

Assessment Redesign

1. Mathematics Problem Set

Assignment Title: Exploring Rates of Change

Due Date: Friday, March 10, 2023

Specifications:

In this assignment, you will solve a series of calculus problems focused on rate of change. Each problem requires a complete solution, including calculations and written explanations for each step. Follow the instructions carefully to ensure your work is thorough and logically organized.

Instructions:

1. Problem 1: Increasing Speed

A car is traveling at a speed that increases at a rate proportional to its current speed. The car starts from rest and reaches 60 mph in 10 minutes. Your task is to:

- Set up a differential equation that models this situation.
- Solve the differential equation to find the function that describes the car's speed over time.
- Provide a written explanation of each step, detailing how you formed and solved the equation.

2. Problem 2: Water Tank Leak

Imagine a water tank starting with 500 gallons of water, which leaks at a rate that increases as the water level decreases.

- Define variables for the amount of water remaining and the rate of leakage.
- Develop a differential equation to model this process.
- Solve the equation and interpret what the results mean in a real-world context.

Explain how the rate of leakage impacts the water remaining in the tank over time.

3. Problem 3: Bacterial Growth

In a controlled environment, a population of bacteria doubles every 3 hours, beginning with 100 bacteria.

- Define the variables and set up an exponential growth function for this population.
- Derive a function that models the bacterial population over time.
- Explain the significance of the doubling time and describe how this impacts population growth over an extended period.

How to Submit:

Compile your work in a typed document (PDF preferred). Each problem should start on a new page with a clear title (e.g., "Problem 1: Increasing Speed"). Diagrams, calculations, and written explanations must be legible. Include your name, class period, and date at the top. Submit your work via Google Classroom.

Rubric:**Mathematics Assignment Rubric: Exploring Rates of Change**

Criteria	Excellent (4)	Good (3)	Fair (2)	Needs Improvement (1)
Completeness	All problems are thoroughly solved, with each step clearly documented and explained.	Most problems are solved with clear steps; minor omissions in explanations.	Some solutions lack steps or clarity, leaving gaps in reasoning.	Solutions are incomplete or missing significant steps.
Mathematical Reasoning	All steps demonstrate correct reasoning and a deep understanding of calculus principles.	Most steps show correct reasoning; minor errors in logic or calculation.	Several steps contain errors, indicating partial understanding.	Significant errors in reasoning; limited understanding of calculus.
Clarity of Explanation	Explanations are clear, thorough, and enhance understanding of the solutions.	Explanations are mostly clear but may lack depth in some parts.	Explanations are somewhat confusing, with occasional lapses in clarity.	Explanations are unclear or missing, making solutions difficult to follow.
Presentation	Solutions are well-organized, with each problem starting on a new page, properly formatted, and neatly typed.	Solutions are organized and mostly well-formatted, with minor formatting issues.	Organization is inconsistent; formatting issues detract from readability.	Poorly organized and formatted, making the assignment difficult to follow.

2. English Assignment Sheet

Assignment Title: Character Analysis Essay - *The Great Gatsby*

Due Date: Monday, April 17, 2023

Specifications:

For this assignment, write a 5-paragraph essay analyzing the motivations of a character from *The Great Gatsby* by F. Scott Fitzgerald. Your essay should explore how the character's choices drive the story and contribute to the novel's central themes. Use specific quotes from the text, and support your analysis with insights from at least two secondary sources.

Instructions:

1. Introduction (1 paragraph):

- Briefly introduce the character and provide context for your analysis.
- End the introduction with a clear thesis statement that encapsulates your argument about the character's motivations.

2. Body Paragraphs (3 paragraphs):

- Each body paragraph should explore a different aspect of the character's motivations. Possible angles include:
 - How social expectations influence their actions.
 - The impact of their personal history or relationships.
 - How their desires and fears shape their choices.
- Support each point with at least one direct quote from the text, and include analysis explaining how this quote reinforces your argument.

3. Conclusion (1 paragraph):

- Summarize your analysis, restate your thesis in a new way, and offer insight into how this character's motivations reflect broader themes in the novel.

4. Sources and Citations:

- Use at least two scholarly sources to enrich your analysis. These might include articles on Fitzgerald's themes, 1920s American culture, or character studies.
- Cite all sources in MLA format, and include a Works Cited page at the end of your essay.

How to Submit:

Submit your essay as a PDF to Google Classroom. Ensure your document includes a header with your name, date, and class period. Format your essay in MLA style, with 1-inch margins and 12-point Times New Roman font.

