STEM 101
Powered by THE STEM ACADEMY

Name: _____
Period: _____

UNIT: AUTONOMOUS VEHICLE

ACT-BASED ENGLISH: EDITING TECHNICAL DESCRIPTIONS

Here are ACT-aligned language and editing activities for the Robotic Car Kit that help students strengthen real-world communication skills by clearly explaining measurements, analyzing speed and distance calculations, adjusting ratios and proportions, and interpreting data related to sensor readings, motion paths, and acceleration tracking.

OBJECTIVE:

Students will revise a robotic car user manual for clarity and accuracy.

MATERIALS NEEDED:

- Sample manual
- Editing guideline

STUDENT DIRECTIONS:

Goal:
To improve clarity and effectiveness in technical writing by identifying confusing language, editing for readability, and understanding how word choice affects user comprehension.

Editing Guidelines:
Step 1: Identify Unclear or Redundant Wording

Read through the provided technical passage from the robotic car manual. As you read, **highlight or underline words and phrases that are vague, repetitive, or overly complicated**.

- Look for words or phrases that don't add value or repeat the same idea (e.g., "move in all directions in every way").
- Avoid overuse of passive voice or filler phrases that might confuse the reader.
- Ask yourself: **Would someone with no background in robotics clearly understand this sentence?**
  Tip: If you need to re-read a sentence to understand it, it likely needs revision.

Step 2: Improve Sentence Structure for Readability

Now that you've identified confusing or wordy parts, rewrite them to be **clearer, more concise, and more direct**.

- Use **active voice** wherever possible.
- Replace long, complex phrases with simpler ones.
- Organize instructions in a **logical, step-by-step order** for easy comprehension.
- Make sure each sentence conveys one main idea.

Example Fix:
❌ "The robotic car that is programmable can be made to move in multiple directions due to the motors being installed."
✅ "The programmable robotic car moves in multiple directions using its motors."

Step 3: Discuss How Technical Language Affects User Comprehension

In pairs or small groups, **share your edited sentences** and discuss the impact of your changes. Use the following guiding questions:

- How did your changes make the instructions easier to follow?
- What types of technical language are useful, and which ones were confusing?
- Why is clarity especially important in manuals or STEM writing?
- What problems could happen if someone misunderstands an instruction in a robotic car manual?

ACT-STYLE QUESTION:

- Which revision improves clarity in a technical manual?

A. "The robotic car, which is programmable, can move in all directions."
B. "The programmable robotic car moves in all directions."
C. "All directions can be moved in by the programmable robotic car."
D. "The car that is robotic has programmable movement in all directions."

⚡ Why These Activities and Questions Matter

By engaging in structured activities connected to the Robotic Car Kit, students:

✅ Practice communicating technical ideas clearly, such as describing how speed, distance, and time interact in real-world systems.
✅ Strengthen their use of precise language when explaining data from robotic sensors and movement analysis.
✅ Develop editing and revision skills by interpreting graphs, refining procedural explanations, and evaluating informational clarity.

These hands-on, robotics-based tasks support the ACT English focus on effective communication, logical structure, and clarity of expression—helping students succeed on the ACT and in future STEM writing and technical documentation.