**Class**: Applied Chemistry

**Project Idea**:

Students will research, design, and perform an experiment to test consumer value for a chosen product much like the work from Consumer Reports. They will test a brand name product and an equivalent generic product to determine which product provides the best value. They will then communicate this information in a consumer report.

This project allows students to practice designing and researching a problem in science, as well as practice science lab techniques. In addition, students will learn skills to help them be vested consumers in the products they buy as well learn math skills to help them determine product value.

**Driving Question:**

Which product provides more consumer value: generic or brand name products?

**Significant Content:**

* S2.1 Devise ways of making observations to test proposed explanations.
* S2.2 Refine research ideas through library investigations, including information retrieval and reviews of the literature, and through peer feedback obtained from review and discussion.
* S2.3 Develop and present proposals including formal hypotheses to test explanations,
* S2.4 Carry out a research plan for testing explanations, including selecting and developing techniques, acquiring and building apparatus, and recording observations as necessary.
* S3.1 Use various means of representing and organizing observations (e.g., diagrams, tables, charts, graphs, equations, and matrices) and insightfully interpret the organized data.
* S3.2 Apply statistical analysis techniques when appropriate to test if chance alone explains the result.
* S3.3 Assess correspondence between the predicted result contained in the hypothesis and the actual result, and reach a conclusion as to whether or not the explanation on which the prediction is supported.
* S3.4 Using results of the test and through public discussion, revise the explanation and contemplate additional research.
* S3.5 Develop a written report for public scrutiny that describes the proposed explanation, including a literature review, the research carried out, its results, and suggestions for further research

* [CCSS.ELA-Literacy.RST.11-12.1](http://www.corestandards.org/ELA-Literacy/RST/11-12/1/)
Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.

* [CCSS.ELA-Literacy.RST.11-12.3](http://www.corestandards.org/ELA-Literacy/RST/11-12/3/)
Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text

* [CCSS.ELA-Literacy.RST.11-12.9](http://www.corestandards.org/ELA-Literacy/RST/11-12/9/)
Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.
* CCSS.ELA-writing. College and Career Readiness Anchor Standards for Writing
* Production and Distribution of Writing 4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
* CCSS.Math (9-12) Interpreting Categorical & Quantitative Data S-ID 1) 1. Represent data with plots on the real number line (dot plots, histograms, and box plots).
* Making Inferences & Justifying Conclusions S-IC5. Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.

**Products**:

**Team**: Consumer Report Presentation

The presentation will include the process students used to investigate each product, images of the products throughout the testing process, and charts and graphs depicting the lab results.

**Individual**: Lab Reports

**Public Audience**: Consumer Panel (teachers, administrators, peers, and parents)