

## UNIT: AUTONOMOUS VEHICLE

# ACT-BASED WRITING: DEBATING ETHICAL CONCERNS IN AUTONOMOUS VEHICLES

Here are **ACT-aligned writing activities** for the Robotic Car Kit that help students develop real-world communication skills by explaining speed and distance calculations, interpreting sensor data, and evaluating motion patterns. Through writing tasks that involve organizing technical information, supporting claims with evidence, and analyzing robotic performance, students build the clarity, argument development, and analytical writing skills emphasized on the ACT Writing section.

**OBJECTIVE:**

Students will write an argumentative essay on the ethical use of self-driving cars.

**MATERIALS NEEDED:**

- Debate prompts

**STUDENT DIRECTIONS:****Goal:**


Students will research, construct, and revise an argumentative essay addressing the ethical implications of autonomous vehicles, applying critical thinking and structured writing aligned with ACT Writing standards.

**Step 1: Explore and Discuss Ethical Topics**

1. Begin with a **brief class discussion** or mini-lesson introducing key ethical issues:
  - Who is responsible in the event of an accident—driver, manufacturer, or AI?
  - Should self-driving cars prioritize passengers or pedestrians in emergencies?
  - How is data collected by autonomous vehicles used and protected?
2. Assign or allow students to choose **one ethical issue** to focus on.
3. Distribute **articles, opinion pieces, or videos** that cover various perspectives on these topics.
4. Students take notes on:
  - The different sides of the argument
  - Key facts, expert opinions, and real-world examples

- Any potential counterarguments

## Step 2: Plan the Argument

1. Students use an **argument planner** or graphic organizer to develop:
  - A **clear thesis statement** (the position they will defend)
  - **Three supporting claims**, each backed by evidence or reasoning
  - **Counterargument and rebuttal**
2. Example Thesis (from ACT question):  
 *"The ethical concerns of self-driving cars, such as decision-making in accidents, data privacy, and liability, must be carefully considered before widespread adoption."*
3. Teacher checks and gives feedback on thesis clarity and logical structure before students begin writing.

## Step 3: Write the First Draft

1. Students write a **multi-paragraph argumentative essay** (typically 4–5 paragraphs):
  - **Intro paragraph**: Hook, background, and thesis
  - **Body paragraphs (3)**: Each presents a claim + evidence + explanation
  - **Counterargument paragraph**: Acknowledge the opposing side + rebut it
  - **Conclusion**: Summarize key points, restate thesis, and connect to broader significance (e.g., future of transportation)
2. Emphasize **clarity**, **logical transitions**, and **evidence-based reasoning**.

## Step 4: Peer Review and Revision

1. Students exchange essays and complete a **peer review checklist** focusing on:
  - Is the thesis clear and debatable?
  - Are the arguments supported by credible evidence?
  - Is the structure logical and easy to follow?
  - Are grammar and mechanics correct?
2. After peer review, students revise their drafts based on feedback, improving:
  - Organization
  - Argument strength
  - Grammar and sentence clarity

## Optional Step 5: Present or Debate

1. As an extension, students can **present their arguments** in small groups or hold a structured class debate on the ethics of self-driving cars.
2. Peers can vote on the most persuasive arguments using a rubric or discussion reflection form.

## ACT-STYLE QUESTION:

- Which of the following thesis statements would be most appropriate for an argumentative essay about self-driving cars and ethics?
  - A. "Self-driving cars are an interesting invention, and many people enjoy using them."
  - B. "The ethical concerns of self-driving cars, such as decision-making in accidents, data privacy, and liability, must be carefully considered before widespread adoption."
  - C. "Some people think self-driving cars are bad, while others think they are good, so there are many opinions."
  - D. "Technology is always advancing, and self-driving cars are just one example of how the world is changing."

## ⚡ Why These Activities and Questions Matter

By engaging in writing-based tasks connected to the Robotic Car Kit, students:

- ✓ Explain real-world systems involving speed, distance, and sensor-based movement through clear, structured writing.
- ✓ Develop arguments about robotic efficiency using data collected from experiments and trials.
- ✓ Strengthen writing skills by organizing evidence, analyzing outcomes, and evaluating multiple perspectives related to robotics and engineering design.

These writing-focused tasks mirror the ACT Writing emphasis on logical organization, clarity of ideas, and evidence-based argumentation—preparing students to succeed on the ACT and communicate effectively in STEM careers.