

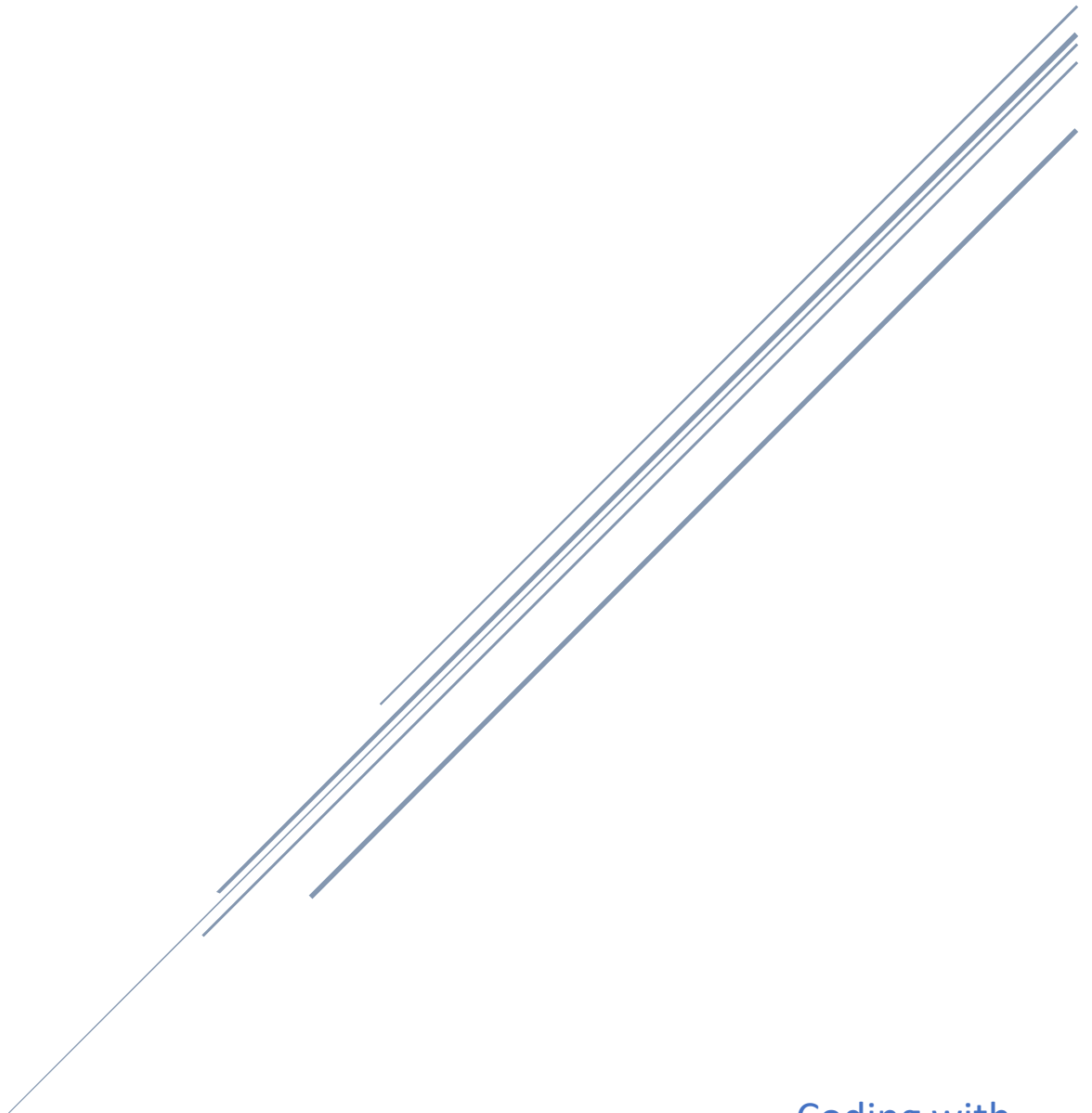
VSB STUDENT HANDBOOK

Name: _____

Grade: _____

Division: _____

Teacher: _____



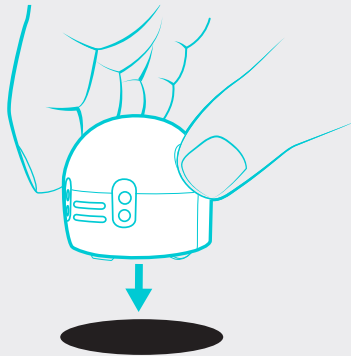
Coding with
Ozobots

It is important to calibrate Ozobot before each session and/or when you change play surfaces. Calibration helps improve Ozobot's code and line reading accuracy.

CALIBRATION TIPS

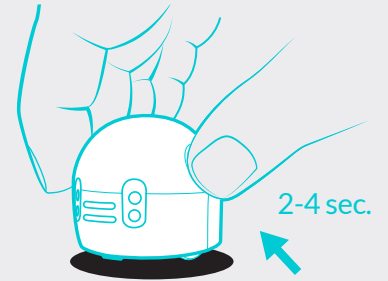
PAPER CALIBRATION

1 Make sure Ozobot is powered off, then place it in a black circle slightly bigger than Ozobot. If you are using markers, create this circle using a black marker.

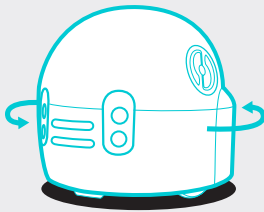


2

Press & hold Ozobot's Power Button for 2-4 sec. until top light blinks white. Then, release Power Button.

