2018 Science and Engineering Project Guidelines

Logistics

- You are choosing to participate-please take it seriously and do your best work. Cite sources where you use them and be meticulous and honest in your collection of data.
- You may work alone, in pairs, or in groups of 3, with grade-level peers. If you work in a group, it is your choice to do so, and all group members are responsible for completing the project. Choose partners carefully!
- Projects must be completed in time for the Fair. The Fair will be held on March 29, 2018. That's only 2.5 months away!

Projects **must not** involve:

- blood, tissue, teeth, or bodily fluids
- non-human vertebrates or their parts (except eggs)
- **ingestion or inhalation of anything** (nothing in mouth)
- **pathogenic agents** (bacteria, viruses, **mold**, fungi, etc.)
- recombinant DNA
- carcinogenic or mutagenic chemicals
- compressed gas
- controlled substances (including Rx, alcohol, tobacco)
- explosive or **toxic chemicals**
- **hazardous** substances or **devices** (ie. air soft guns)
- high voltage equipment
- lasers (except infrared thermometers)
- xrays or nuclear energy
- radioactive materials

Choosing a Project

- What are you interested in?
- What do you want to find out?
- Do you have a way to test it?
- Is it safe?
    - Anything involving exercise, power tools, flames, etc. will require adult supervision and completion of Regional Form D
- Will the materials be affordable/obtainable?
- Do you have enough time? (Experiments should be completed no later than February 26)
- Do you plan on using human participants?
    - You should aim for at least 20 participants, all of whom must sign a Regional Form C (and have a parent/guardian sign if they are under 18) BEFORE participating in your project.

Project Ideas

- Science Buddies: Science Fair Project Ideas (This is meant to spark your own creativity. If you find a project that interests you, think about ways to make it your own.)
  https://www.sciencebuddies.org/science-fair-projects/project-ideas

- Steve Spangler Science (A lot of these are instructions for creating things-your job will be to figure out which variable you want to change and write your own procedure.)
  https://www.stevespanglerscience.com/lab/experiments/

- ipl2 for Kids: Science Fair Project Resource Guide (This site is no longer updated, so there may be some broken links, but several of the links are still active and helpful.)
  http://www.ipl.org/div/projectguide/choosingatopic.html

- Brain Games (This series is also available on Netflix. Check out some of the episodes for ideas about things you can test and perhaps try to change.)
  http://channel.nationalgeographic.com/brain-games/

*If you've decided to participate, start your logbook using the guidelines on the next page. Once you have chosen 3 possible topics, fill out the **2018 Science/Engineering Project Proposal** form found at:*
https://goo.gl/forms/CwAplLFZXDZf1HBb2

Check your school email to see if your topic has been approved.

Setting Up a Logbook

- Start now! Use a notebook that is not meant to have pages torn out and write in pen.
- Write your name on the front cover. (Partners should each keep their own logbooks.)
- Write "2018 Science and Engineering Project" underneath.
- Begin numbering the pages in the bottom outside corner. (You can finish this later.)
- Label the 1st page "Table of Contents".
- Your Table of Contents should include the following sections:
    - Project Ideas
    - Research
    - Experiment Design
    - Daily Log
    - Conclusions
    - Sources
- Label the next page "Project Ideas" and record the page # in the Table of Contents.

Explanation of Sections

- Project Ideas
    - This is where you write your initial ideas. You might list your interests, several possible questions, concerns about the questions, ways you might test things, other people's input, etc…
- Research
    - This is where you'll take the notes for the research paper (8th grade) and background for your report/trifold. Start a new page for each resource you use and label it. Make a list of your sources in the last section-8th grade: use MLA format (like your History Research Paper).
- Experiment Design
    - Once your topic has been approved, this is where you will work out your Question, Hypothesis, Materials, Procedure, and Data Table. This will be your "Rough Draft" and you should record any changes your teacher suggests.
- Daily Log
    - Each day you do something related to your project, create a dated journal entry and explain what you did.
- Conclusions
    - After you carry out your experiment, write what you learned and any new questions you have.
- Sources
    - Use MLA format to cite all of your sources. They will appear chronologically (in the order you find them) in your notebook, but be sure to list them alphabetically in your research paper/lab report.

General Guidelines

- Write in your logbook in pen whenever you do something related to your project.
- Date every entry.
- Never erase or cover what you think are "mistakes". Simply draw a single horizontal line through it and continue.
- Write it like a journal and include pictures, photos, relevant materials-for example, this might be an entry in the Daily Log section:

1/30/18

Today, I went to Grocerymart to purchase the paper towels for my experiment. I was surprised by the price difference for the different brands. SuperSorb is twice as expensive as EconoWipe ($2.26 versus $1.23 per roll)! I wonder if it is twice as absorbent. The receipt is attached.

Write everything for your project in your Logbook!