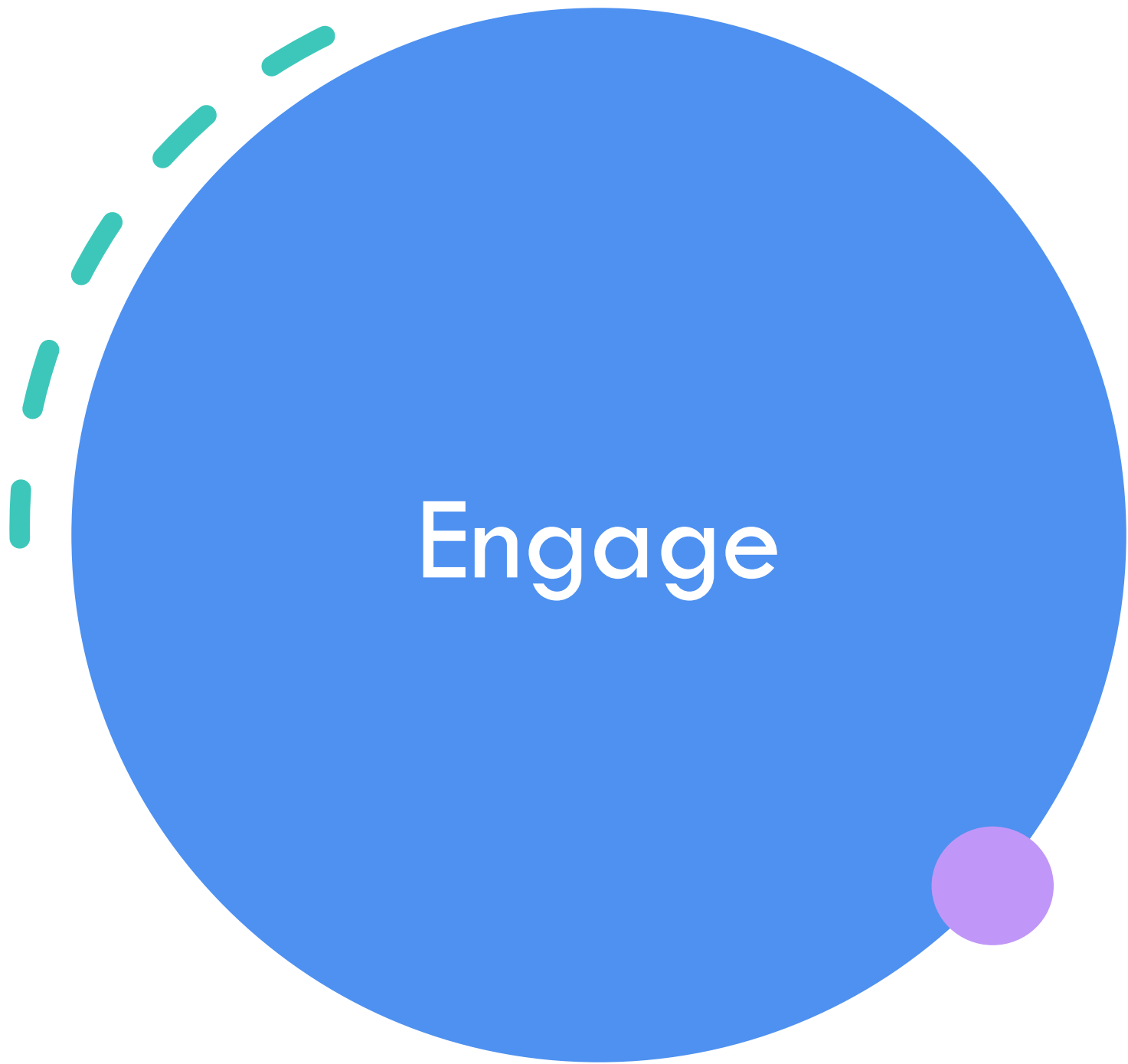


Lesson 1

Robot Basics: Meet Your Robot



NextWaveSTEM



Engage



Hi, Rapid
Responders!



