed how atoms chemically combine to form compounds or molecules. One important molecule is water. Water can dissolve solutes in solutions and can form hydrogen ions and hydroxide ions, which help to explain pH. Living cells are buffers and interact with these molecules to maintain homeostasis. Organisms also interact with carbon compounds, or macromolecules.

1. (RST.9-10.4) Using your prefix/suffix worksheet and page 1, define the term, **macromolecule**.

You are actually quite familiar with the four types of macromolecules – carbohydrates (complex carbohydrates like starch, and simple carbohydrates like sugar), protein, lipids, and nucleic acids. Not only do they make up the cells in your body but you also consume them everyday. However, you may be surprised to learn what macromolecules actually make up the food you eat. In this activity we will use several indicators to determine the type of macromolecule that make up different food samples.

2. (RST.9-10.2) What is the purpose of this activity? \_\_\_\_\_

Macromolecule	Indicator	Negative Result	Positive Result
Complex Carbohydrates	Iodine	Amber or light reddish-brown	Dark purple or dark blue, almost black
Simple Carbohydrates	Benedict's	Blue	Red, yellow, or green
Protein	Biuret	Blue	Purple, pink, or lavender
Lipids	Paper bag	No translucent or grease spot	Translucent or grease spot

*Directions: At each station, first record the food item tested, then predict the type of macromolecule that mainly makes up that food item. Use the table above to determine the results of the indicator tests (positive or negative), and finally explain the results.*

Station 1: \_\_\_\_\_ (food item)

- Prediction: I predict \_\_\_\_\_ is mainly composed of \_\_\_\_\_.  
(food item) (macromolecule)

Indicator	Iodine	Benedict's	Biuret	Paper bag
Result				

- Results: \_\_\_\_\_ is mainly composed of \_\_\_\_\_  
because of the positive result(s) from the \_\_\_\_\_ indicator(s).

Station 2: \_\_\_\_\_ (food item)

- Prediction: I predict \_\_\_\_\_ is mainly composed of \_\_\_\_\_.  
(food item) (macromolecule)

Indicator	Iodine	Benedict's	Biuret	Paper bag
Result				

- Results: \_\_\_\_\_ is mainly composed of \_\_\_\_\_  
because of the positive result(s) from the \_\_\_\_\_ indicator(s).

Station 3: \_\_\_\_\_ (food item)

- Prediction: I predict \_\_\_\_\_ is mainly composed of \_\_\_\_\_.  
(food item) (macromolecule)

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Period: \_\_\_\_\_

Indicator	Iodine	Benedict's	Biuret	Paper bag
Result				

- Results: \_\_\_\_\_ is mainly composed of \_\_\_\_\_ because of the positive result(s) from the \_\_\_\_\_ indicator(s).

Station 4: \_\_\_\_\_ (food item)

- Prediction: I predict \_\_\_\_\_ is mainly composed of \_\_\_\_\_.  
(food item) (macromolecule)

Indicator	Iodine	Benedict's	Biuret	Paper bag
Result				

- Results: \_\_\_\_\_ is mainly composed of \_\_\_\_\_ because of the positive result(s) from the \_\_\_\_\_ indicator(s).

Station 5: \_\_\_\_\_ (food item)

- Prediction: I predict \_\_\_\_\_ is mainly composed of \_\_\_\_\_.  
(food item) (macromolecule)

Indicator	Iodine	Benedict's	Biuret	Paper bag
Result				

- Results: \_\_\_\_\_ is mainly composed of \_\_\_\_\_ because of the positive result(s) from the \_\_\_\_\_ indicator(s).

Station 6: \_\_\_\_\_ (food item)

- Prediction: I predict \_\_\_\_\_ is mainly composed of \_\_\_\_\_.  
(food item) (macromolecule)

Indicator	Iodine	Benedict's	Biuret	Paper bag
Result				

- Results: \_\_\_\_\_ is mainly composed of \_\_\_\_\_ because of the positive result(s) from the \_\_\_\_\_ indicator(s).

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- Which test results surprised you the most? Why? \_\_\_\_\_
  - Based on the indicators, give another example of a food mainly made of each type of macromolecule.
    - Complex carbohydrates: \_\_\_\_\_
    - Simple carbohydrates: \_\_\_\_\_
    - Protein: \_\_\_\_\_
    - Lipids: \_\_\_\_\_
  - For each part of a Big Mac, name the type of macromolecule and what indicator shows a positive result.
    - Bun: \_\_\_\_\_
    - Patty: \_\_\_\_\_
    - Lettuce: \_\_\_\_\_
    - Tomato: \_\_\_\_\_
    - Cheese: \_\_\_\_\_