

UNIT: ELECTRICAL CIRCUITS

ACT-BASED WRITING: WRITING PROMPTS & ESSAY ASSIGNMENT

These **writing prompts** and an **ACT-style essay assignment** will help students **develop arguments, use evidence, and practice structured writing**—all essential for **ACT Writing success** while reinforcing concepts from your **electrical circuits unit**.

Writing Prompts – Argumentation & Analysis

- **Prompt 1: Series vs. Parallel Circuits**

"Series and parallel circuits serve different purposes in electrical engineering. Some argue that series circuits are more efficient due to their simplicity, while others believe parallel circuits are superior because they provide reliability. Which type of circuit is better for practical use? Defend your position with scientific reasoning and real-world examples."

✓ **ACT Writing Skills Practiced:** Argumentation, Evidence Use, Organization

- **Prompt 2: Renewable Energy & Electrical Circuits**

"Renewable energy sources like solar and wind power rely on well-designed electrical circuits for energy storage and distribution. However, critics argue that renewable energy systems are unreliable due to fluctuations in power supply. Should the U.S. invest more in renewable energy infrastructure despite these challenges? Develop an argument using scientific principles and real-world applications."

✓ **ACT Writing Skills Practiced:** Critical Thinking, Persuasive Writing, Scientific Analysis

- **Prompt 3: The Role of Electrical Resistance**

"Electrical resistance plays a key role in circuit efficiency. High resistance can lead to energy loss, while low resistance allows for better current flow. Should engineers prioritize reducing electrical resistance in all circuits, or are there cases where higher resistance is beneficial? Develop an argument and support your claim with scientific reasoning."

✓ **ACT Writing Skills Practiced:** Analytical Thinking, Evidence-Based Writing, Technical Explanation



ACT-Style Essay Assignment: Electrical Circuits & Society

Assignment Overview

In this ACT-style essay, students will analyze **three perspectives** on the role of electrical circuits in modern technology. They will **develop their own perspective**, evaluate the given viewpoints, and support their argument with evidence.

Prompt:

"Electrical circuits are at the core of modern technology, powering everything from household appliances to advanced medical devices. Some argue that innovation in circuit design should focus on increasing efficiency, while others believe reliability and cost-effectiveness should be the priority. A third perspective suggests that circuit technology should evolve primarily to support renewable energy systems. In your essay, develop your own perspective on the future of electrical circuits and analyze how it compares to at least one of the provided viewpoints. Use reasoning and evidence to support your argument."

Perspectives for Analysis

◆ Perspective 1 – Efficiency First:

"The future of electrical circuits should focus on increasing efficiency. By minimizing resistance and maximizing energy transfer, we can reduce energy waste and improve performance across all technologies."

◆ Perspective 2 – Reliability & Cost:

"Circuits must be designed with reliability and affordability in mind. The most important goal is to create stable, long-lasting electrical systems that are accessible and cost-effective."

◆ Perspective 3 – Renewable Energy Priority:

"Advancements in electrical circuits should prioritize renewable energy applications. The global shift toward sustainability depends on circuits that efficiently store and distribute solar and wind power."

Essay Structure & Expectations



Introduction

- Introduce the topic and the three perspectives.
- Clearly state your own perspective.

✓ Body Paragraphs

- **Develop your argument**, supporting it with scientific reasoning and real-world examples.
- **Compare and contrast** your view with at least one of the provided perspectives.

✓ Conclusion

- Summarize your argument.
- Explain the broader implications of circuit advancements in society.

☀ Why This Writing Assignment Matters

- ✓ Prepares students for **ACT Writing** by teaching **argumentation, organization, and analysis**.
- ✓ Encourages **STEM literacy** by requiring students to defend positions using **scientific evidence**.
- ✓ Strengthens **real-world writing skills**—essential for **college, technical careers, and engineering fields**.