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**PSYCHED FOR
RESEARCH:
LEARN IT, LIVE IT, LOVE
IT!**

“I Hate My Job...”

- ◎ Too often people end up in careers they do not enjoy
- ◎ If given the chance, they “would have been a doctor, a lawyer, a teacher, a scientist...”
- ◎ Why do people jump into careers that they aren’t content in?
- ◎ Because they do not get the chance to experience something more challenging before they dedicate their life to it

“I Love My Job!”



- What if high school students could have the opportunities needed to help make such a decision?
- They can take a class that will expose them to science in a way that usually isn't available until midway through college, starting early in their high school educations!
 - Done with the hope that exposing them early will help in their decision of college major/career choice

The Science and Engineering Research Program (SERP)

- ◎ This course is being developed and piloted in Staten Island Technical High School's SERP Program
- ◎ Students are recruited based on voluntary interest in the program
- ◎ Is being piloted as a two-unit course that would likely last minimally one semester
 - Could be offered as a two part course to span two semesters, or even three
 - Similar to "Independent Study" courses

Unit 1: How to Write a Research Paper

- ◎ During this first part of the class, students will learn the hard knowledge they will need for the second half of the course
- ◎ Parts of a research paper, research methods, statistics, ethics

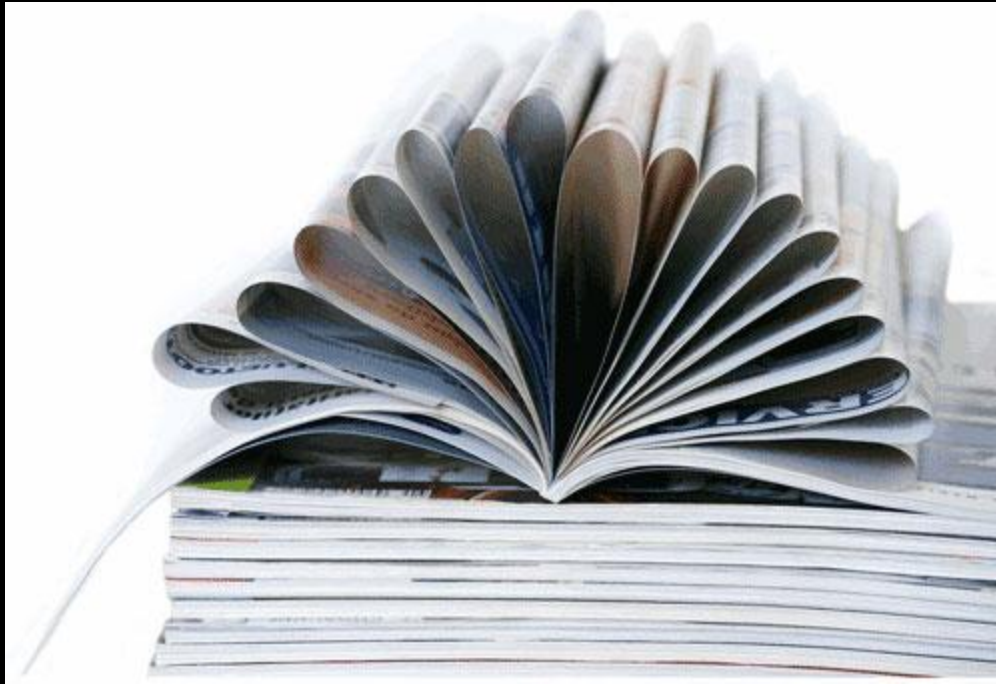
Activity 1

- ◎ “Survival of the Fittest” through a collective activity
 - Aerodynamics activity
 - Design two different planes and throw them each 100 times
 - Write a report on your findings



Goal: Dedicated students will have a chance to experience a sample research activity and be invited to enroll in the course upon completion

Lesson 1



- ◎ How to read a journal article using the CREATE method
- ◎ Students will be given a few simple, fun articles to read and break down using CREATE
- ◎ Approximately 1 week