Today's Big Idea: Robots can be controlled by humans or by programs.

We will learn:

- **The parts of a robot**
- **How to safely drive a robot**
- **That robots can follow instructions called a program**

Mission Briefing

Welcome recruits!

You have been selected to join the Rapid Response League.

Before you can deploy your robot into disaster zones, you must complete robot training.

Your robot must pass the training course by navigating through the practice area safely and accurately.



Robot Questions



What is a robot?

What jobs do robots do?

How do robots know what to do?

Build Your Base Robot

- Use your VEX IQ kit to build a BaseBot
- You will be adding tools and sensors to your BaseBot in future lessons
- [Build Instructions](#)



Robot Safety Rules



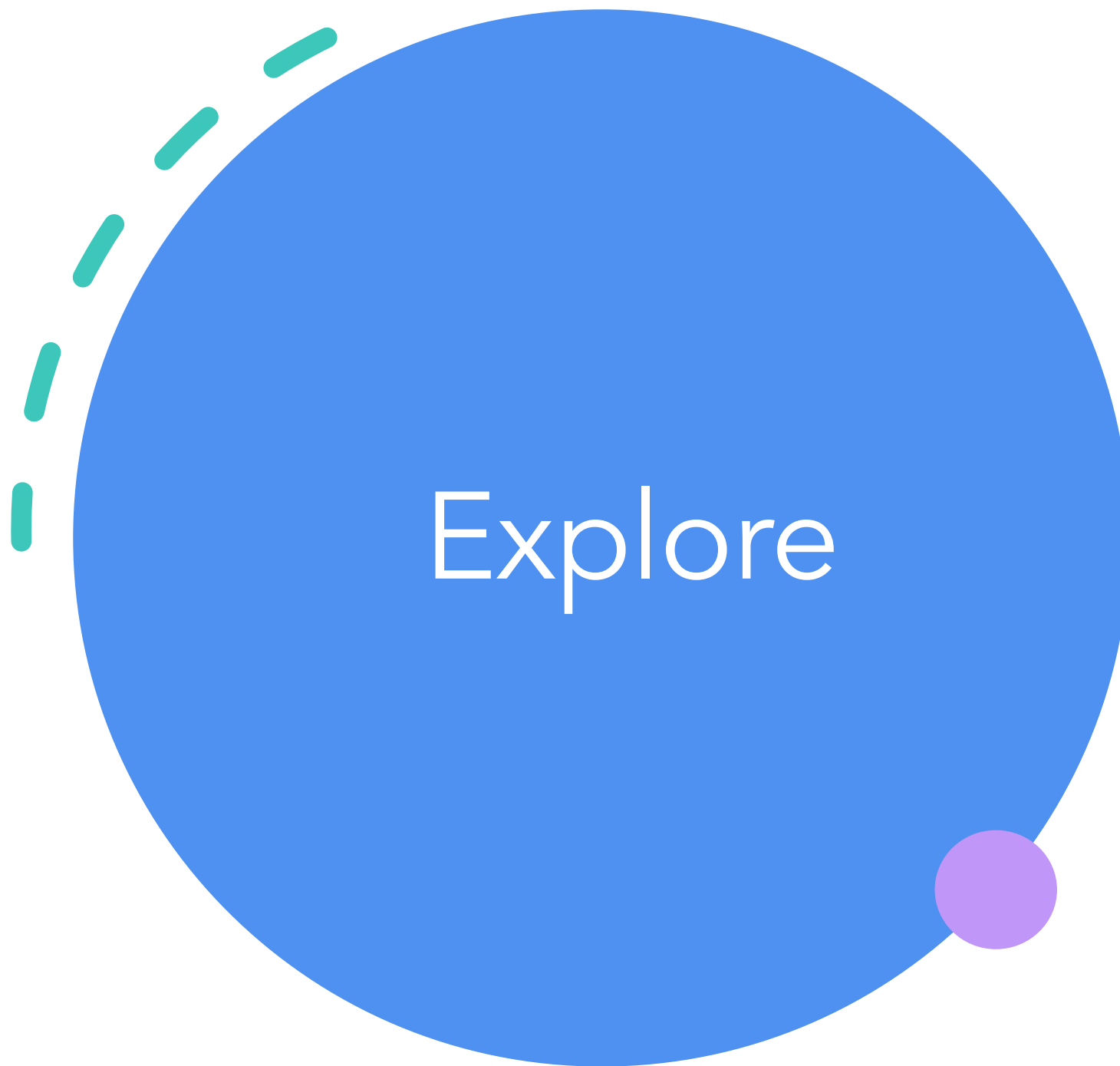
Keep robots on the floor

Keep fingers away from wheels

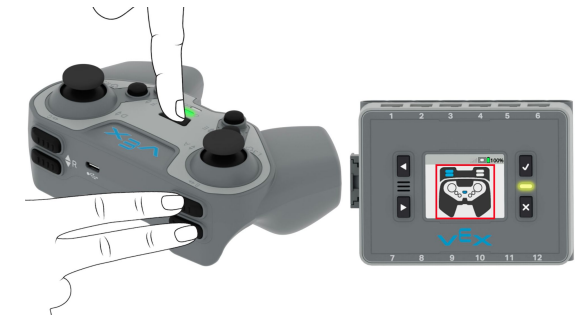
Stop robot if it is out of control

Carry robots carefully

Only run programs when area is clear



