**Biochemistry Lab #4: Food Biochemistry**

**Purpose:** To link what we have studied in class with everyday applications (food science, nutrition, and health)

**Materials:** List all in your notebook. You will be conducting ALL of the biochemical molecule tests on 5 named drinks you might purchase at the grocery store. Include the drink names in this list.

**Procedure:** You may, for procedures you have already written out (Benedict’s test for reducing and non-reducing sugars, biuret), say “See page \_\_.” You need to write out a general procedure as well as a detailed procedure for lipid testing. *As you conduct your tests, make sure you are collecting data that will enable you to compare them to one another (for example—time taken to color change for reducing and non-reducing sugars test)!*

**Hypothesis:** Generate a chart with all of your drinks and tests. For your hypothesis you are simply going to record whether you think the tests will be positive or negative for each of your food items. You do not need to include expected observations (green/red/orange Benedict’s, for example).

**Data:** Generate a data table in which you will record the **observations** for all of the tests on each of your ten food items. This means that you’re not just saying whether the test is positive or negative, but you’re describing exactly what happened visually to your test sample, and time taken for a change to develop. You will likely need more than one page for this table.

**Conclusions and Extensions:** Copy and answer the following questions in your lab notebook. You will need to do some outside research for some of these.

1. Which of the foods tested for the MOST amount of reducing sugars? Lipids (estimate)? Proteins (estimate)? Why do you think this is?
2. Compare your hypothesis chart with your data table. Overall in what areas were you right or wrong? Was there one biological molecule you were particularly bad at predicting whether it would be present or absent?
3. Select three incorrect hypotheses that you were particularly surprised by (if you had fewer than three incorrect, select three that you think are odd results) and justify them. You might need to conduct outside research.
4. Research: what is a calorie in nutrition? What does it represent and why is it important to label foods by calorie content?
5. Why is it ok to eat high calorie foods sometimes? Why is it important to consume some lipids?
6. Select your favorite snack food. Copy out all of the nutritional facts and answer the following questions:
	1. Is the food “healthy?” Why or why not?
	2. What biological molecule tests would your snack food test positive for? What ingredients in the ingredient list lead you to think this?
	3. What biological molecule do you believe your food is particularly rich in? Why?
	4. If you were to only consuming this food for the rest of your life, what would your health be like? How much of this snack food could you eat each day and still remain within a 2,000cal/day diet? Would this satisfy you?