Sample Journal 4

Year: 2024-2025

Grade: G11

Semester: 2nd Semester

Question 1: Some of your classmates resort to some people outside school to make their prototype hoping to get a higher grade effortlessly. What is your opinion of this behavior and what advice can you give them?

Relying on other people for your own tasks has been a historical deed in human history, furthermore the debate of who should get the credit of doing something is more controversial. For example, if a king ordered his slayer to kill a thief who's the one responsible, the hand that killed or the hand that ordered. Similarly, the same idea could be interpreted here. Resorting to engineers for example to easily make your prototype is an easy approach, but easy does not always equal better. As you're removing the experience part and deleting the skills that could be learnt throughout the process, and rushing towards the gratitude and benefit, the fame and the acknowledgement. But as for someone who gave in the work and the hours into achieving his project, he would be far better than someone who just pays up to an engineer thinking he cheated the system. Giving an honest opinion additionally some advice on this topic, these ways where people try to cheat/lie, and mischief are only temporary successes that would fall on their head soon or later. My advice would be to personal reflect and improve yourself deeply and actually make mistakes and errors to furthermore learn and succeed, as with great efforts comes great achievements, real achievements that could not be doubted. To conclude, a person must take his time to improve and not rely on others for tasks rather be the guy that people depend on.

Grade: Blue

Feedback:

Strengths:

1- The response covers all parts of the question (both the opinion and the advice).
2- It follows a clear essay structure with an introduction, body, and conclusion.
3- Near-perfect English. The answer displays advanced vocabulary, meaningful phrases as well as proper punctuation while remaining easy to understand.
4- The introduction is engaging and uses creative metaphors.
5- The conclusion is strong and leaves a lasting impression.

Weaknesses:

1- A few are unclear or grammatically awkward like: “Giving an honest opinion additionally some advice…” ➔ “To give an honest opinion, along with some advice…”, “Deleting the skills that could be learnt…” ➔ “missing out on skills.”

General Notes:

There are no extra comments.

Question 2: Now you are in the second stage of your capstone and you are starting to write your introduction in your portfolio explain three characteristics you follow in writing your introduction

Imagine yourself as a generational engineer and a company wants you to work with them, so they give you a tour inside of their facility, if the facility was poor, ugly and nonproductive, there is no way you would accept the job. Same thing goes with writing an introduction to an essay, research paper, and in my case a poster. If the introduction did not meet the needed requirements, did not have an attention-grabbing method, it would be classified as poorly written. Therefore, three characteristics were put in mind when writing the introduction of our poster, which were to grab the attention of the reader, summarize the process and the solution, and finally, speak so much but so little.
Grabbing the attention could be done by applying the essay writing rules where sentences must not start with (Nouns) or be plain and boring, but rather start with (verbs) (adverbs)

(adjectives) which grabs the eyes and the attention of the reader making him crave more for the upcoming events.
Summarizing the process, the introduction must be informative but mustn't go in depths with the details, so it should provide the grand challenges worked upon, basic idea for the solution, and a summary for the methods. How our team does it is by thinking that we are interpreting our project into an 8-year-old boy, so it is simple and neat thus he understands it
Finally, would be to write so much but only provide the needed information without giving extra stuff so you would leave some questions uncertain for the reader to interpret his ideas into furthermore, making him crave the upcoming events.

Grade: Blue

Feedback:

Strengths:

1- The response addresses all parts of the question and clearly explains each point and its importance.
2- It uses academic vocabulary, solid punctuation and displays no major grammatical mistakes.
3- The introduction is eye-catching and uses a relevant analogy.

Weaknesses:

1- The question specifically asked for the portfolio introduction. While writing about the poster introduction isn't entirely wrong (since the two are similar), some teachers are not so… flexible. It might hurt your grade if you don't answer exactly what you were asked for.
2- The last two points (characteristics) are similar. "Summarizing the process" and "write so much but only provide the needed information" are basically the same thing but in different words. Offering another unique characteristic would greatly help.
3- There are some grammar issues and awkward phrases like: "speak so much but so little" ➔ "say more with fewer words", "to interpret his ideas into furthermore" ➔ "to leave a place for curiosity", used "making him crave the upcoming events." twice which is not good practice.

General Notes:

This response shows creative thinking that deserves to be encouraged. However, balancing creativity with clarity and objectivity is key here. A great response needs to

be direct, clear and well-represented as much as it needs to be creative, unique and interesting.

Question 3: You studied in (ph.2.01) the universal gravitational law. From your study, explain how can you get benefit from the concept of newton's law of universal gravitation in treating the air pollution.