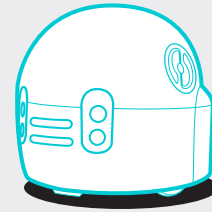


3



Ozobot blinks green when calibrated. If Ozobot blinks red, start over from step 1. Evo also spins during calibration.

4

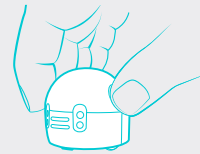


Press the Power Button to turn Bit back on. Evo powers on automatically after calibrating.

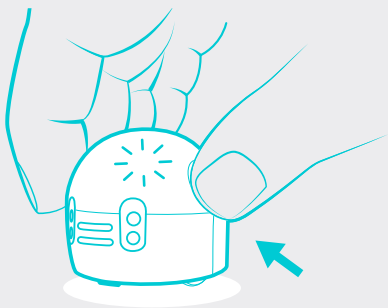
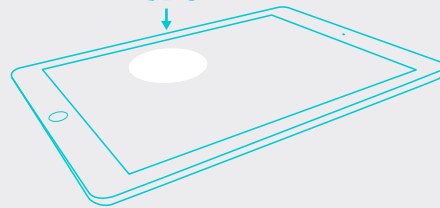
DIGITAL CALIBRATION



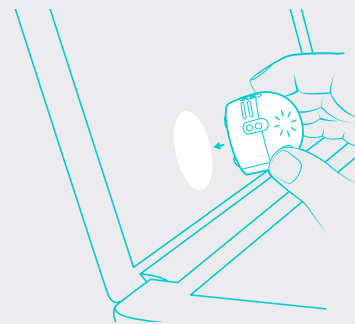
Set your screen brightness to 100% and make sure the auto-brightness feature is turned off on your tablet or computer screens.



Place Ozobot against a white section of the screen (i.e. the calibration circle in OzoBlockly)



Press & hold Ozobot's Power Button for 2-4 sec. until top light blinks white. Then, release Power Button.



