This is a MANDATORY SCHOOL-WIDE ASSIGNMENT.

Each science teacher will assign a due date for their classes. All due dates will be prior to the Thanksgiving Break (November 25, 2010). Therefore, students will have sufficient time to complete their investigation.

The following information is a guideline, which details requirements for the Middle School Science Fair project at AWK-8 (grades 6-8). Science teachers have the option to make minimal changes, which will be detailed in their classes. Students must have their project approved by their science teacher before beginning their initial investigation. Due to safety reasons, parents, guardians and/or sponsors may need to fill out Form ____2____ of the Miami-Dade County Public Schools before a student is given permission to conduct their investigation (obtained through teacher).

This year we are requiring a PowerPoint presentation for 7th and 8th grade. However, 6th grade will be required to use the traditional tri-fold display board. Please note that Gifted and Advanced 6th grade classes have the option to use a display board or power point presentation pending the science teacher’s discretion.

Getting Started

Start a Journal

- **ALL** projects require a journal. The journal is where you will keep all of your information and data to make your PowerPoint/display presentation, report, etc. It is where teachers will make comments, corrections, or recommendations.

  - Below are items required in your journal (IN THIS ORDER).

1. **TITLE:** The title could be in the form of a statement, a question, or just a creative title. Your teacher will specify.

   Poor Example: “Which soap powder is the **best** cleaner of catsup stains?”

   Try to avoid using words which are based on someone’s opinion, such as **best, good, bad, better, fastest,** etc.

   What might seem best for one person; may not seem best for another.


2. **PROBLEM STATEMENT:** The problem statement is always written in the form of a question, and should not be used as your title. The question tells people what you are trying to find out.

   Example: *Which type of water will enhance the growth of a bean plant?*
3. **BACKGROUND INFORMATION/RESEARCH**: This is research related to your project. It must be in your own words and you must use a **minimum of three** different resources. Ideally, you should learn everything you can on your topic. Gather existing information on your topic using the internet, books, pamphlets, or talk to professionals in the field, etc.

Each source needs to be written on its own page in your journal with the bibliography information written with it. The summary of all of the sources is what you will put into your report. Anything directly quoted should have quotation marks around it.

4. **BIBLIOGRAPHY**: **Minimum of three different resources**. List the sources that you used (book, magazine, encyclopedia, interview, or website). Follow the example for the working bibliography below. Use APA format/or Cite it Right p. 105 in agenda.

**Books**


**Encyclopedia**


**CD ROM Encyclopedia**


**Internet**

To cite files from the internet, give the author’s name, last name first (if known) followed by first initial only; the date of the document or last revision (if available) or the retrieved date; the full title of the work (in quotation marks) or the title of the web page if no title is available; the title of the complete work (if applicable), in italics; any version or file numbers (if available); and the protocol (i.e. “http”) and the **full URL**.

http://www.utopia.com/talent/lpb/muddex/essay

If author is unknown:

http://www.utopia.com/talent/lpb/muddex/essay

If published date is unknown:

http://www.utopia.com/talent/lpb/muddex/essay
5. **HYPOTHESIS:** After gathering background information about your topic, you should make an educated guess about what you think the outcome for your investigation will be. State your hypothesis using the *if*/*then* format.

*Poor Example*: If I fingerprint 50 different people, then the loop fingerprint will be the most common.

Avoid words such as *I, me, she, he, we, my, think,* etc.

*Better Example*: if fingerprints from 50 people are taken, then the loop fingerprint will be the most common

Once you have stated your hypothesis, you can carry out an experiment and collect data.

6. **MATERIALS:** List all of the items you used. Tell how many and how much. The metric measurement system is used, not the customary measurement system.

Examples: 20mL of spring water

20mL tap water

20mL pond water

12 small bean plants

1 .235L (8oz) measuring cup

7. **PROCEDURES:** List all of the steps numerically, in the order you will perform them. Be specific, but try not to make it complicated. The experiment should be repeated a *minimum* of 3 times for validity. The more the tests are repeated, the more accurate your results will be. Keep detailed notes of each and every experiment, measurements, and observations. Accurate and detailed notes make a logical and winning project. Good notes show consistency and thoroughness and will help you when writing your research paper.