English Assignment Rubric: Character Analysis Essay - *The Great Gatsby*

Criteria	Excellent (4)	Good (3)	Fair (2)	Needs Improvement (1)
Thesis and Argument	Clear, insightful thesis with a strong, well-supported argument throughout the essay.	Clear thesis with a solid argument but may lack some depth in support.	Thesis is weak or unclear, and the argument lacks coherence.	No thesis or the argument is incoherent and unsupported.
Textual Evidence	Uses well-chosen quotes from the text that are seamlessly integrated and support the argument.	Uses relevant quotes, mostly well-integrated, but lacks finesse in some parts.	Limited or poorly integrated quotes that only loosely support the argument.	Little to no textual evidence or quotes are irrelevant to the argument.
Analysis	Deep, nuanced analysis of the character's motivations and their impact on the novel's themes.	Thoughtful analysis, with some depth; lacks nuance in some areas.	Basic analysis with limited insight; overly surface-level interpretations.	Little to no analysis, with few meaningful connections to themes or motivations.
Writing Quality	Excellent grammar, varied sentence structure, and a smooth flow; essay is engaging and easy to read.	Generally well-written with few grammar errors; flow is mostly smooth.	Noticeable grammar or flow issues that detract from readability.	Frequent grammar and flow issues that make the essay difficult to read.
MLA Formatting	Consistent and accurate use of MLA format for citations and Works Cited.	Mostly consistent MLA format with minor errors.	Some formatting errors; inconsistent citation style.	Incomplete or incorrect MLA formatting, or citations are missing.

3. History Assignment Sheet

Assignment Title: The Industrial Revolution - Causes and Impacts

Due Date: Wednesday, May 3, 2023

Specifications:

This assignment involves writing a 5-7 page research paper on the causes and impacts of the Industrial Revolution. You should explore how this era transformed society and the economy, using both primary and secondary sources to support your analysis.

Instructions:

1. Introduction (1-2 paragraphs):

- Provide an overview of the Industrial Revolution, including key background information.
- State your thesis, summarizing the main causes and impacts you will explore in your paper.

2. Body (4-5 pages):

- **Section 1: Causes**

Describe and analyze the main causes of the Industrial Revolution, such as technological advancements, economic policies, and social factors.

- **Section 2: Economic Impacts**

Discuss the changes to industry, trade, and labor. How did factory work alter daily life? Use primary sources (e.g., historical accounts) to illustrate the era's economic shifts.

- **Section 3: Social Impacts**

Examine how society was transformed. Address urbanization, shifts in social class structures, and the rise of new social movements.

3. Conclusion (1 paragraph):

- Summarize your findings and suggest broader implications. How did the Industrial Revolution lay the groundwork for the modern world?

4. Citations:

- Cite at least three primary sources (such as letters, speeches, or illustrations from the time) and three secondary sources. Use MLA format for all citations and include a Works Cited page.

How to Submit:

Upload a PDF of your paper to Google Classroom. Your paper should have 1-inch margins, be double-spaced, and use 12-point Times New Roman font. Include your name, date, and class period on the first page.

History Assignment Rubric: The Industrial Revolution - Causes and Impacts

Criteria	Excellent (4)	Good (3)	Fair (2)	Needs Improvement (1)
Thesis and Focus	Clear, focused thesis with a well-supported argument that drives the paper's analysis.	Clear thesis with some support, but may lack depth in argument.	Weak or underdeveloped thesis that does not clearly guide the paper.	No thesis or lacks focus, with no clear argument or purpose.
Use of Sources	Excellent use of primary and secondary sources, with seamless integration and strong relevance to the argument.	Good use of sources, mostly relevant and well-integrated; minor issues in integration.	Limited use of sources, with relevance or integration issues that detract from the paper's argument.	Minimal or irrelevant sources that do not support the thesis or argument effectively.
Analysis and Insight	Insightful, well-developed analysis with clear connections to the thesis; shows depth in understanding the era's impact.	Good analysis with relevant points; lacks nuance in some areas.	Basic analysis that lacks depth or clear connections to the thesis.	Minimal or missing analysis, with little to no insight or connection to the thesis.
Organization	Clear structure with logical progression and well-defined sections; ideas flow smoothly.	Mostly clear structure; ideas generally flow, though transitions may be weak.	Lacks clear structure; ideas are scattered or difficult to follow.	Disorganized or hard to follow, making it difficult to understand the paper's argument.
Writing Quality	Excellent grammar, spelling, and style; essay is polished and easy to read.	Generally well-written with few grammar issues; some minor readability issues.	Noticeable grammar or style issues that detract from readability.	Frequent grammar and style issues that make the paper hard to read.
MLA Formatting	Consistent and accurate use of	Mostly consistent	Some MLA formatting issues	Incomplete or incorrect MLA

Criteria	Excellent (4)	Good (3)	Fair (2)	Needs Improvement (1)
	MLA format for citations, including a well-formatted Works Cited page.	MLA format with minor errors.	or inconsistent citation style.	formatting; citations may be missing.

