How Much Energy In The Foods You Eat?

Directions: Please be sure to read all information in this lab and follow all of the steps in this lab.

Background: The food you eat contains chemical energy stored in molecules. The energy is measured in units called “Calories.” Your body converts the chemical energy in food into chemical energy that your body can use to function. If you eat more food than your body needs, your body will convert some of the molecules into fats and store it in your body until your body until you need it.

When you are physically active, you use more Calories than when you’re not active. The more active you are, the more Calories your body needs to function properly.

If your body needs more energy than it can get from the food you eat, your body breaks down the fat stored in your fat cells. This releases chemical energy that your body can use. It also reduces the amount of fat in your body and causes you to lose weight.

Nutrition labels let you know the total number of Calories in a serving size of food. The label contains other information about Calories, such as the Percent Daily Value (%DV) and Calories from Fat. “Calories from Fat” information is particularly useful for people who need to restrict their fat intake.

1. Go to the following website:
2. Go to labs and click on Virtual Labs.
3. Click on the lab Calorimetry.
4. Read the Problem on the screen. YOU MUST READ!!!! After reading the problem, click the X at the top right hand corner of the screen.
5. Explore the lab. You must click on all the items listed in the lab before moving on. Once you have clicked on all food items, click on the procedure tab. NOTE: You will not be able to click on the procedure tab if you do not check all of the items listed.
6. Read all information in the procedure section of this lab. Be sure to open the lab notebook and type something in before moving on.

Make a prediction:

List the five food samples you’ve selected in order from fewest to greatest number of Calories per gram.

1. __________________________ (fewest number of Calories per gram)
2. __________________________
3. __________________________
4. __________________________
5. __________________________ (greatest number of Calories per gram)
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Data Table 1

<table>
<thead>
<tr>
<th>Food Sample</th>
<th>Initial Mass Food Sample with Crucible (g)</th>
<th>Final Mass Food Sample with Crucible (g)</th>
<th>Change in Mass (g)</th>
<th>Initial Water Temp (°C)</th>
<th>Final Water Temp (°C)</th>
<th>Change in Water Temp (°C)</th>
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Data Table 2

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<thead>
<tr>
<th>Food Sample</th>
<th>Change in Mass (g)</th>
<th>Change in Water Temp (°C)</th>
<th>Calories in Food Sample (Cal)</th>
<th>Calories per gram (Cal/g)</th>
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Analyze and Conclude

1. **Analyze**: Rank your foods according to your results. Based on the energy in 1g of sample, were your predictions correct? What might have accounted for any differences between your predictions and the actual values?

   **Predictions**
   1. ____________________
   2. ____________________
   3. ____________________
   4. ____________________
   5. ____________________

   **Results**
   1. ____________________
   2. ____________________
   3. ____________________
   4. ____________________
   5. ____________________

2. **Evaluate**: How might multiple trials improve the accuracy of your results?

3. **Apply**: How can this information be used to help plan a healthful diet?

4. **Evaluate**: What are some other pieces of information about food that this experiment did not provide? What else you need to know to make healthful decisions about your diet?

5. **Compare and Contrast**: What is the relationship between the release of energy in the form of heat and Calories?