Chemical Inquiry Project

Mrs. Lavigne

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**The Purpose:**

 In all areas of life we make decisions and we base our choices on information we have at the time. For example, you decide what to wear each day based on information you feel is important at the time – each person will have their own reasons for deciding which piece of information they have is the most important to base those decisions on – weather, style, peer pressure, what’s clean etc. In science, we use research to gain information to make informed decisions and hypothesize about what to do next. In this project you will be practicing research skills and presentation skills for a target audience. During the preparation for the presentations we will have a guest speaker teach the class about key features to think about when creating an infographic as one means of presenting your research. The students will be able to choose if these will be directly used in this project, but the exposure to learning how to create an infographic for a key audience can be a life skill used in writing resumes, creating business opportunities, communicating important information to a wide variety of audiences.

At the end of this project you should be able to use scientific language to describe the product you chose, create a method of sharing your knowledge with a large group of people with ease, citing your research sources properly, create a finished project that you will be proud to be used as a model for future researchers.

**The Problem to Solve:**

We have received a letter from a concerned parent group, from our health region, regarding the potential risks of regular household chemicals that children may be harmed by if the parents are unaware of the potential hazards they pose.

**Method:**

Students will research products that are found in their own homes and are used on a daily basis. Students will then create a platform to share their knowledge with the key audience of busy parents and supply details for deeper understanding to the group.

**STEP 1: Select Your Product**

You will need to select a product that interests you, but also one that is commonly found, used daily and is typically not considered “high risk” ie hairspray is commonly left on bathroom counters, batteries can be found all around the house, but cleaning supplies like bleach are stored in cupboards with child proof locking devices.

**STEP 2: Research**

You will need to find research that gives you the minimum of the following information:

1. Name, and formula of compounds for your ingredients
2. Atomic Mass of ingredients
3. Classify as a solid, liquid or gas at room temperature
4. Find images of the chemical structure of your ingredients
5. Give at least 6 other useful facts about the chemical ingredients. Here’s some ideas you can include for these:
	* Toxicity high or low?
	* Absorbed through skin? Does method of exposure impact the danger level?
	* Does the product manufacturing date increase/decrease the level of danger - why? What did they change?
	* Are the effects long or short term?
	* If long term will it affect development of the child?
	* Does temperature affect your products danger rating?
	* Other than calling poison control asap what are the most important steps to take to ensure best outcome?
	* Are there other similar products that are better or worse and how could one know? Ie what are the key ingredients to avoid or look for?

**STEP 3: Making Good Choices**

At this point you have plenty of information about your product to share. Now, you will select the best information to compose your information sharing design. Your design will need to include the research you have from Step 2 and of course clearly identify the risk your substance poses.

You will also need to select the colors you use. You can use as many colors as you want (at least 2 are required). You must have a reason related to the ingredients as to why you selected the color. State your colors and reasons. (Example: “I selected orange because Tennessee’s color is orange and green because the mountains in Tennessee are covered with trees.”)

Ie:

|  |  |
| --- | --- |
| Color 1:  | Reason:  |
| Color 2:  | Reason:  |

**STEP 4: Design Time!**

Now it is time to create your design. You can use an idea from class or create your own way of sharing your research. The method you choose is only restricted by the parameter that is has to be sharable so parents would be able to see it. These research projects will be shared with the parent group and potentially used as examples for other chemistry classes to continue to build this project.