**Purpose**: All living things contain four types of organic macromolecules, which are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Today we will test for three of them using indicator tests. You will be provided with 4 samples of food (tofu, olive oil, applesauce, mashed potato) and must determine which type of macromolecule is found in the food.

For each macromolecule, you must describe 1) name of the test you will use 2) the procedure you will follow to perform each test 3) what the positive result will look like

**Lipid:**

**Protein:**

**Carbohydrate (glucose):**

**Carbohydrate (starch):**

Teacher signature: \_\_\_\_\_\_\_\_\_\_\_ DO NOT MOVE ON WITHOUT THIS

**Table 1: Results for Presence of Organic Macromolecules**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Samples** | **Brown paper towel** | **Iodine** | **Benedicts** | **Biurets** | **Food?** |
| **Sample #1** | Observations:  Positive/Negative | Observations:  Positive/Negative | Observations:  Positive/Negative | Observations:  Positive/Negative |  |
| **Sample #2** | Observations:  Positive/Negative | Observations:  Positive/Negative | Observations:  Positive/Negative | Observations:  Positive/Negative |  |
| **Sample #3** | Observations:  Positive/Negative | Observations:  Positive/Negative | Observations:  Positive/Negative | Observations:  Positive/Negative |  |
| **Sample #4** | Observations:  Positive/Negative | Observations:  Positive/Negative | Observations:  Positive/Negative | Observations:  Positive/Negative |  |

1. Why did we test for starches differently than for simple sugars?
2. Which substances were rich in protein?
3. Which substances were rich in fat molecules? Why might it be dangerous to have foods high in fat?
4. Which substances did not dissolve in water?
5. Complete this chart:

|  |  |  |
| --- | --- | --- |
| **Macromolecule** | **Structure** | **Example of where it is found in plants** |
| Carbohydrates |  |  |
| Lipids |  |  |
| Proteins |  |  |