



Macromolecule Virtual Lab



Standards Covered:

SB1. Students will analyze the nature of the relationships between structures and functions in living cells.

c. Identify the function of the four major macromolecules (i.e., carbohydrates, proteins, lipids, nucleic acids).

Purpose: to understand how to use various chemical reagents to assay for the presence of the major molecules of life.

Go to the website or scan the QR code: <http://faculty.kirkwood.edu/apeterk/learningobjects/biologylabs.htm>

CARBOHYDRATES

Scroll down to the bottom and click on **Carbohydrate**

1. What do carbohydrates consist of?
2. Plants store carbohydrates as _____
3. Insects store carbohydrates as _____
4. How do you test for sugars?
How does it work?

Click on Add Benedict's Reagent

Click on Hot Water Bath

1. Which solutions changed colors?
2. What does this mean?

Click on the scroll down bar on the right hand side and go to starches

3. How do you test for starches?
How does it work?

Click on Add Iodine

4. Which solutions changed colors?
5. What does this mean?

PROTEINS

Click on the tab marked protein

1. What are the chains that make up proteins?
2. What test do we use to test for proteins?

How does it work?

Click on Add Biuret Reagent

3. What solutions changed color?
What does it mean?

LIPIDS

Click on tab marked Lipids

1. What test is used for lipids?
2. How does it work?
3. What color do the solutions change if lipids are present?

Click on add Sudan III

4. What solutions changed colors?
5. What does this mean?

EVERYDAY FOODS

Click on the tab marked Everyday Foods

Choose the gelatin sample to test first

Click Add Benedict's Reagent & Click hot bath

1. Was there presence of sugars?
2. How do you know?

Click on Add Iodine

3. Was there presence of starches?

4. How do you know?

Click on Add Biuret Reagent

5. Was there presence of proteins?
 6. How do you know?
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Click on the tab marked Everyday Foods

Choose the Apple Juice sample to test

Click Add Benedict's Reagent & Click hot bath

1. Was there presence of sugars?
2. How do you know?

Click on Add Iodine

3. Was there presence of starches?

4. How do you know?

Click on Add Biuret Reagent

5. Was there presence of proteins?
 6. How do you know?
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Choose the Ritz Cracker sample to test

Click Add Benedict's Reagent & Click hot bath

1. Was there presence of sugars?
2. How do you know?

Click on Add Iodine

3. Was there presence of starches?

4. How do you know?

Click on Add Biuret Reagent

5. Was there presence of proteins?
 6. How do you know?
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Choose the Skim Milk sample to test first

Click Add Benedict's Reagent & Click hot bath

1. Was there presence of sugars?
2. How do you know?

Click on Add Iodine

3. Was there presence of starches?

4. How do you know?

Click on Add Biuret Reagent

5. Was there presence of proteins?
6. How do you know?

Analysis Questions:

1. What is the purpose of this lab?
2. How are the reagents useful in determining which macromolecules are present?
3. What is one big thing you learned from performing this lab?

***Save this lab and staple it to the Mag-Mush Lab**