**Science and Engineering Fair Research Plan**

A. Topic: Put in the topic

B. Rationale: What background supports your research problem? Why is this research scientifically important? What are the societal implications of your research?

C. Hypothesis/Research Questions: State your hypothesis, your research questions, expected outcomes, and your goals.

1. Procedures: Copy and paste your procedure.
2. Risk and Safety: Identify any potential risks and safety precautions needed. \*See your Hazard form…
3. Data Analysis: Describe the procedures you use to analyze the data/results that answer your hypothesis.

D. Bibliography: Copy and Paste your recourses. You must have at least 5. If you plan to use vertebrate animals one of these must reference animal care.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\*If the items below the line do not apply to your project delete the part that does not apply.

1. Human participants research:

 a) Describe who will participate in your study (age range, gender, racial/ethical composition). Identify any vulnerable populations (minors, pregnant women, prisoners, mentally disabled or economically disadvantaged).

 b) Recruitment. Where will you find your participants? How will they be invited to participate?

 c) Risk assessment. What are the possible risks or potential discomfort (physical, psychological, time involved, social, legal, etc.)?

 Benefits. List any benefit to society or each participant.

 d) Protection of privacy. Will any identifiable information (like – names, telephone numbers, birth dates, email addresses, etc.) be collected? Will data be confidential or anonymous? Where will the data be stored? Who will have access to the data? What will you do with the data at the end of the study?

 e) Informed Consent Process. Describe how you will inform participants about the purpose of the study, what they will be asked to do, that their participation is voluntary and they have the right to stop at any time.

2. Vertebrate animal research:

 a) Discuss potential alternatives to vertebrate animal use, and present a detailed justification for use of vertebrate animals.

 b) Explain potential impact or contributions this research may have.

 c) Detail all procedures to be used – include methods to minimize potential discomfort, distress, pain and injury to the animals in the course of experimentation.

 d) Explain these things: detailed chemical concentrations, and drug dosages; detailed animal numbers, species, sex, age, source, etc. Include justification of the numbers planned for the research.

 e) Describe housing and oversight of daily care.

 f) Discuss disposition of the animals at the end of the study.

3. Potentially hazardous biological agents research:

 a) Describe Biosafety Level Assessment process and resultant BSL determination

 b) Give source of agent, source of specific time line, etc.

 c) Detail safety precautions.

 d) Discuss methods of disposal

4. Hazardous chemicals, activities & devices:

 a) Describe Risk Assessment process and results.

 b) Detail chemical concentrations and drug dosages.

 c) Describe safety precautions and procedures to minimize risk

 d) Discuss methods of disposal.

\*Delete all RED and GREEN type from this document. Only fill out what is above the line and anything below the line that applies to your project.

\*This document goes in the back of your report behind your Student Checklist (1A).