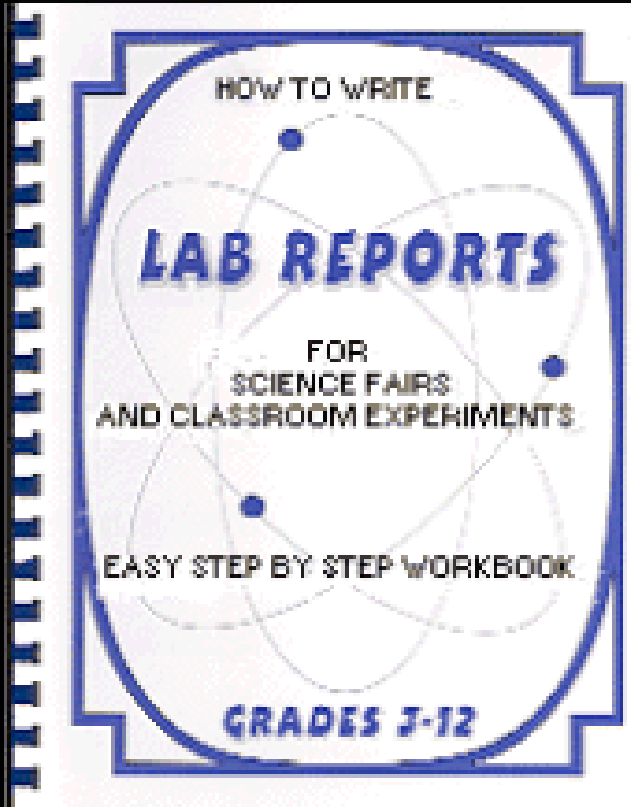
Goal: Students will learn how to effectively read a scientific journal article using the CREATE method.

Activity 2

- ◎ Students are given a fun, simple article to ease them into scientific reading
 - “Ice Cream Evoked Headaches”
- ◎ Teach them how to make notecards
- ◎ Answer a few questions
 - Scaffolding activity where the older students help younger students answer questions
- ◎ Class discussion

Goal: To introduce students to a simple journal article, as well as having them interact.

Lesson 2



- Formal APA-formatted lab report
 - Students learn the components of APA style
- Approximately 2-3 days, but discussed more extensively throughout the course

Goal: Students learn how to write a proper APA formatted lab report with all appropriate sections and information.

Lesson 3

- ◎ Research Methods
 - Focuses on basic research methods
- ◎ Students are instructed to start thinking about a research proposal
- ◎ Approximately a week and a half – two weeks of class

Goal: Students will learn the fundamentals of research design so that they may develop a well-designed experiment.

Assignment

- ◎ Based on the methods they learned to break down journal articles, students will write various components of a research paper
 - For first activity
- ◎ Each component will be due at various points in the semester
 - Ex: will conduct a literature review to turn in first

Goal: Students will gradually learn how to write a scientific research paper in sections.

Lesson 4: Statistics



- ◎ Students learn basic statistical methods
- ◎ Class discussion on what statistics they need for both their initial assignments and independent projects
- ◎ Approximately a week and a half

Goal: To enable students to understand the conceptual components of statistics so that they can analyze their data and write a “Results” section