When Ozobot blinks green, it means that it has successfully calibrated. Start over if Ozobot blinks red.

ozobot.edu

CALIBRATION DOT TEMPLATES

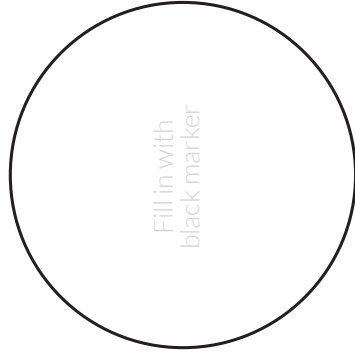
These calibration dots can be re-used for play on paper with Evo or Bit. **Cut along the dotted lines and fill circles in with black marker.**

Note: Do not laminate as your bot cannot properly calibrate on a laminated surface.

CALIBRATION DOT

How to Calibrate:

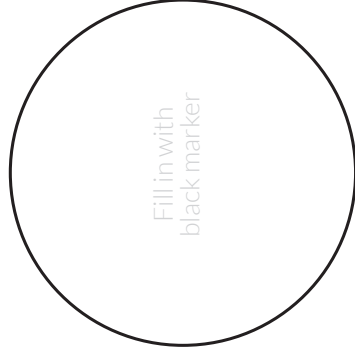
1. Make sure bot is powered off, then place it in the black circle.
2. Press & hold bot's Power Button for 2-4 sec. until top light blinks white. Then, release Power Button.
3. Your bot blinks green when calibrated. If bot blinks red, start over from step 1. Evo also spins during calibration.
4. Press the Power Button to turn Bit back on. Evo powers on automatically after calibrating.



CALIBRATION DOT

How to Calibrate:

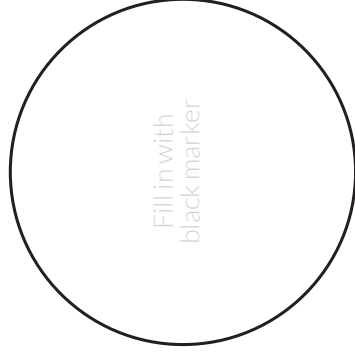
1. Make sure bot is powered off, then place it in the black circle.
2. Press & hold bot's Power Button for 2-4 sec. until top light blinks white. Then, release Power Button.
3. Your bot blinks green when calibrated. If bot blinks red, start over from step 1. Evo also spins during calibration.
4. Press the Power Button to turn Bit back on. Evo powers on automatically after calibrating.



CALIBRATION DOT

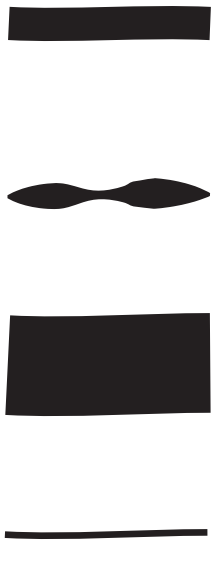
How to Calibrate:

1. Make sure bot is powered off, then place it in the black circle.
2. Press & hold bot's Power Button for 2-4 sec. until top light blinks white. Then, release Power Button.
3. Your bot blinks green when calibrated. If bot blinks red, start over from step 1. Evo also spins during calibration.
4. Press the Power Button to turn Bit back on. Evo powers on automatically after calibrating.



Name: _____

TIPS: Drawing Lines



X

Too Thin!

X

Too Thick!