L.O1 in physics was rich in information about gravitational energy, its effects, potential, and basically how objects create fields that grab each other. Some of it could be summarized in the net force law stating that force is directly proportional to its mass multiplied its acceleration (F = ma) furthermore, interpreting from that law we understand that mass is proportional to how objects fall. Thus, for an air filtration system, when filtering heavy metals. You would notice that it is far heavier than VOCs, so an improvement could be done to the prototype, where it could be built vertically (in the case of filtering the heavy metals) so gravity could be a part of the system that would help it to filter the pollutants. Such idea could not be translated in the case of filtering VOCs, as their masses are small which makes it neglectable, so it's system of filtration does not need to be edited. Keep in mind all of these are just plain guesses as both the heavy metals and the VOCs have neglectable masses but that does not mean it won't improve the system of filtration, it would help it a lot but not in a life changing way, but rather as a small improvement that shows the deep understanding of the topics presented in physics. To conclude, keeping in mind the gravitational force when filtering heavy metals and interpreting the system into a vertical one-way system adds improvements compared to regular filtration with light gases.

Grade: Green

Feedback:

Strengths:

1- The response is structured as an essay: an introduction, a body and a conclusion.
2- The introduction briefly explains the concept "gravitational force".
3- It includes a law or formula "F = ma" and provides some explanation.
4- It establishes a clear connection between the learning transfer and the capstone project and how it could influence the shape of the prototype (filtration system).
5- It displays a deep understanding through relevant concepts, well-chosen examples and academic vocabulary.

Weaknesses:

1- It would be more accurate to use the law of universal gravitational "$F = Gm_1m_2/r^2$" instead of Newton's second law "F = ma", since the focus is on gravitational force.
2- The abbreviation "VOC" should be explained, as it's not commonly familiar.

General Notes:

Some phrasing can be clearer. For example: "grab each other" ➔ "exert forces on each other".

Question 4: In your project you are asked to measure the change in the concentration of the selected air pollutant due to repeating treatment process to remove at least 20% of the selected contaminant. By using modelling function you studied in math 2.01, explain which function best fits your obtained measurements, and why.

Polynomial functions, a topic studied in pre-calculus, is the main topic that is presented in LO1 in Math. The general form of a polynomial function is (coefficient multiplied by the X with any power (power n) + any coefficient multiplied by the X with any power less than the one before (n-1)) such function could be used to graph the concentration of pollutants in the amount of air. Where the amount of air could be interpreted on the X axis (around 1000ml according to the design requirements) and the concentration of pollutants on the Y axis (in ml). when using our team's solution of processed banana peels into activated carbon to filter VOCs. The functions graph would be similar to x=Y, as it would be more of a linear (mononomial) odd function. Where it would filter the VOCs till the material stops filtration (either it has come to failure or has filtered everything) but according to a research paper that we are mostly relying on, our solution is expected to filter 73.56% of the VOCs. Therefore, the graph would stop at where 73.56% of the amount of pollutant was filtered and then turn into a linear function parallel to the x axis (no more filtration is happening pollutant is neither increasing nor decreasing)
To conclude, it would be translated into a function that is polynomial specifically a mononomial and odd where x=y and then stop at the limit of the activated carbon where it would become x = 0 (parallel to the x axis)

Grade: Green

Feedback:

Strengths:

1- The response is divided into an essay: an intro, a body, and a conclusion.
2- It answers the question directly by addressing the chosen function “polynomial functions”, specifically monomials and tries to explain its form.
3- It describes how the function supports the project by helping represent measurements and overall progress.
4- It uses multiple math-related concepts and includes real numbers and graph relations.

Weaknesses:

1- Graph function “X=Y” is slightly incorrect.. And the labels on it are inaccurate. The x-axis should ideally represent time, and the y-axis represent the pollutant levels. The relation should be inversely proportional (amount of pollutants decrease as time passes) so “Y= -X” or any *decreasing function* is more accurate. The graph would be linear (or close to it) until reaching the specified percentage (73.56%) then it stops decreasing and turns into a constant function where the line is parallel to the x-axis.
2- The explanation of the polynomial function is vague and slightly inaccurate. Giving an easier explanation based on simple words like “A polynomial is an expression consisting of variables and coefficients, involving terms with non-negative integer powers of x.” with the addition of an example would be a better approach.

General Notes:

General grammar and punctuation are strong, however using simpler English when explaining concepts would improve clarity. Using math-related vocabulary should be for deep or complicated concepts or points. But overall, the response can be simpler and easier to follow.