Student Instructions

Thermal Heat Transfer - Calorimetry

Energy Content of a Dorito

**Chemistry 12**

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The Canadian government has become concerned with the caloric content of certain snack foods that are available for purchase in Canada. The government is concerned that the nutritional content listed on the food packaging may be misleading and has contracted the “Really Good Lab Company” to evaluate the energy content of Zesty Cheese Doritos. Your task is to create and perform a n experimental design that can determine the caloric content of Zesty Cheese Doritos so that they can better inform the public.

Part 1: Planning and Creating your ExperiMent

In your small groups research the energy content of the Zesty Cheese Doritos using the questions on your Activity Sheet to guide your thinking. After that examine the laboratory materials you have access too and brainstorm some experimental designs that will allow you to measure the energy content of a Zesty Cheese Dorito.

Below is a list of materials that are provided. You do not have to use all the materials presented and can add additional materials if available from your teacher.

* 7 x Retort stands or wire coat hanger.
* 7 x thermometer
* 1 bag of Zesty Cheese Doritos Chips
* 7 x Match books
* 1 large roll Aluminum Foil
* 7 x Empty Pop can, with tab still attached
* Electronic Weigh Balance
* 7 x Pencil
* Water
* 7 x graduated cylinder or another instrument for measuring volume.

Be sure to use proper scientific techniques and controls when designing your experiment. Ask yourself these questions:

* **What am I measuring?**
* **How will I measure it?**
* **How many trials are necessary.**
* **What is my variable?**
* **What are my controls?**
* **How will I record meaningful data?**
* **How will I communicate my findings?**

After your group has come up with a suitable experimental design, check with your teacher to see if it is adequate to be able to find the answers you are looking.

Part 2: Conducting your experimnet

In your small groups gather the necessary materials and conduct your experiment. Be sure to keep a procedural record of what exactly you did. Also make sure to collect appropriate data from your experiment and organize it appropriately (i.e., data table). After you have completed the desired amount of trails clean-up your work area and return any appropriate materials.

Part 3: Evulation of Data and Making Letter

In your small groups begin to craft how you will formulate your formal letter. In your letter to the Canadian government, you should communicate your results along with your rationale of why this value is valid or invalid. Make sure to support this letter with data and procedural notes. It is likely your group made some mistakes and that is ok, just be sure to explain where you went wrong and correct for those mistakes. It is a good idea to support your letter with a data table or figures if appropriate for your experimental design.