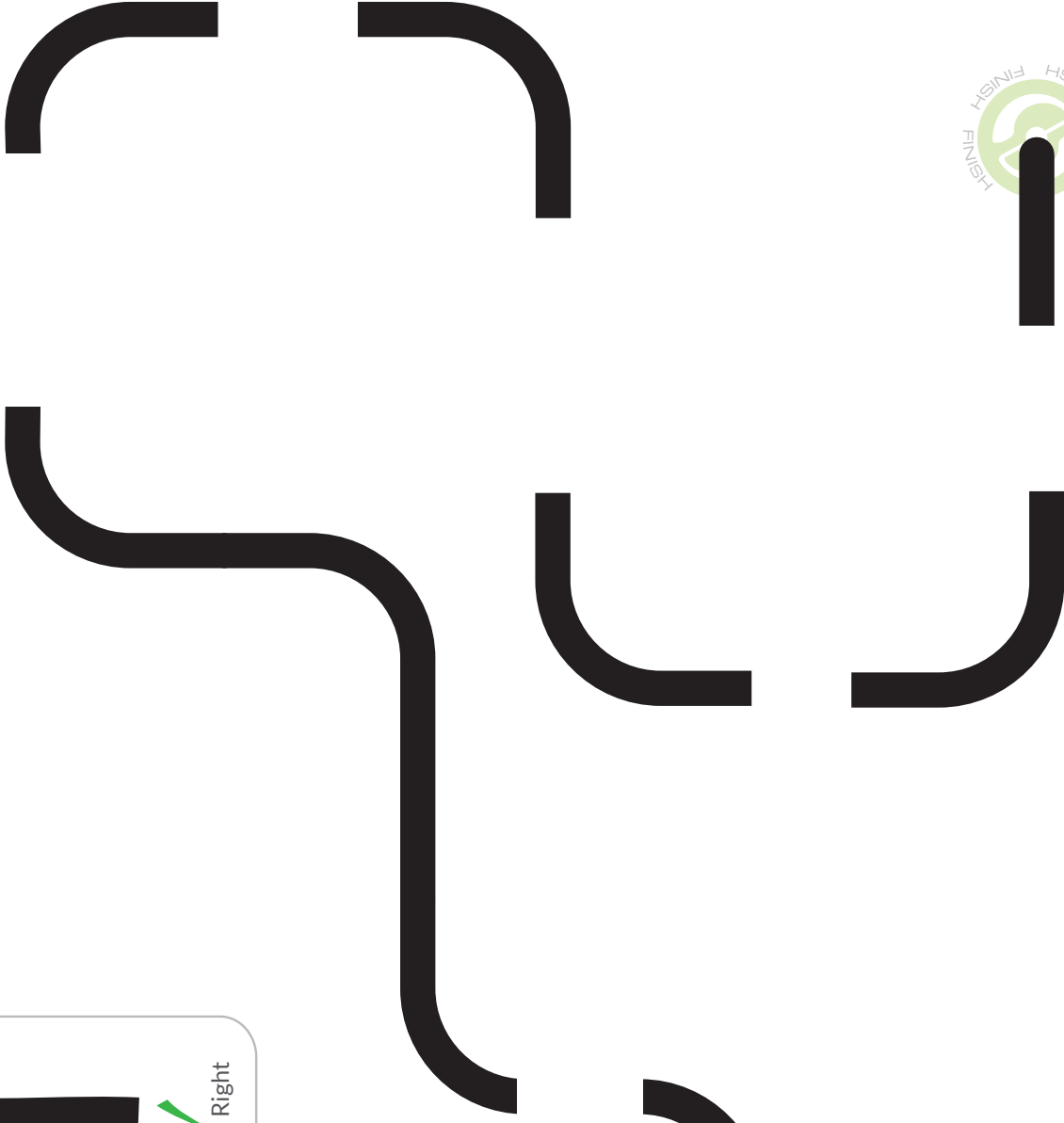
X

Inconsistent!

✓

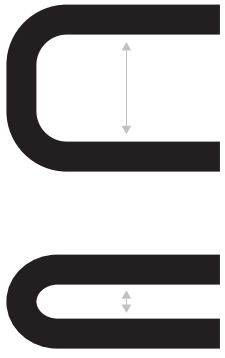
Just Right

DO: Use markers to connect the path.



My bot made it from start to finish!

Tips for Drawing Lines: Corners and Curves



X
Too Close!



X
Too Sharp!



