(Example Research Plan)

Jane Doe
Mrs. Smith
5th period

Research Plan

A. Purpose/Question being addressed:

The purpose of this experiment is to determine which type of cup keeps liquids hot the longest. The cups that will be tested are styrofoam, plastic, and paper.

B. Research Facts/Hypothesis:

Research showed that styrofoam is a good insulator because the plastic foam contains millions of trapped gas bubbles and gases hinder the heat conduction. Research also showed that plastic is a medium to poor conductor of heat. Additionally, paper cups do not keep liquids hot very long but slows the cooling process. Based on my research, this experiment should show that the Styrofoam cup will keep liquids hot the longest.

C. Description in detail of method or procedure:

First, using a graduated cylinder, I will measure 100 mL of hot water and pour it into a Styrofoam cup. I will repeat this process using a plastic cup and paper cup. I will place a thermometer in each cup and record the beginning temperature. I will record the temperature for each cup every 3 minutes for 15 minutes. I will repeat this entire procedure at least 9 more times.

D. Data Analysis:

I will record all results in my log book. I will record the temperatures in degrees Fahrenheit.

E. Bibliography/References:

1. Murphy, Thomas. "*Insulators*." New York: Mandel Publications, 2006.

2. Wright, Van. "Styrofoam." *Encyclopedia Britannica*. 1999 ed.

3. (Author not listed). "What is a better insulator: Paper, glass, plastic, or Styrofoam? *Livestrong.com*. Copyright 2012 Demand Media. 15 Oct 2012 http://www.livestrong.com/article/345286-what-is-a-better-insulator-paper-glass-plastic-or-styrofoam/

4. VanCleave, Janice. "Insulators." *Education.com*. Copyright 2006 – 2012. 15 Oct 2012. http://www.education.com/science-fair/article/physics_trapped/

5. (Author not listed). "Styrofoam as an insulator." *Grade 6 science*. 10 Sept 2003. 15 Oct 2012. http://mmem.spschools.org/2F.9798/HotandCold/styro.html

Provide a typed research plan (paragraph form)

Research Plan Instructions

At the top - list your name, science teacher's name, & science period

Title your paper "Research Plan"

A. **Purpose/Question or problem being addressed** (list your purpose from approved proposal form)
B. **Research Facts/Hypothesis** (List 3 to 5 facts you learned from doing research, then list your hypothesis based on your research)
C. **Description in detail of method or procedures** (detail all procedures that will be performed during your experiment and data collection)
D. **Data Analysis** (explain what you will be measuring during the experiment)
E. **Bibliography** (Using MLA format, list at least 5 references from your research – these may be from science journal articles, books, internet sites, interviews, etc. Examples of MLA formats are listed below)

Books

Author's last name, first name. *Book Title (in italics)*. City of publication: Publishing company, publication date.

Example: Allen, Thomas B. *Vanishing Wildlife in North America*. Washington, D.C.: National Geographic Society, 1974.

Encyclopedia or Dictionary

Authors last name, first name. "Title of Page or Article."(using quotations) *Title of Encyclopedia*. *(in italics)* Publication date.

Example: Tobias, Richard. "Falcons." *Encyclopedia Americana.* 1991 ed.

Magazine & Newspaper Articles

Author's last name, first name. "Article Title."(using quotations). *Periodical Title (in italics)* Volume # Date: inclusive pages.

Example: Trillin, Calvin. "Culture Shopping." *New Yorker* 15 Feb. 1993: 48-51.

Website or Webpage

Author's last name, first name (if available). "Title of work within a project or database." *Title of site, project, or database. (in italics)* Editor (if available). Electronic publication information (Date of publication or of the latest update, and name of any sponsoring institution or organization). Date of access and <full URL>.

Example: Levy, Steven. "Great Minds, Great Ideas." Newsweek 27 May 2002. 15 Oct 2012 <http://www.msnbc.com/news/754336.asp>