4. Biology Lab Report

Lab Title: Comparative Analysis of Cellular Respiration and Photosynthesis

Due Date: Thursday, May 18, 2023

Objective:

The purpose of this lab report is to investigate and analyze the processes of cellular respiration and photosynthesis, compare their mechanisms, and explore their significance in ecosystems. You will examine both processes in detail and relate them to real-world ecological impacts.

Lab Report Structure

1. Title Page

- Include the title of the lab, your name, date, class period, and instructor's name.

2. Abstract (150-200 words)

- Summarize the main objectives of the lab, the processes examined (cellular respiration and photosynthesis), the primary findings, and the ecological implications. The abstract should give a quick overview of what you will discuss in the report.

3. Introduction

- Provide background information on cellular respiration and photosynthesis.
- Include definitions, the purpose of each process in living organisms, and why these processes are fundamental to ecosystem balance.
- End with a statement of purpose, clearly stating the objective of the lab report, and briefly outline the comparisons and analyses you will conduct.

4. Materials and Methods

- **Materials:** List any materials used for diagrams, online resources, or academic sources consulted to complete this lab.
- **Methods:** Describe the procedure for investigating cellular respiration and photosynthesis. Include steps such as:
 - Researching each stage of the processes.
 - Developing diagrams for each stage with proper labels.
 - Analyzing the relationships between the two processes, specifically focusing on energy flow and the exchange of gases.
 - Exploring a real-world example of the ecological significance of cellular respiration or photosynthesis.

5. Results

- Present findings from your investigation into the stages of cellular respiration and photosynthesis.
- Use clear, labeled diagrams to illustrate each stage of both processes.
- Create a comparative table to summarize key elements of each process, such as the inputs, outputs, and energy transformations.

6. Discussion

- **Comparative Analysis:** Discuss the similarities and differences between cellular respiration and photosynthesis. Address aspects such as:
 - How each process uses and transforms energy.
 - The interdependence between these processes in ecosystems.
 - The role of oxygen, carbon dioxide, and glucose in each.
- **Ecological Impact:** Describe a real-world example that illustrates the importance of these processes in an ecosystem (e.g., the role of plants in carbon cycling).
- **Significance:** Reflect on the broader ecological implications of understanding these processes, especially in terms of global environmental health and the role of plants in maintaining atmospheric balance.

7. Conclusion

- Summarize the main points of your analysis, including any key takeaways on the significance of cellular respiration and photosynthesis.
- State the importance of these processes for both plant and animal life and the balance they provide in ecosystems.

8. References

- Include all sources used to gather information, diagrams, and data. Use APA formatting for citations.

How to Submit

Compile your lab report into a single PDF, ensuring that all diagrams are labeled clearly and integrated into the appropriate sections. Submit your report to Google Classroom with your name, date, and class period on the title page.

Rubric

Criteria	Excellent (4)	Good (3)	Fair (2)	Needs Improvement (1)
Abstract	Clear, concise summary of objectives, methods, and findings.	Clear summary but may lack detail.	Vague or missing key points.	Missing or unrelated information.
Introduction	Strong background and purpose statement	Adequate background, mostly clear purpose	Lacks clarity or key information	Minimal or unclear background
Methods	Comprehensive and detailed	Mostly detailed, some minor gaps	Some steps unclear	Lacks clarity, missing information
Results & Diagrams	Detailed, accurate, and well-labeled diagrams	Accurate diagrams, minor errors	Limited or unclear diagrams	Missing or inaccurate diagrams
Discussion	Insightful comparisons and ecological insights	Good comparisons, limited insight	Basic analysis, little depth	Minimal or unclear discussion
Conclusion	Clear and well-stated conclusions	Mostly clear, some points unclear	Vague or lacking in analysis	Incomplete or unclear conclusion
References	Correct APA formatting, relevant sources	Mostly correct APA, some relevant sources	Incorrect format, minimal sources	No citations or very minimal