Research Plan (Sample)

A. Rational: The food industry has been adding additives to food such as vitamins and minerals to enhance the food nutritional value and to help individuals who have a low in-take of them. The **importance** of this research is to see if what labels claim on the content of Vitamin C in orange juice is true and not less with the addition of a calcium additive since some literary research has shown that calcium reduces Vitamin C in the body. The **impact** of such a study would have on society is a greater awareness of the validity of nutritional labels.

B. Question: Does a calcium additive to orange juice change its concentration of Vitamin C?

Problem: To determine **if** added calcium decreases the concentration of Vitamin C in orange juice.

C. Hypothesis: **If** calcium is added to orange juice, **then** the concentration of Vitamin C will decrease.

D. Method: (Use **FUTURE TENSE** to describe the details of the method or procedure.)
Refer to *Intel Rules and Guidelines* at *www.societyforscience.org*. Click on ***"What We Do"*** link and on "***Intel International Science and Engineering Fair***". On the next page, click again on "***Intel International Science and Engineering Fair***". Scroll down to ***"Rules, Forms, and Resources".*** Click on "*Forms*". Scroll down to ***"Form 1A: Student Checklist/ "Research Plan".***

- May be written stepwise, in sections, or in phases. **Must be in the FUTURE TENSE**.
- Detail the procedure and experimental design that **WILL BE** used very clearly!
- May use diagrams or flow charts, etc.
- **STAY AWAY** from personal pronouns: "I will…We will…Next I will…etc."
- Use **metric** measurements. Include concentrations, quantities and major equipment.
- Know the rules for studies dealing with Human Subjects, Vertebrate Animals, Potentially Hazardous Biological Agents and Hazardous Chemicals, Activities and Devices. Refer to the handout on the Research Plan.
- **Include** a copy of a questionnaire, survey, or test if part of the study.
- **Data Analysis**: State the procedures that **WILL BE USED** to analyze the data that **WILL BE** collected to answer the question or hypothesis. **USE** the **FUTURE TENSE**. **DO NOT** give results. **DO NOT** give a conclusion. The research plan states **WHAT WILL BE DONE.**
- **Discussion of Results and Conclusion:** Discuss the data/results and conclusion that **CAN BE** drawn (future tense).

D. Bibliography: List at least **5** major **RELIABLE** references from literature review that are applicable to the experiment. The more resources, the better it is for your study.

- **Do not rely only** on Internet resources. Internet resources should be reliable.
  Also use science journals, books, magazines, newspapers, etc.
- Use a proper bibliography format (MLA or AP style or other format) for journals, books, magazines, newspapers and Internet resources.
- Be consistent with the format chosen. Should be alphabetized by authors' last name.

Note: For **Internet resources**, **DO NOT** just give a website!!! Indicate the Author, Title of article, [Online] website, date the article was **posted** or date the article was **retrieved** (downloaded).

(Date **Posted** Example):

Morano, David, "Experimental science projects: An introductory level guide," [Online] http:www.isd77.k12.mn.us/resources/cf/SciProjIntro.html, May 27, 1995.

(Date **Retrieved** Example):

Tindell, J., "Kids Guide to Science Projects," [Online] http:edweb.tusd.k12.az.us/jtindell/check.html., **Retrieved** Sept. 29, 2007.

DO NOT JUST GIVE A WEBSITE! SEARCH FOR BIBLIOGRAPHY TEMPLATES ON THE INTERNET OR HOW TO DO A BIBLIOGRAPHY.