✓
Just Right



✓
Just Right



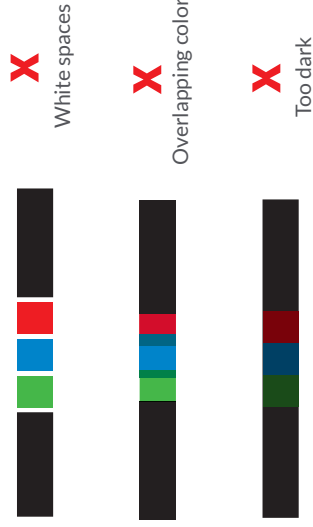
Do: Use markers to connect the path.

Name: _____

DO: Color in the code boxes
Fill in the Color Code boxes!

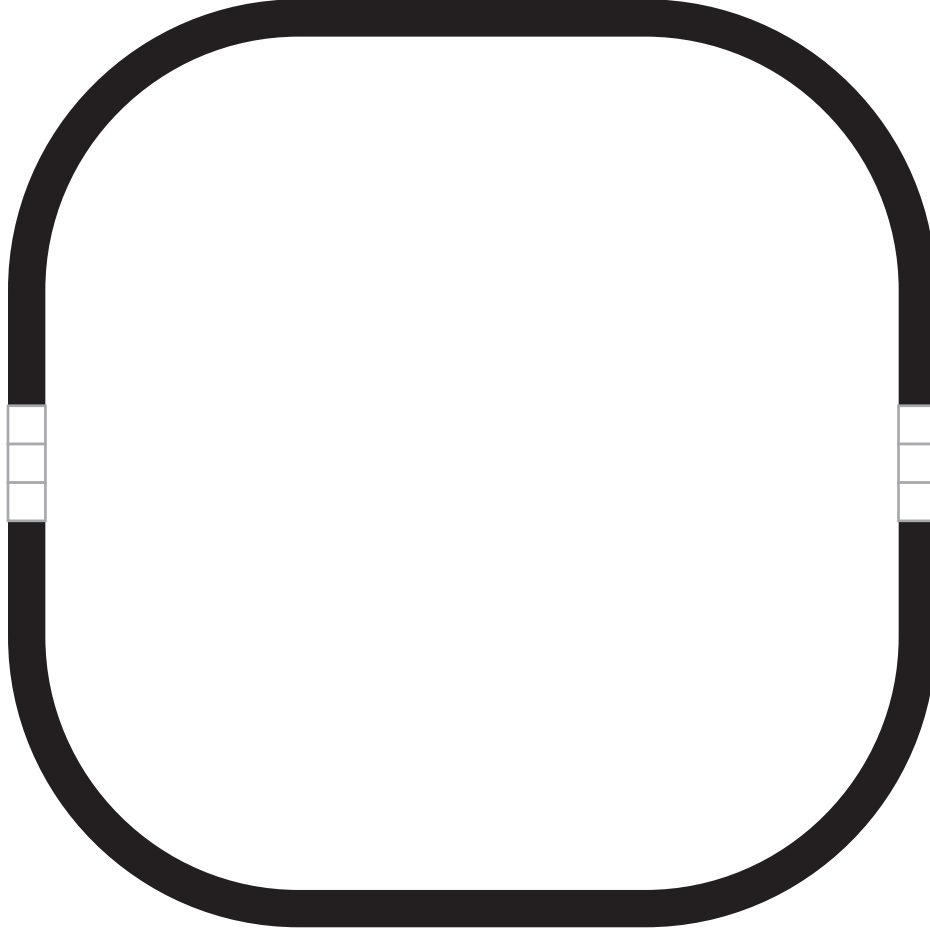


Tips for Drawing Color Codes



Name: _____

 My bot _____ when it read this Color Code 



 My bot _____ when it read this Color Code 

Name: _____

Do: Use the color codes below to fill in the blank boxes. Then, have Ozobot read the color codes from both ends of the lines. Which Color Code means something different when it is read backward? Why?



 I discovered that # _____ means something different when Ozobot reads it the other way!

Ozobot has three choices: Go left, right, or straight.
DO: Place Ozobot at the start and see which it chooses. Repeat several times to see if Ozobot always chooses the same way.