Get Ready to Drive! (Pair Controller)



Install the Battery and select the Check button to turn on the Brain.

Press the Power button to turn on the Controller.

The Brain's LED and the Controller's Power/Link LED should display green to show that they are powered on.

Use the arrow buttons to scroll to Settings.

Press the Check button to select Settings.

Scroll to Link and press the Check button to select.

Once Link is selected, the pairing screen will open. The Brain's LED will turn yellow while connecting.

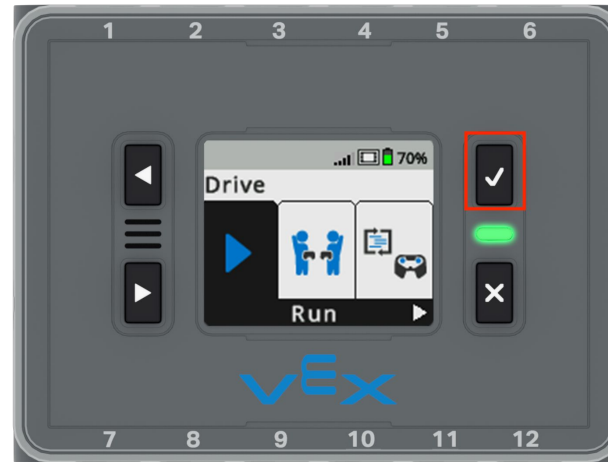
Press the Controller Power button 2 times while holding down the L-Up and L-Down buttons, as shown on the Brain screen.

Note: Notice the timing in which the Power button blinks on the Brain screen. Try to press the Controller Power button with the same timing. This may take more than one try.

Get Ready to Drive! (Manual Control)



Press the checkmark to select the highlighted Drive program.



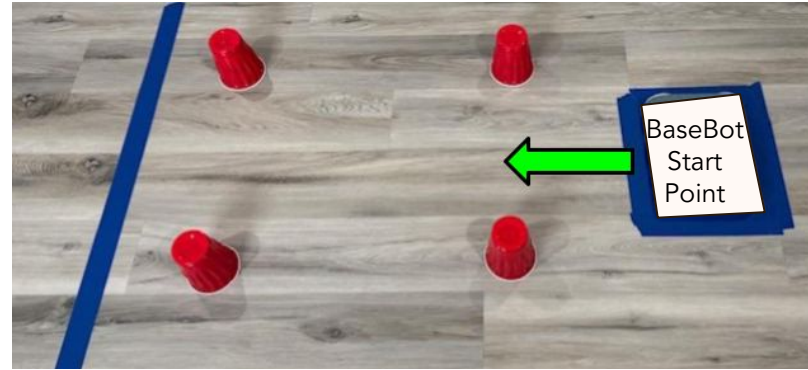
Press the checkmark again to run the program.



