**Final Project Physical Science**

**Project Objectives**

**Students will be able to…**

* Utilize the scientific process to test one or more variables in a controlled experiment and in some cases isolate each variable.
* Design and present the teacher with a full project plan, including a question, hypothesis, detailed procedures, safety plan, data collection plan and presentation format.
* Conduct structured background research on their topic and submit note cards or summaries of their research with their project plan
* Maintain a journal of their project development, research, implementation and completion.
* Collect, organize and analyze data from their controlled experiment using tables, graphs, and other data collection/analysis devices.
* Use Excel to organize, analyze and present data from their experiment.
* Present the purpose, design and a summary of the results of their experiment using a variety of professional visual presentation options.

**Safety**

* **All students must present a full procedure and project design that will be signed by parents, teacher and administrator (when necessary) before implementing their project.**
* Students using chemical, flammables, or other potentially dangerous materials must submit a safety plan and contract to be signed by each student, teacher and parent.
* Students will never work with dangerous materials without the supervision of an adult.
* Students, who would like to use chemicals, will first investigate their safety precautions, storage code and provide a neat list to teacher for approval and supplies.

**Topics**

*Students can explore any topic related to physical science that is approved by the teacher.*

**Requirements**

*Each student/group will need to complete the following;*

1. Complete background research about your topic.
2. Complete a project design sheet including full methods/materials, safety plan and necessary signatures.
3. Conduct an experiment, collect data and maintain a project journal.
4. Write a final paper in lab report format.  (Individual)
5. Present their project to the class using a digital movie, or presentation.

**Timeline**

|  |  |  |  |
| --- | --- | --- | --- |
| **Assignment** | **Date** | **Item to Turn In** | **Pts** |
| **Project Topic** | **4/8** | Topic, rough question, on paper turned into basket. | 20 pts |
| **Background Research** | **4/16** | Complete background research paper or write-up. | 40 pts |
| **Design Sheet Approval** | **4/23** | Project design sheet | 40 pts |
| **Lab Report** | **5/9** | Complete lab report and self-evaluation | 50 pts |
| **Project Presentations** | **5/14-16** | Multimedia presentation of project | 30 pts |

**In Class:**

Each week we will have a “project day” with a mini-lesson on one aspect of the project and then work time.

* Mini-Lessons
  + Choosing a topic
  + Background Research
  + Designing a Testable Question
  + Variables: Independent vs. Dependent and How to Control Them
  + Methods/Materials/Safety Plans
  + How to Keep a Science Journal
  + Entering and Analyzing Data
  + Writing a Lab Report
  + Writing a Conclusion
  + Presentation Expectations
  + You may also choose to do some experimentation during class if you need to.
  + This project will not be all completed during these project days it will require significant time outside class.

**Project Checklist**

**Before you Experiment**

Project Question

Background Research

Project Design Sheet

**During Experiment:***All in your**Experiment Journal*

Data Collection (data sheet)

Entry for every day you work

Date

All observations

Everything you change on experiment

Video, pictures or diagrams of experiment

**After Experiment**

Project Lab Report (individual paper)

Project Presentation (Group: Movie or presentation)