DO: Look at your Color Code Reference Sheet.
Which Color Code can you add to the blank boxes so that your bot always reaches the finish?

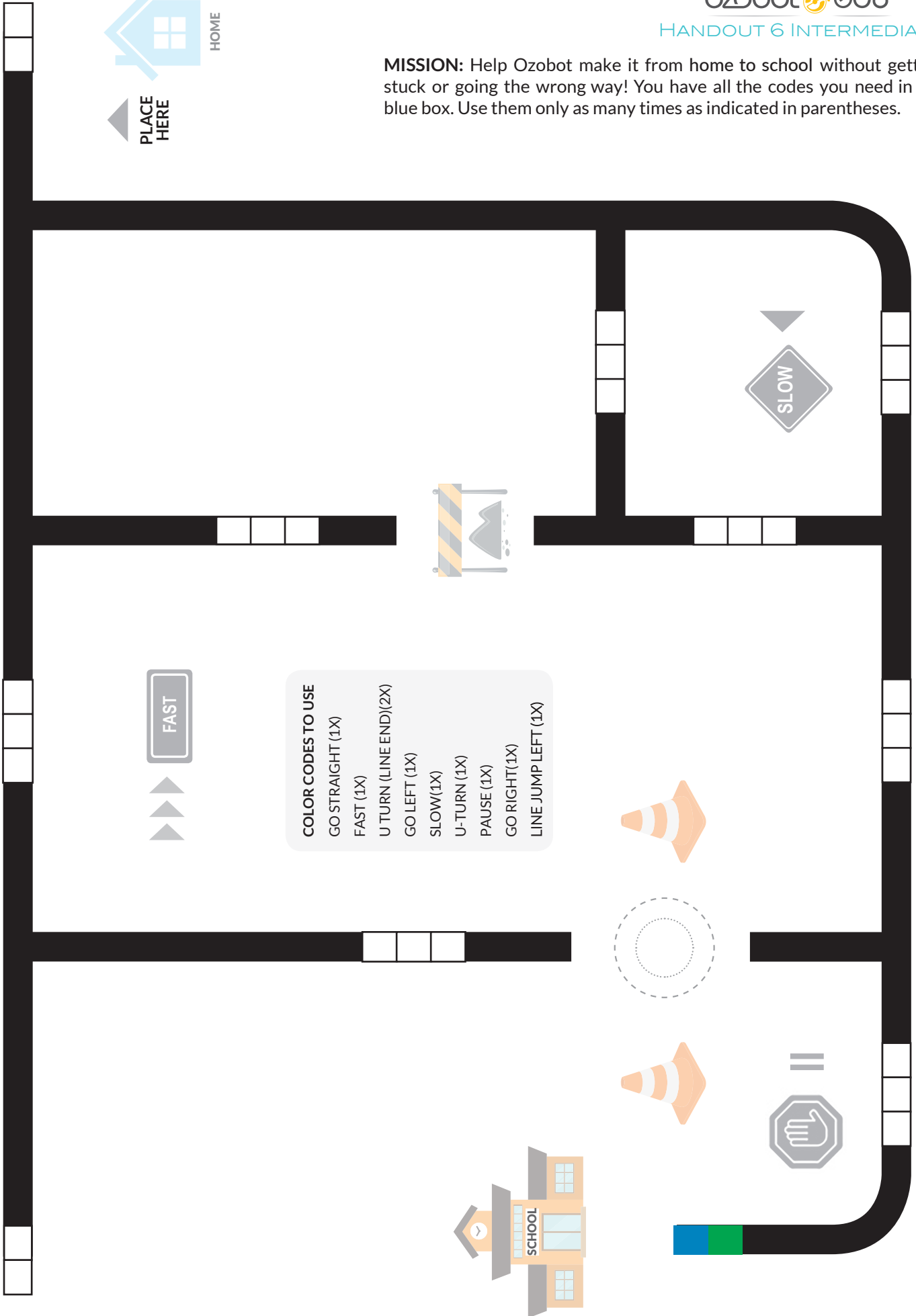
Name: _____



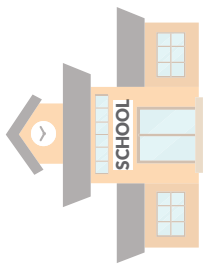
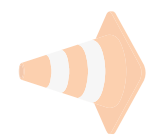
MISSION: Help Ozobot make it from home to school without getting stuck or going the wrong way! You have all the codes you need in the blue box. Use them only as many times as indicated in parentheses.



