Pawling High School

Science Research

Pre-Course Summer Assignment

Welcome to Science Research! This is a 3-year program, which requires hard work, commitment, and a passion for the process of scientific research.

The benefits of this program include:

* Option to earn up to 12 college credits through SUNY Albany
* Gain confidence in pubic speaking, collaborating with peers, time-management and working in a professional environment.
* Immerse yourself in researching a topic you are passionate about with the potential of publishing your own findings.

Course Description:

This course provides independent, self-motivated, keenly interested students an opportunity to experience authentic scientific research from start to finish. The course is designed to start sophomore year and involves a three year commitment for completion at the end of senior year. During sophomore year students are involved in bibliographic research and narrowing down the area of interest. They are introduced to technological on-line searching techniques and to methods for communicating directly with professionals in the chosen area of study. During this first year, they begin learning skills associated with making both oral and poster presentations. While working with a professional mentor, junior year involves creating an experiment, and becoming familiar with statistical techniques during the analysis of data. Senior year is devoted mainly to writing their paper and preparing for presentation at local, regional, and state science symposia and student research competitions. Students may elect to receive college credits for this class through the University in the High School Program at SUNY Albany.

Research Topics:

* Animal & Plant Sciences
* Behavioral Science
* Biochemistry
* Computer Science
* Engineering
* Environmental Science
* Medicine & Health Science
* Microbiology
* Physics & Astronomy
* Cellular & Molecular Bio

As a pre-requisite for this course, you will need to complete the following tasks by the required due dates:

1. Email Ms. Rinaldo at Rinaldog@pcsdny.org a working email address that you check regularly- **due July 31 by 11:59 PM**
2. Write a message to Ms. Rinaldo through email or share it through Google docs at the email listed above, answering the following: Why do you think you will be successful in the Science Research program (200-250 words)? – **due August 1 (See Summer Entrance Essay)**
3. Find, read, summarize and reflect on 10 science research articles covering 3 different topics (listed above) [see attached information] – **due on the FIRST DAY OF SCHOOL**

Article Summary and Reflection Directions

**Due the FIRST DAY OF SCHOOL**

You will need to find 10 peer reviewed science articles from a scientific journal. You must choose 3 different science topics that you are most interested in (see previous page). For each topic, you must find 2 science articles that relate to that topic (total of 6). The remaining 4 articles can be for any of your 3 science topics (there is a potential to read and summarize 6 articles for your favorite topic).

**Finding articles:**

* 1. To access articles, go to:
		1. <http://dboces.auth.orc.scoolaid.net/bin/dblist?schoolId=2025>
		2. ScienceDaily.com
		3. Other articles approved by Ms. Rinaldo from google
	2. Webpage can also be accessed by the following steps:
		1. Pawling High School Website- <http://www.pawlingschools.org/>
		2. Library Media Center on the Left Column- <http://phs.opals.dcboces.org/bin/home>
		3. Click on Databases under Weblinks- <http://dboces.auth.orc.scoolaid.net/bin/dblist?schoolId=2025>
		4. ALL PASSWORDS are dutchess and USERNAME is phs
	3. Other article sources
		1. Sciencedaily.com
	4. Citation Generator
		1. Son of Citation
1. Click on the link on the column and select “Academic OneFile” from the list under Gale:,
2. You can search for articles immediately or you can select a discipline and topic. Once you have selected a discipline, if you have an idea of topic of interest select that from the list.
3. You may select any article that comes up or get ideas by selecting “Topic Finder”: , and then typing in keywords that interest you like “environment, neurology, renewable energy, etc.”
4. In the Databases Tab on the Library Webpage you can find articles using other databases. Assure that the article chosen is peer reviewed and full-text. On all databases you can filter it to these settings.
5. To access other digital resources with passwords, refer to Steps 1-3 for the list of passwords if the databases can’t be accessed or contact Ms. Rinaldo @ Rinaldog@pcsdny.org
6. To determine if an article is credible, you can enter its information into [www.easybib.com](http://www.easybib.com)
7. Once you find an article, enter its information into [www.easybib.com](http://www.easybib.com) and cut & paste its **APA format** bibliography into your “Article Summary and Reflection Worksheet” (see attached).

**Summarizing Articles: (typed)**

In your own words, and in complete sentences, describe what the article was about by answering the following:

1. What is the purpose of the article?
2. What is the hypothesis?
3. How was the experiment performed (how was the data collected)?
4. What did the data show?
5. Did the data support or refute the hypothesis?

**Reflection: (typed)**

In your own words, and in complete sentences, reflect on the article by answering the following:

1. Why did you choose this article?
2. What pre-requisite knowledge on the topic do you have if any?
3. What questions are raised but not answered by this article?
4. Any unclear material?
5. Does the information in this article contain information that you can research further? Explain.
6. Additional resources or keywords suggested by this source:

PRINT OUT YOUR 10 ARTICLE SUMMARY AND REFLECTION WORKSHEETS to turn in on the first day of school. **These will be due the moment you enter the classroom so print them beforehand.**

ARTICLE SUMMARY AND REFLECTION WORKSHEET

**Name:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Science Topic:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Article # for this topic (circle one): 1 2 3 4**

**Journal Article Bibliography (APA Format):**

**Summary:**

1. What is the purpose of the article?
2. What is the hypothesis?
3. How was the experiment performed (how was the data collected)?
4. What did the data show?
5. Did the data support or refute the hypothesis?

**Reflection:**

1. Why did you choose this article?
2. Pre-requisite knowledge on the topic?
3. What questions are raised but not answered by this article?
4. Any unclear material?
5. Does the information in this article contain information that you can research further? Explain.
6. Additional resources or keywords suggested by this source: