UNIT: AUTONOMOUS VEHICLE

ACT-BASED READING: EVALUATING ETHICAL IMPLICATIONS OF SELF-DRIVING CARS

Here are ACT-aligned reading activities for the Robotic Car Kit that help students build real-world skills in analyzing technical texts, identifying main ideas and details, interpreting sensor data and motion reports, understanding technical vocabulary, and synthesizing information from multiple sources related to robotic movement and navigation.

OBJECTIVE:

Students will analyze articles discussing ethical concerns in autonomous vehicles.

MATERIALS NEEDED:

- Opinion pieces

STUDENT DIRECTIONS:

Goal:
Students will critically read and evaluate multiple perspectives on the ethical implications of autonomous vehicles, identify main ideas and supporting details, and compose a written reflection expressing their own informed opinion.

Step 1: Read Multiple Viewpoints on Ethical Concerns

1. Provide students with **2–3 contrasting opinion pieces** or excerpts. These might include:
   - Arguments in favor of autonomous vehicles improving safety and efficiency
   - Concerns about job displacement for drivers or moral dilemmas in crash decision-making
   - Questions about algorithm bias or data privacy
2. As students read, they should:
   - **Highlight key arguments** (main claims)
   - **Underline supporting evidence** (facts, examples, data)
   - **Circle emotionally charged or persuasive language**

Reading Strategy Tip: Use a **graphic organizer** like the one below:

Source Title	Main Argument	Supporting Details	Tone/Perspective
"Why We Need Autonomous Cars"	They reduce human error	90% of crashes are due to driver mistakes	Optimistic/pro-technology
"Self-Driving Cars Could Destroy Jobs"	Mass job loss in trucking industry	Over 3 million drivers could be replaced	Concerned/critical

Step 2: Identify and Evaluate Ethical Arguments

1. In small groups or pairs, students discuss:
   - What are the **biggest ethical concerns** mentioned in the texts?
   - Who might benefit from self-driving cars? Who might be harmed?
   - Are the arguments supported by **evidence or emotion**?
2. Students document the following:
   - At least **one ethical dilemma** (e.g., Who should a car protect in an unavoidable crash?)
   - One **stakeholder's viewpoint** (e.g., a delivery driver, pedestrian, software engineer)
   - A brief explanation of whether they find the argument persuasive and why

Step 3: Write a Personal Reflection or Position Statement

Prompt:
In a paragraph or short essay, explain **your opinion on the use of autonomous vehicles**. Do you believe the benefits outweigh the ethical concerns? Why or why not?

Requirements:
- State a **clear position**
- Refer to **at least one argument** from the readings
- Include **supporting details**
- Use formal tone and correct grammar

Extension:
- Have students **share their position in a classroom debate** or discussion circle.
- Allow them to **respond to a peer's opinion** using sentence starters like:
  - "I agree with ＿＿＿ because…"
  - "I respectfully disagree because…"

ACT-STYLE QUESTION:

- What is a primary ethical concern regarding autonomous vehicles?

  A. Job displacement
  B. Increased fuel consumption
  C. Reduced entertainment options
  D. Lower battery lifespan

⚡ Why These Activities and Questions Matter

By engaging in reading-based activities connected to the Robotic Car Kit, students:

✅ Practice identifying main ideas, key details, and sequences in technical texts about robotics and motion systems.

✅ Strengthen their understanding of technical vocabulary related to sensors, navigation algorithms, and robotic components.

✅ Analyze the organization and logic of experimental procedures, troubleshooting guides, and design manuals.

✅ Interpret and evaluate information from multiple documents, including sensor data reports and programming notes, to improve robotic performance.

These literacy-rich activities mirror key ACT Reading skills—such as comprehension of technical texts, logical analysis, and synthesis of multiple sources—preparing students for ACT success and real-world applications in STEM careers involving robotics, engineering, and technology.