PLACE
HERE



- COLOR CODES TO USE**
- GO STRAIGHT (1X)
 - FAST (1X)
 - U TURN (LINE END)(2X)
 - GO LEFT (1X)
 - SLOW(1X)
 - U-TURN (1X)
 - PAUSE (1X)
 - GO RIGHT(1X)
 - LINE JUMP LEFT (1X)



Name: _____

Tips for Drawing Color Codes



X

Overlapping colors

X

White spaces



X

Too dark



X

Different sizes



✓

Codes on black lines.
Single color square
approx. 1/4"

TRY IT! Draw the following Color Codes between black lines and see if Ozobot can read them!

X
Codes on colored lines

Spaceship Driver's Test

Name: _____

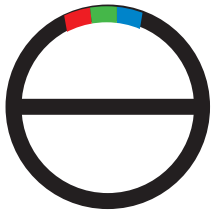
DO: Look at the images to determine whether or not you think Ozobot would be able to read the Color Codes on the maps. Check the box to indicate your decision. If you believe Ozobot wouldn't be able to read the Color Codes, explain why in the blank.

Ozobot would read this!

Ozobot wouldn't read this because

.....

.....



Ozobot would read this!

Ozobot wouldn't read this because

.....

.....

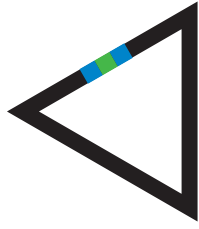


Ozobot would read this!

Ozobot wouldn't read this because

.....

.....

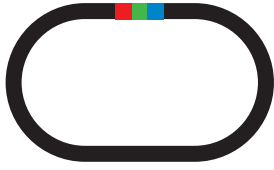


Ozobot would read this!

Ozobot wouldn't read this because

.....

.....

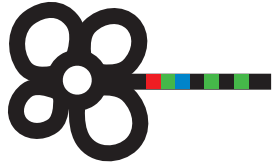


Ozobot would read this!

Ozobot wouldn't read this because

.....

.....

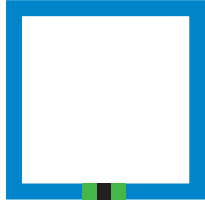


Ozobot would read this!


Ozobot wouldn't read this because

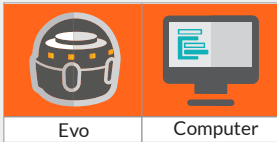
.....

.....

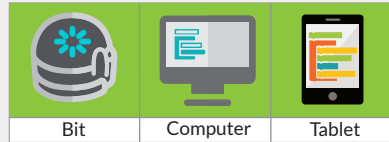


OZO Blockly Getting Started Guide

If this is your first time using OzoBlockly, use the Help/Tutorial  section on the right hand side of your screen for more information. Or use this guide while completing OzoBlockly Basic Training ozo.bot/training-ozoblockly.



or




OzoBlockly in a Web Browser.

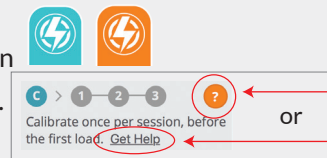
TOUR OF THE EDITOR


- My Profile and Programs
- Help/Tutorial
- Block Glossary
- Example Programs
- Challenges
- JavaScript Preview
- Settings

CHECKLIST


Getting Ready (Do these once at beginning of session)

- I set my screen brightness to 100%.
- I went to ozoblockly.com/editor on my computer or tablet.
- I selected the correct Ozobot on the top left 
- I calibrated Ozobot by doing the following:
 - I clicked on the lightning bolt on the bottom left of the screen
 - I followed the instructions to calibrate Ozobot to my screen.