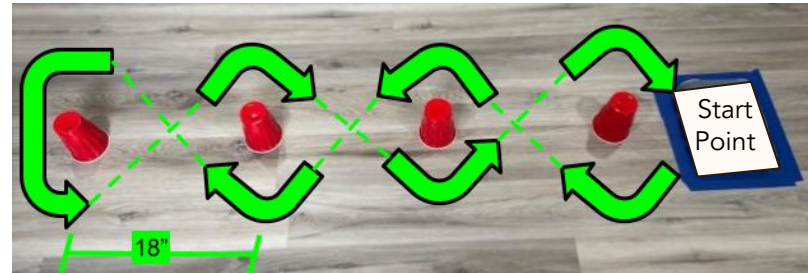
As the program is running, the Brain's screen will look like this image.

To stop the program, select the x button.

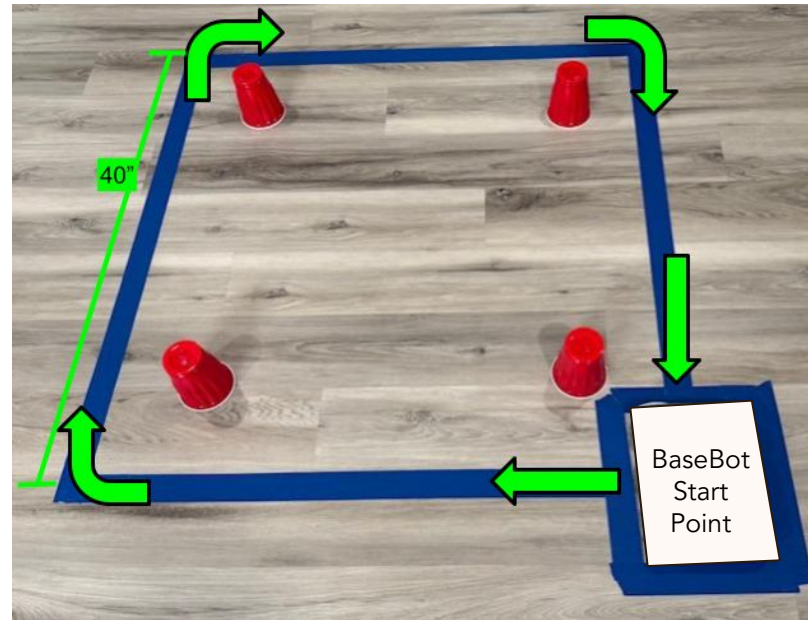
Training Courses



