

# Automation and Programming Highlights (Just the Facts)

Read the descriptions in your Building Guides for a clearer picture of what is expected from each group member.

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**Spinning Sign:** Use GEARS to control a sign and have it spin slowly. A button should be pressed to turn it off.

*Teacher's Advice: Connect different sized gears to the motor and build your sign around it*

**Robot Drag Race:** Create the fastest moving drag racer that will go 20 feet and then stop

*Teacher's Advice: Different sized gears will make a big difference in speed you can achieve*

**Terry Traffic Tamer:** Create a stoplight that goes from green (5 seconds) to yellow (2 seconds) to red (5 seconds) [and then back to green at the beginning of the loop] and then goes to red when a button is pressed and held.

*Teacher's Advice: Easy to Build, but hard to program. Watch the video for help*

**Toll Booth:** Use a POTENTIOMETER to sense the movement of a tollbooth arm to raise when cars pass through and then close again.

*Teacher's Advice: Use the debugger windows to help you program the potentiometer.*

**Grandma's Chair:** Use a switch mounted on grandma's chair to control her movement up and down a 30° inclined plane

*Teacher's Advice: Look at the gear mechanisms to find an easy way to build this using worm gears*

**Tekrocks Bridge:** Design a 'turntable bridge' that rotates 90° and then reverses rotation and closes again. Use a POTENTIOMETER to control the movement in an arc.

*Teacher's Advice: Watch the debugger windows to get it perfect. Slow motor speeds are key*

**Road Trip:** Simulate a simple driving trip by designing a car that can follow a path and then get itself back home again.

*Teacher's Advice: Easy to build – hard to program. Lots of trial runs to get this right*

**Stay on Course:** Create a tank that uses a Line Tracker to follow a black line, have it stop at the end of the line and unload cargo, then reverse direction until it gets back to start.

*Teacher's Advice: The debugger windows will be your friend to get the light settings just right*

**Pick and Place:** Use the CLAW to pick up boxes and move them into a designated bin. The claw should return to start after it releases the box.

*Teacher's Advice: Harder to build than to program. Find a way to move the claw to start with.*

**Freight Elevator:** Design an elevator with a ground floor, a first floor, and a second floor. Have switches to choose the desired floor, and use sensors to determine when the elevator reaches the desired floor. Return to the ground floor when done.

*Teacher's Advice: A long program, but pretty easy to build.*