2018 Science and Engineering Project WIN Meeting 2

1/31-grade 8; 2/1-grade 7

You already should have:

- Turned in your green form.
- Chosen partners.
- Started a logbook.
- Decided on a topic.
- Completed the 2018 Science/Engineering Project Proposal Form.

You already should have:

- Refined your question.
- Completed the Question Proposal Form.
- Researched topics related to your question.
- Made a list of resources.
- Submitted your resources on the Background Information Source Form.
- Taken notes from your resources in your logbook.
- Begun to develop your hypothesis.

Agenda

- Attendance
- Research/Background Info
- Hypothesis
- WRSEF Forms
- Materials
- Procedure
- Data Table

Background

- Find your sources. (Check them with Mrs. GravesonPayne.)
- Read your sources.
- Take notes in the Research section of your logbook and record the source citations in the Sources section of your logbook.
- Write a paragraph introducing the importance of your topic.
- Write one to several paragraphs explaining the main components of your topic. **This is not explaining your procedure**, rather, you are defining and explaining key terms and prior research.
- Write a concluding paragraph that ends with your underlined hypothesis.
- List your sources on a separate piece of paper using MLA citation format.
- Type and print this. Email a copy to Mrs. GravesonPayne and hand Mrs. GravesonPayne a paper copy.

Writing a Hypothesis

- It is an objective statement. Write it like it is a fact. (No “I think…”)
- It should state who the participants are (if there are any), what changes during the testing, and what the effect of the changes will be.
- It should be informed by your research.
- Teachers and judges should be able to guess your question after reading a well-written hypothesis.

Hypothesis Examples

- How does light color affect the *height of plants*?
  - Pea plants grown under white light will grow taller than pea plants grown under green, red, or blue light.
- Does exercise improve *performance on math tests*?
  - 8th grade students who exercise for 15 minutes before they take a math test will get lower scores than students who do not exercise before taking the test.
- Will *spelling scores* improve if students rewrite the words 5 times or spell them aloud 5 times?
  - 3rd grade students who rewrite their spelling words 5 times will correctly spell more words than students who spell them aloud 5 times.
- Which material is the best insulator (slows *temperature change* the most)?
  - The temperature of hot water will decrease slower in a foam cup than it will in a plastic or paper cup.

WRSEF Forms

- You will be completing forms to determine eligibility to enter the Worcester Regional Science and Engineering Fair. All students planning to participate in the Douglas fair must complete these forms.
- Right now, neatly write your name at the top.
- We will not be filling in anything else yet, but you should refer to Form 1B for your Experimental Design layout.
- Do you need a Form C or D?
  - Are there people participating in your project? You need a Form C.
  - Are there any potentially dangerous aspects of your project? (power tools, exercise, flame, etc.) You need a Form D.
  - Mrs. GravesonPayne will help you complete these once your procedure has been approved.

Materials

- List the materials needed for your experiment. (You may want to do this after your write your procedure.)
- Be specific. Include amounts and brands. (You may need to go back and add this after you purchase them).
- Use a bulleted list.
- If your procedure requires a specific setup, draw and label a diagram of it.

Procedure

1. Write your procedure as a series of numbered steps.
2. Give instructions (like a recipe).
3. Begin each step with a verb.
4. Be clear and specific.
5. Don't just copy a procedure from Science Buddies or another site. Often those procedures explain background information or give options for ways of doing things. Your procedure should reflect the exact steps you plan to take when carrying out the experiment. Those procedures also often use "You". Please don't do that.

ALSO: Set up the data table you will use to collect your data during the experiment.

What's Next?

The following things should be completed by **Monday, 2/5:**

- Background information:
  - Type your background information in a research paper format. (It should be about a page long, but can be longer. Cite your sources. (8th grade-as you have been shown for History/ELA)
  - Underline your hypothesis.
  - Submit it to Mrs. GravesonPayne by email AND as a paper copy.
  - Each group only needs to submit one paper.
- Experimental Design:
  - Use Research Plan Form 1B to set up your Experimental Design.
  - Do a rough draft in your logbook in the appropriate section.
  - Type the information set up as it would appear on Form 1B (but NOT on Form 1B).
  - Don't forget that you ALSO need to include a data table (without data).
  - Submit it to Mrs. GravesonPayne by email AND as a paper copy. We will peer edit next week.
- Do you need a Form C or D?
  - Are there people in your project? You need a Form C.
  - Are there any potentially dangerous aspects of your project? (power tools, exercise, flame, etc.) You need a Form D.