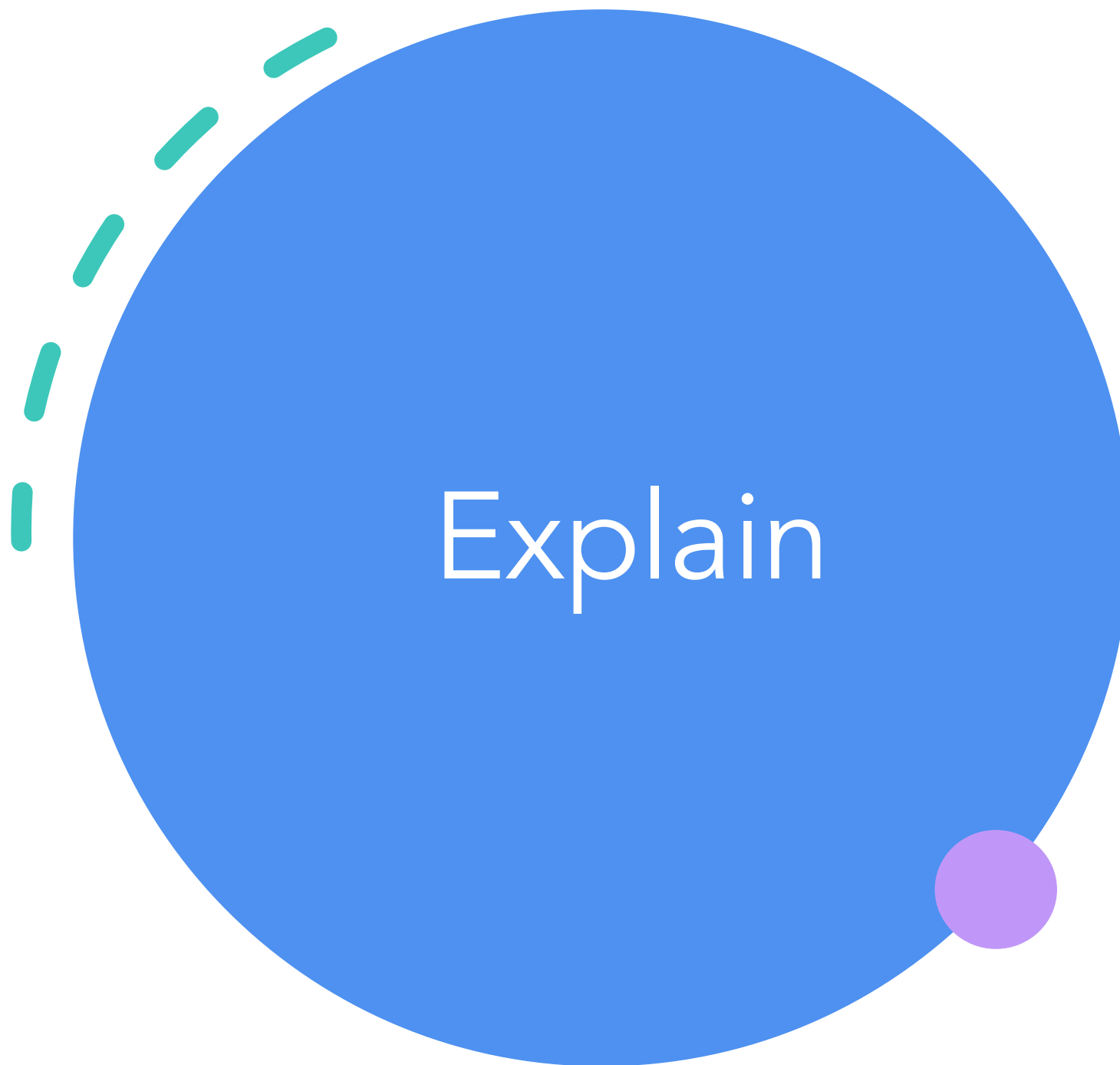
Stop on a Dime



Slalom



Perfect Square



Manual Driving

Was it easy to drive perfectly?

Did the robot always do exactly what you wanted?

Would it be easier if the robot could drive itself?