8. **CONTROL:** You do not need to have a control variable in your investigation. The control group has no variables added. The information you receive from the control will be used as a comparison only.

9. **VARIABLES:** Factors in your experiment that is changed in order to solve your problem statement is a variable.

*Independent Variable* – Manipulated variable (the one you decided to change) – There should only be one!

*Dependent Variable* – Responding variable (the one that responded to the change you made.)

*Constants* – Factors that stay the same during the investigation.
10. **DATA:** There are two types of data: *quantitative* (numerical data) and *qualitative* (descriptive data). You will record your observations and represent your data with charts, graphs, etc… Observations are an important part of your data, and are based on our five senses.

   **Example:** *Quantitative data* – 12g; 40 meters; etc.

   *Qualitative data* – The plant’s were green in color. The leaves were broad measuring ___ in length.

   When creating graphs, please remember the words DRY MIX. This stands for:

   D – dependent variable
   R – responding variable
   Y – Y-axis

   M – manipulated variable
   I – independent variable
   X – X-axis

   This means that the dependent (responding) variable always goes on the Y-axis and the independent (manipulated) variable always goes on the X-axis

11. **RESULTS:** State the findings of the experiment based upon the data you observed and analyzed. Record the results. This is a written explanation of what happened with your data. Be detailed.

12. **CONCLUSION:** Your conclusion should begin with a statement on whether or not the results supported your hypothesis. Include a description of problems that might have affected the results and why. Also include any new discoveries that you have made in addition to the results of the experiment.

13. **APPLICATIONS:** State how you could use this information in real life.
14. **ABSTRACT:**

COMPLETE PROJECT TITLE (all in capital letters, as it appears on the project)
Student’s name (Last name, First name, Middle initial if used)
   A. Purpose
   B. Hypothesis
   C. Procedure (summary only)
   D. Results (summary only)
   E. Conclusions

THE ABSTRACT SHOULD BE 250 WORDS MAXIMUM.

**APPENDIX**

**Sample Abstract**

| COMPLETE PROJECT TITLE (all in capital letters, as it appears on the project) |
| Student’s name (Last name, First name, Middle initial if used) |

The following parts should be included in an abstract:

1. **PURPOSE:**  Why is the research being done?
2. **HYPOTHESIS:**  What is the expected outcome of the research?
3. **PROCEDURE:**  Briefly, in paragraph form, describe the materials used and how the experiment was done. This section should not be a list, but a summary of your methods.
4. **RESULTS:**  Briefly summarize the data from charts and graphs in narrative form. Be sure to include measures of central tendency and variation. Include only information collected during the study. (Do NOT include previous years’ results).
5. **CONCLUSIONS:**  Briefly, in narrative form, cite interpretation of the results. Briefly, compare findings with other research. Include suggestions for procedural improvements and recommendations for future study, as well as applications for the research.

THE ABSTRACT SHOULD BE APPROXIMATELY 250 WORDS AND FIT IN THIS SPACE. THE BOX IS NOT SUPPOSED TO BE PART OF THE ABSTRACT, IT SERVES ONLY AS A GUIDE.
**The Journal does not have to be perfect. Do not use white out. Please just draw a line through what you want to change, and initial your line.

Write Your Report
- Your report should be written in the format shown below. Be sure to follow all directions and answer all questions related to each section.
- Your report should be written AFTER your experiment is completed, and AFTER you have all information required in your Journal. Your journal is your guide to writing your report.

Create Your PowerPoint
- Your PowerPoint should be created after your experiment is done, and after your report is typed.
- The PowerPoint presentation is an OUTLINE of your project. It SHOULD NOT be the same as the report.
- The PowerPoint should only contain the basic information of your project, and the details should be explained in the report.
- You should have 1 slide for each of the following:
  - Title Page that includes your name, grade, and period number
  - Problem Statement
  - Hypothesis
  - Materials
  - Procedures
  - Variables/Constants
  - Data – Charts, graphs, data tables
  - Results – this is a summary describing your data in words
  - Conclusion
  - Application
  - Pictures

Science Fair Forms

**All Projects need the following forms:

Form 1, Form 1A (with research plan), Form 1B, and the Abstract

The forms will be provided to the students electronically.
Display and Safety Requirements

1. ABSTRACT -- The Abstract MUST BE displayed on the front left wing of the backboard, in the lower left corner. The abstract must be approximately 250 words or less written on the proper form.

