Research Paper Guidelines

- **The research paper must be typed and turned in using Google Classroom.**
- **The paper must be in Times New Roman 12 font and double-spaced.**
- **Every page should be numbered except the title page, abstract, and table of contents.**
- **Each section of the research paper should be on a separate page.**

Title Page: This has the title of your project centered in the middle of the page and nothing else. It must be in Times New Roman 12 font.

Abstract: The abstract needs to be a maximum of 250 words on one page. An abstract should include the a) purpose of the experiment, b) procedures used, c) data, and conclusions. It also may include any possible research applications. This part of the report is found immediately following the title page. Do not use personal pronouns in this section (me, my, I, etc.…).

SAMPLE ABSTRACT

The purpose of this investigation is to determine, from the samples that were given by several companies, which parachute will descend at the slowest rate. Parachutes were made out of the materials supplied by the companies. A total of 27 parachutes were made. They were wing-shaped and 39cm in width and 20cm in length. To make the parachutes, cut 108 pieces of kite string that are going to be 40cm a piece. Now tape 4 strings to the four corners. Then, tie the ends together. Next, take two pennies and tape them to the tied ends. Now do the same for the other parachutes. Find a high place off the ground like a stairway or ladder to drop the parachutes. Now, measure out 8 feet. Make sure the area at the bottom is flat. Take the first parachute, drop it, and time it as it descends. Stop the timer when it hits the ground. Repeat this step ten times a piece for each parachute for valid results. Record the data. Previously, it was found that a parachute by the name of Tandem Icarus descended at the slowest rate. This year three more parachutes were added to the research. The results this year showed that a parachute by the name of Prima descended at the slowest rate. Overall, the hypothesis was supported because the parachute named Prima did descend the slowest.

Table of Contents: This should list each part of the research paper beginning with the rationale, and tell what page you can find it on.

Rationale: Include a brief synopsis of the background that supports your research problem and explain why this research is important, and if applicable, explain any societal impact of your research. This is where you use your five sources. You must use parenthetical citation in the discussion to give credit to your sources. Do not use personal pronouns. The rationale should be around two paragraphs long with at least ten sentences.

Research Question: This is the purpose of the experiment and should be phrased as a question. Do not include personal pronouns.

Hypothesis: The hypothesis should be stated in an if…then… statement and should not have any personal pronouns.

Expected Outcomes: Simply state the expected outcomes of the experiment. For example, the expected outcome in the experiment above would be that the parachute with the slowest descent will be identified.

Procedure: Describe in detail the materials, equipment, methods, experiments, and controls used in your project. Your research should be detailed enough so that someone would be able to repeat the experiment from the information in your paper. The materials can be listed and the methods should be in paragraph form or numbered. In this section, you must also identify any potential risks and safety precautions needed. Do not use personal pronouns.

Results: Describe your observations. Include the most important of your observational data here as an example. Include graphs, tables, photographs, and drawings as appropriate. Do not use personal pronouns. I have attached a great website to visit if you need help making a graph. On this website, you type in the information and the graph is made for you!

Graphing website: **http://nces.ed.gov/nceskids/Graphing/classic/index.asp**

Discussion: This is the essence of your paper. Compare your results with theoretical values, published data, commonly held beliefs, and/or expected results. State if your hypothesis was supported or rejected and explain why. Include a discussion of possible errors. How did the data vary between repeated observations of similar events? How were your results affected by uncontrolled events? What would you do differently if you repeated this project? What other experiments should be conducted? **The discussion should be at ½ page to one page in length.** You may use personal pronouns in the discussion.

Conclusion: Briefly summarize your results. Support those statements with data. Be specific, do not generalize. Never introduce anything in the conclusion that has not already been discussed. You must state in your conclusion if your hypothesis was supported or not. Do not ever use the word "proven" when mentioning your hypothesis. Only use the words "supported" or "rejected". Also, you may mention practical applications. Do not use personal pronouns. **The conclusion should be about one paragraph long.**

Acknowledgements: In this section, you must acknowledge all help which you received. You may use personal pronouns in this section. Typical people to acknowledge in this section are your parents that may have helped you purchase supplies or work on the experiment and possibly your teacher for the same reasons.

Bibliography: List the references that are cited in your paper, and only those. You are required to have a minimum of three references, but five is best. References should be cited in proper MLA format and should be in alphabetical order. In Google Docs, get the add-on "Easy Bib Bibliography Creator". This will cite your references in the proper format for you. You may also use this website. http://owl.english.purdue.edu/owl/resource/747/01/