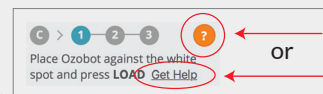
- I saw Ozobot blink green, which means that it calibrated successfully. If Ozobot blinked red, I repeated calibration.
- I checked the "Calibration Complete?" box and closed the calibration window 

Making an OzoBlockly Program



- I explored the different levels and blocks available to me and planned my program.
- I made a program for Ozobot or chose an example program from .

Flash Loading and Running a Program

- I clicked on the lightning bolt to begin Flash Loading.
- I clicked "Get Help" when I needed to review Flash Loading steps.
- I held Ozobot to the loading spot on the screen and clicked  or .
- Ozobot flashed green until the progress bar was done.
- I double-clicked the power button and my Ozobot ran my program.



More

- I reviewed the tutorial and help topics in  when I needed help.
- I saved my program in .
- I re-loaded my program each time I made a change.
- I helped my classmates who had questions after I finished.

KEEP IT UPDATED!
 We update this guide often as new features become available. Please check ozo.bot/ozoblocklyguide for the latest version.



RECTANGLE WALK CHALLENGE

Mode

OzoBlockly mode 2 or higher

Rules

The goal of this challenge is to get Ozobot to go in a rectangle observing the following rules:

- Use mode 2 or higher.
- Make Ozobot trace a rectangle.
- Have Ozobot's LED shine green when going on the short edge of the rectangle and red when going on the long edge.
- After Ozobot has completed the rectangle, make Ozobot spin and do an LED animation of your choice.

Modifications

You can make this programming challenge harder by choosing one or more of the following modifications:

- Try to use as few blocks as possible (you will have to use a loop for that).
- Don't use a pre-programmed LED animation like police car lights. Rather, create your own animation.
- Make Ozobot trace a rectangle as described above, but make sure that Ozobot goes counter-clockwise. Then, make Ozobot do the same again, but this time clockwise. Do the spin and LED animation in the very end, after both rectangles have been completed. Try to use as few blocks as possible (you may have to use several loops).
- Instead of shining one color when going on an edge, let Ozobot shine alternating in green and blue on the short edge and red and yellow on the long edge.

OZOBOT DRAG RACE

Student Worksheet

NAME: _____

Open this Drag Race Template Program: <https://ozoblockly.com/editor/#t7yfuc>
Explore **Mode 4 Loops**, **Movement**, **Lights**, and **Logic** to make your robot fast and competitive!

STEP 1 – SPEED *see tips below!

What is the best block to use?	TEST RESULTS _____ _____ _____
--------------------------------	--------------------------------------

STEP 2 - STRAIGHT

How can you make the bot as straight as possible?	TEST RESULTS _____ _____ _____
---	--------------------------------------

STEP 3 - VICTORY

How do you know your bot saw red? Give it a fun victory dance.	TEST RESULTS _____ _____ _____
--	--------------------------------------

TIPS

- MOVEMENT** Check out Modes 2 through 4 for different ways to move your Ozobot. Mode 4's **set wheel speeds** requires a time block after it, so use a blue block from **TIMING**. **FIX THE SWERVE** If a bot swerves towards the right, then the right wheel is going too fast. Make the right wheel slower. Test how straight your bot is by drawing a straight line with pencil and running your bot on top of it.
- LINE NAVIGATION** Don't use these! They only work when your bot is walking on a line.
- LOGIC** Is your bot seeing red at the end? Make sure your bot is checking the color often by making tiny movements. Also make sure the bot is calibrated to see paper. Calibrate on a black circle drawn on white paper.
- LIGHTS** Evo has 6 programmable LEDs!