2. SIZE OF DISPLAY -- NO more than 48 inches (122 cm) wide, 48 inches (122 cm) high and 30 inches (76 cm) deep.

3. ORGANISMS -- NO living creatures including animals, plants and microbes (bacteria, algae, fungi, etc.) will be displayed. NO organisms, fungi, any type of cultured growth, spoiled food, or molds will be displayed. (This does not include wood and/or paper of which the project is constructed.)

4. PARTS -- NO human or animal parts, histological sections, or wet mounts.

5. SPECIMENS -- NO taxidermy specimens or parts and NO preserved animals, vertebrates or invertebrates, including embryos will be displayed. NO dry plant materials may be displayed.

6. SENSITIVE PHOTOGRAPHS -- NO visual presentations of surgical techniques, dissections, necroscopies and/or other laboratory techniques depicting vertebrate animals or humans in other than normal conditions. All pictures of human subjects must be accompanied by a consent form which grants permission to use the pictures.

7. SOIL/WASTE -- NO soil or waste materials or samples may be displayed.

8. CHEMICALS/WATER -- NO chemicals including water may be displayed. (Again the chemicals in the construction of the display are excluded.)

9. FOOD -- NO human or animal food may be displayed.

10. SHARP ITEMS -- NO syringes, needles, pipettes, or anything sharp may be displayed.
11. CONTROLLED SUBSTANCES -- NO poisons, drugs, controlled substances, hazardous substances, or devices, may be displayed. (i.e. firearms, weapons, ammunitions, reloading devices)

12. DRY ICE/GASES -- NO dry ice or sublimating solids may be displayed. (i.e., solids which vaporize into gas without passing into the liquid phase). NO gases under pressure.

13. FIRE/HEAT -- NO flames or highly flammable materials may be displayed. NO temperatures above 75°.

14. TANKS -- NO tanks that have contained combustible liquids or gases including butane and propane may be displayed.

15. MACHINERY -- NO unshielded belts, pulleys, chains, or moving parts that pose hazards may be displayed.

16. LASERS -- NO lasers which do not meet ISEF standards (Class II, student operated, with warning sing - LASER RADIATION: do not stare into beam, protective housing and power disconnect may be separated.) NO Class III or IV lasers may be operated.

17. ELECTRICITY -- ALL ISEF standards must be observed. NO unshielded high-voltage equipment, large vacuum tubes, or ray-generating devices; NO bare wires or exposed knife switches used in circuits of 12 volts or more may be displayed. NO uninsulated wiring or connectors may be displayed.

18. GLASS -- NO glass, glassware, or thermometers may be displayed.

19. APPARATUS -- NO non-functional apparatus or chemical containers, empty or otherwise, may be displayed.

20. BATTERIES -- NO batteries with open top cells may be displayed.

21. DISTRACTIONS -- NO loud or disturbing sounds may be produced by a project's equipment. NO bright or distractive lights.
Name:_____________________

Science Fair Project Judging Sheet

Section 1: 20 points total

Scientific Title (3)

Problem Statement (3): What is the effect of ____ on ____?

Hypothesis (4): Followed format; it is hypothesized that if ____ then ____.

Abstract (10): Followed format given; 1st paragraph includes purpose of project and hypothesis; 2nd paragraph includes summary of procedures; 3rd paragraph includes results and conclusions.

Section 2: 15 points total

Materials (3): Specific with measurements

Procedures (3): Specific steps for trials

Independent Variable (3): What changes in the experiment?

Dependent Variable (3): What is being observed in the experiment?

Control Variable/Constants (3): What stays the same in the experiment?

Section 3: 27 points total

Table/Chart (9): Title, units, trials, mean

Graphs (9): Title, axis labeled, units

Pictures (9): Relevant to project, labeled

Section 4: 38 points total

Results (10): Discuss findings, discuss numbers obtained

Conclusion (10): Discuss findings and agree or disagree with hypothesis

Application (3): What use does this project have in real life?

Neatness (15): Creative, clean, nice effort shown on set up.

Total Points (out of 100)  ________

Comments:
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________