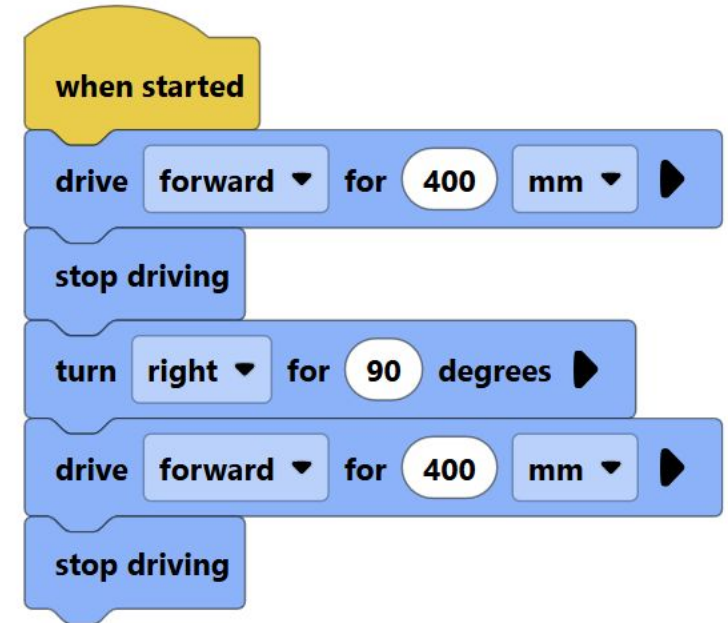


Program

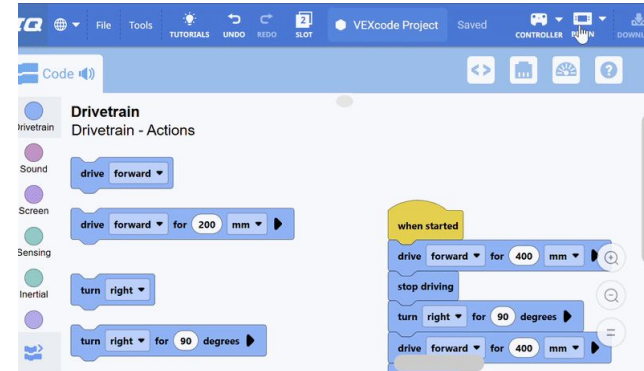
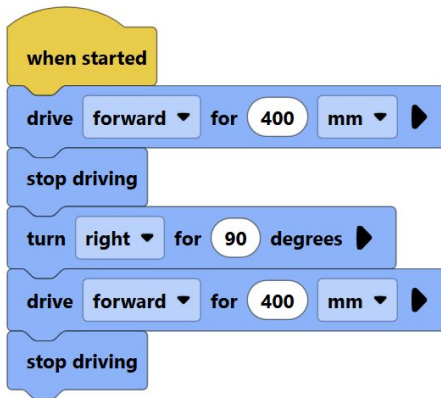
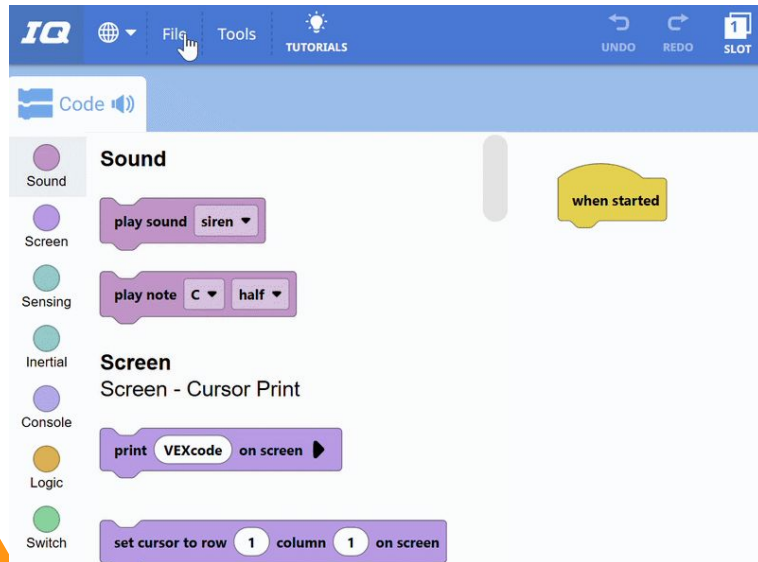
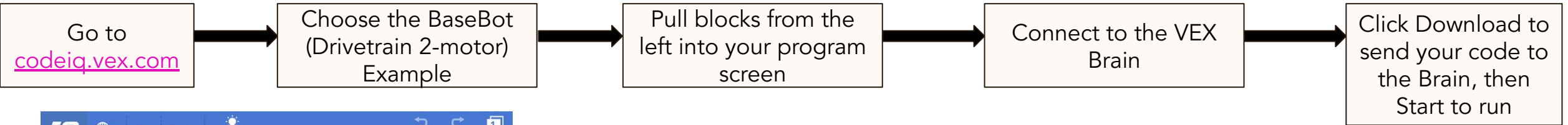
A **program** is a set of instructions that tells a robot what to do.