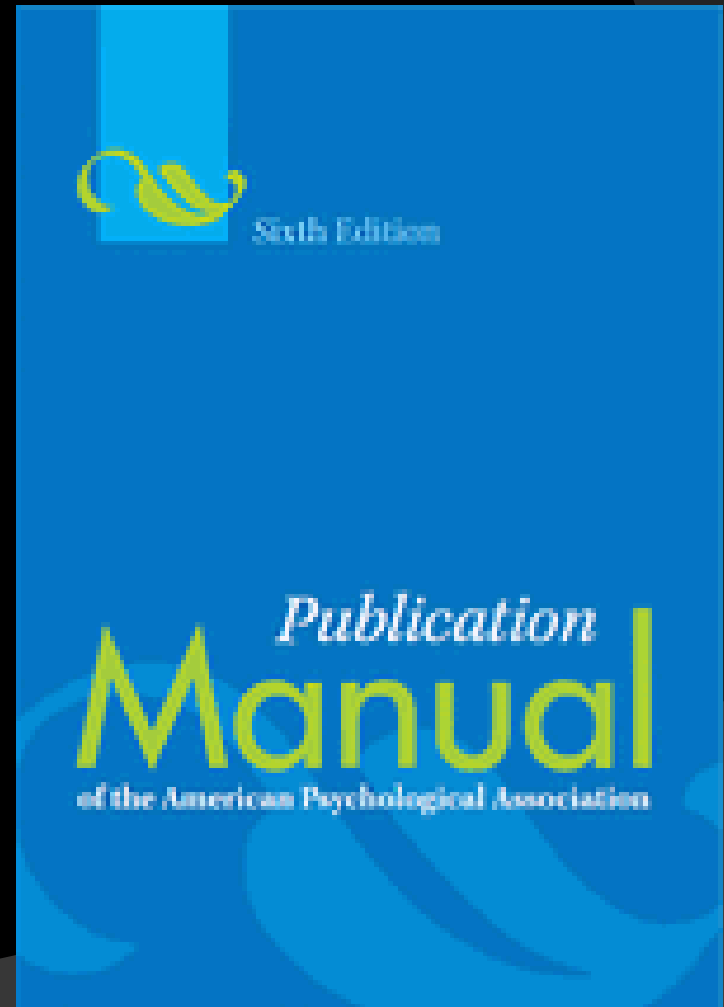
Final Activity

- ◎ “Behave as if the World is Watching”
- ◎ During this activity, students are instructed to go out and observe something
 - A skill, a behavior, or some other kind of phenomenon
- ◎ Write 1-2 pages on it, including some background research

Goal: To engage students in empirical research, and to get them to begin thinking about what area they want to research in Unit 2

Lesson 5: APA format

- ◎ Students will learn the specific rules of APA format so that they are all on the same page
 - Using the APA Manual
- ◎ Includes how to make graphs in Excel, and how to properly word their statistical analyses



Some Fun Stuff!

- ◎ Two activities for the last day
- ◎ Cola taste test
- ◎ Jelly bean/Skittles taste test
- ◎ Things you will need:
Pepsi and Coca-Cola,
jelly beans or Skittles,
cups, saltine crackers



Goal: To show students that research can be fun too!

Culmination of Unit 1

- Students will be able to derive important information from scientific journal articles
- Students will have a working knowledge of research methods and statistics
- Students will be able to write an APA-formatted research paper
- Students will have an original research project idea



Goal: Students will be on the road to becoming “scientists”!

Unit 2: Sample Research Activities/Independent Projects

- ◎ In the second half of the class, students are introduced to some sample research activities
- ◎ Students are expected to begin finalizing their independent research projects

Activity 1: the Stroop Effect

- Students perform the Stroop Effect experiment to learn about a classic psychological experiment
- Purpose is to engage them in research methods
- Approximately 2 days



Goal: Students will produce an APA-formatted lab report at the end of the semester.

Reviewing the Basics

- ◎ Students are expected to spend the majority of class time conducting their research experiments
- ◎ Throughout the unit, students will be refreshed on information that was reviewed in the first unit
 - Research methods, more advanced statistics, APA format, peer review, etc.

Goal: To refresh student's memories and teach them more advanced knowledge on these topics

Presentations

- ◎ Students will periodically make presentations on their progress to all groups of SERP students
- ◎ Serves as practice for public speaking in general and also to rehearse any competition presentations

Goal: To have students become comfortable speaking in front of groups of people, particularly about their field of study

Culmination of Unit 2

- Students will be able to derive important information from scientific journal articles, particularly in their specific field of study
- Students will have a working knowledge of research methods and statistics
- Students will be able to write an APA-formatted research paper
- Students will have an original research completed for submission in any number of city-wide competitions

