Edison Robot Maze

Grade level(s) I use with: this is my basic introduction for 5th and 6th graders to scratch coding robots, using edscratchapp.com with the Edison robots.

Lesson Overview:
Students try to code the robot to go from a set of starting points, usually simulating delivering something to a central location. I've done a Chernobyl maze where the robot traveled to the core delivering fire suppressant, a similar maze set in Australia putting out a wildfire to save Koala bears, and a Moon mission delivering moon rocks to a processing station. I've also used it with 7th / 8th graders switching to edpyapp.com to introduce text based Python coding

Just to up the engagement I love to create a class challenge - I think their favorite is rescuing the Koalas where is the class reaches a goal for the number of individual successful missions the entire class gets a cute Koala pencil topper
https://www.amazon.com/Toppers-Hungers-Critter-Birthday-Supplies/dp/B0B3DL2XS6/ref=sr_1_5?crid=3LPEMUN5BLSLH&keywords=cute+koala+pencil+topper&qid=1698465947&sprefix=cute+koala+pencil+topper%2Caps%2C92&sr=8-5

I always share these coding hints that really help everyone get consistency from their robot -
- Put a 1 second wait first so that your starting push doesn't interfere with robot movement
- Pay close attention to your starting position - it needs to be the same each time
- Use Turn Forward option for your turns - it is the most consistent
- Use low speed (I suggest 3 or 4) - fast robots = inconsistent robots
- Stay away from walls and obstacles - even a small bump will change the outcome each time

Materials and equipment I use:
The Maze table - is an old Lego robotics competition table that I've shifted into a maze configuration with pieces of 2 x 4. The key challenge here is engagement - so I have enough Edison robots to go 1:1 and then set up the table with three possible starting points at each end. The table is set-up so that both ends are mirror-images so that the students can choose either side if things are crowded. In the middle is a target line that they need to touch in order to be successful, and I find it helps to have a "fail" line about 3 inches inside that so they have to control their finish code a bit more.

Edison Robots: https://meetedison.com/ These are my favorite basic robot, really well made, dependable and lots of flexibility in how to code them : QR codes that don't even require a computer, blockly for younger kids, scratch for middle school and python for beyond. All coding is web-based so works with chromebooks. Can be very simple (ie. coding just forward and turns) but also some useful sensors.

Edscratchapp.com . .. I've had good success with this as young as 3rd grade, but still engaging even for 7th and 8th graders