Example:

- Drive forward
- Stop
- Turn right
- Drive forward
- Stop

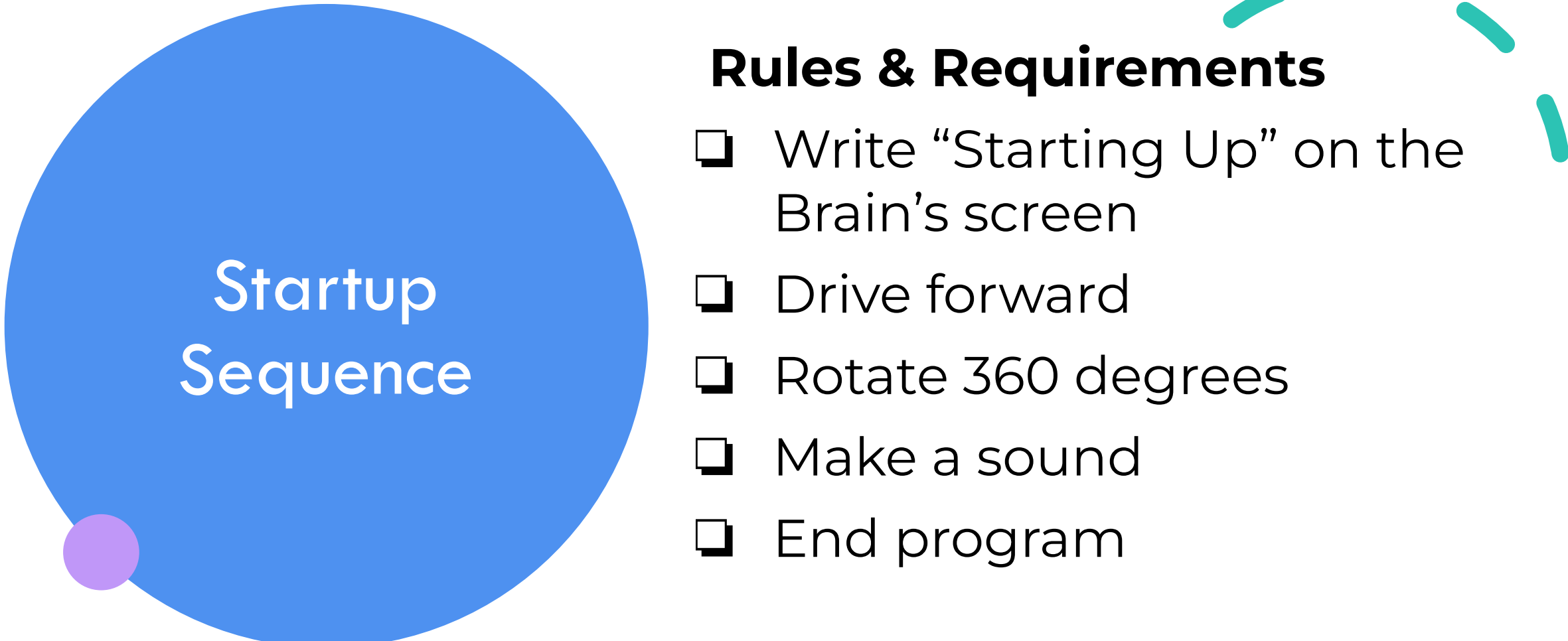


Your First Program





Elaborate

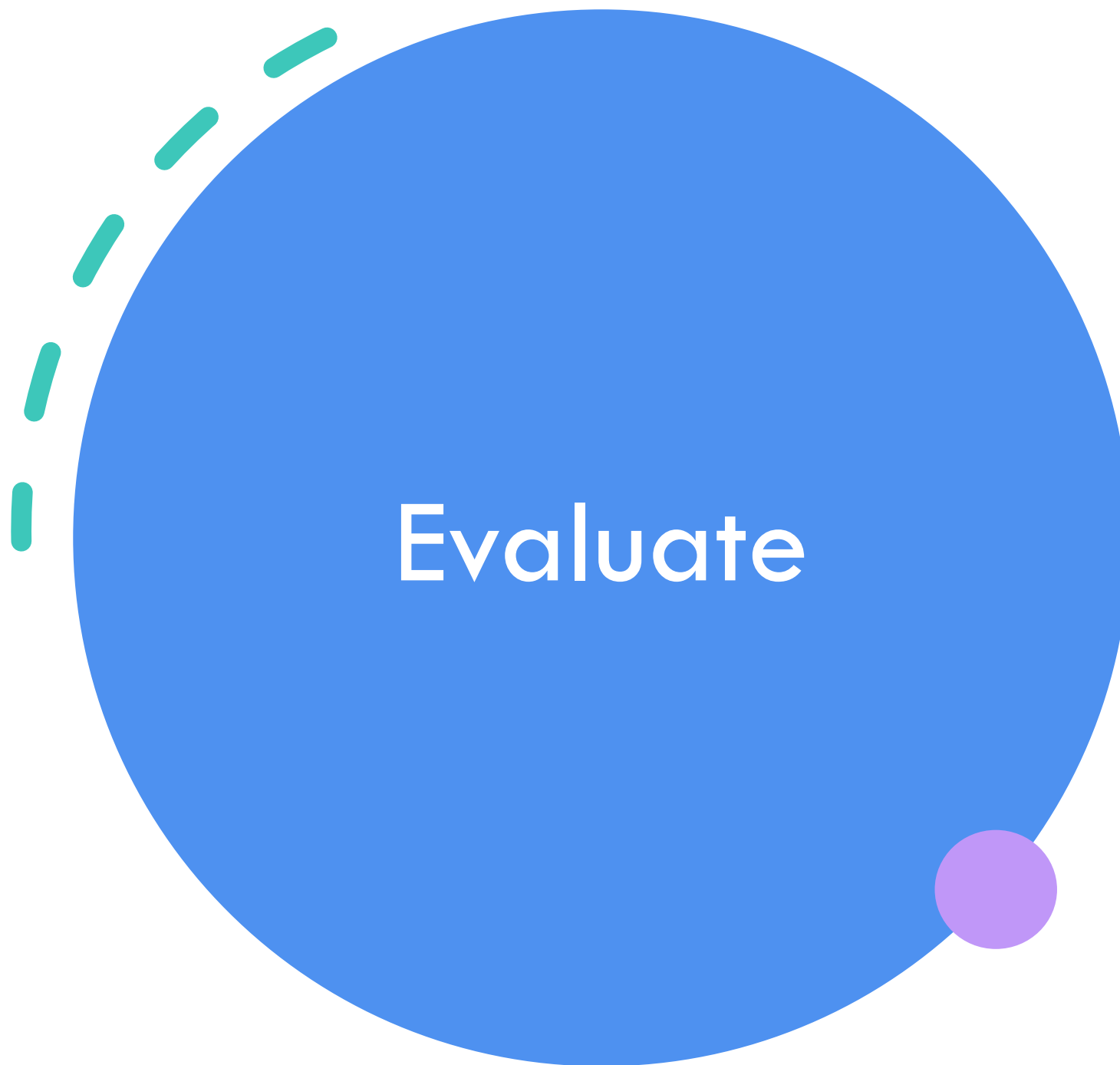


Startup Sequence

Rules & Requirements

- ❑ Write “Starting Up” on the Brain’s screen
- ❑ Drive forward
- ❑ Rotate 360 degrees
- ❑ Make a sound
- ❑ End program

Done with your startup sequence? Add more to your program! You could make the robot dance on startup, or add a few turns!



Exit Ticket

Now's your chance to show what you learned!
Answer the following questions on your
Activity Sheet.

1. What is a robot?
2. What is a program?
3. Did your program work perfectly the first time? If not, what happened?

Great Work,
Rapid
Responders!





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