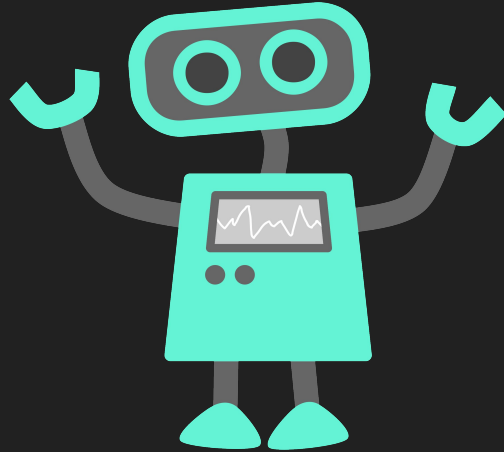
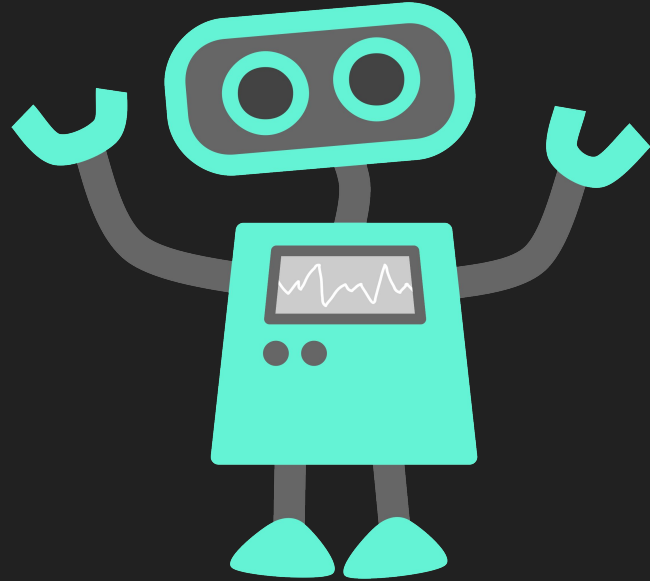


# Why Learn About Robotics and Coding?

Michelle Fenn-KPR Innovations Consultant





What is an Innovations Consultant anyway?



# What is coding?

Coding is an ordered series of specific instructions that computers can understand.



# \* Sugar \* Cookies \*

From Erin's Kitchen

1 cup butter, softened

1 1/2 cup confectioners sugar

1 egg

1 tsp vanilla

1/2 tsp. almond extract

2 1/2 cups all purpose flour

1 tsp. baking soda

1 tsp. cream of tartar

1 bag Hersey Kisses

Mix butter, sugar, egg, vanilla and almond extract. Blend in flour, soda and cream of tartar.

Cover, chill 2-3 hours

Heat oven to 375°. Roll dough into balls and roll in sugar.

Place in mini muffin pan. Bake 7-8 minutes. Place kiss in cookie once cooked.

# What are the skills that students learn from coding?

Coding teaches kids how to visualize abstract concepts and to use math to problem solve situations.



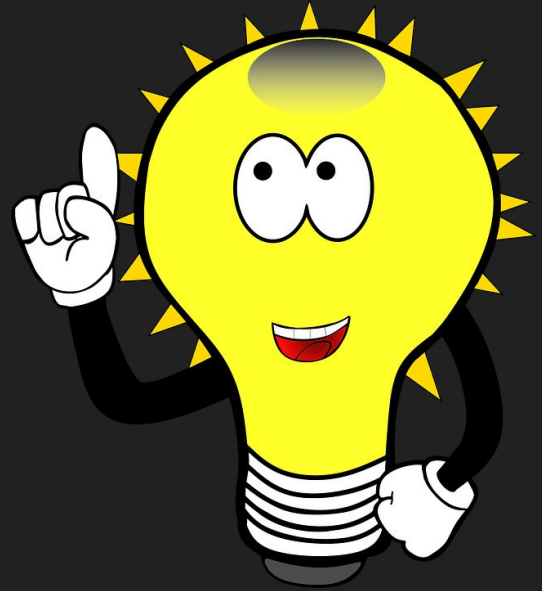
# Coding Skills?



Coding teaches kids how to plan and organize their thinking.

# Coding skills?

Fosters creativity.





# Coding skills?

Builds confidence.



# Coding skills?

Builds resilience.



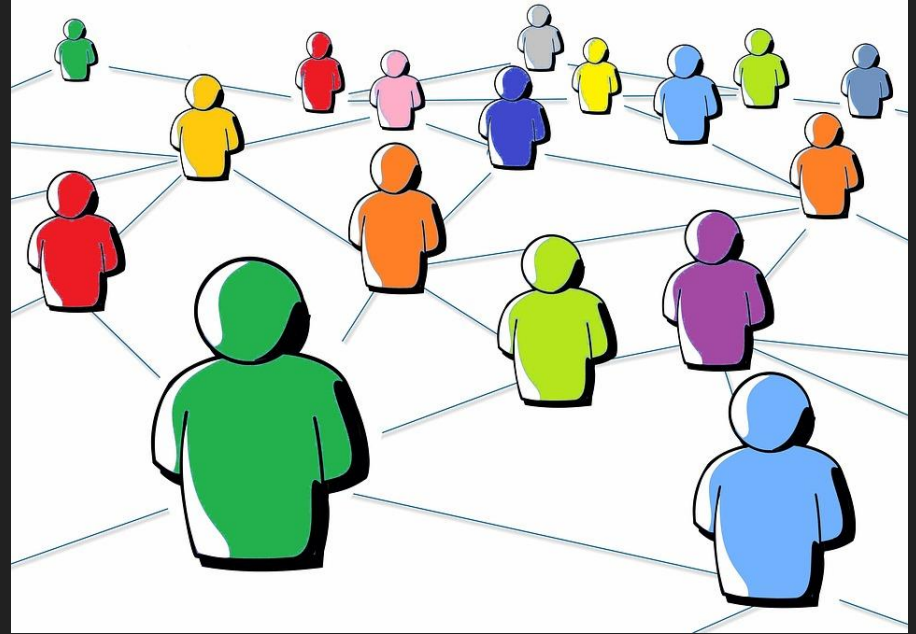
# Coding skills?

Builds communication skills.



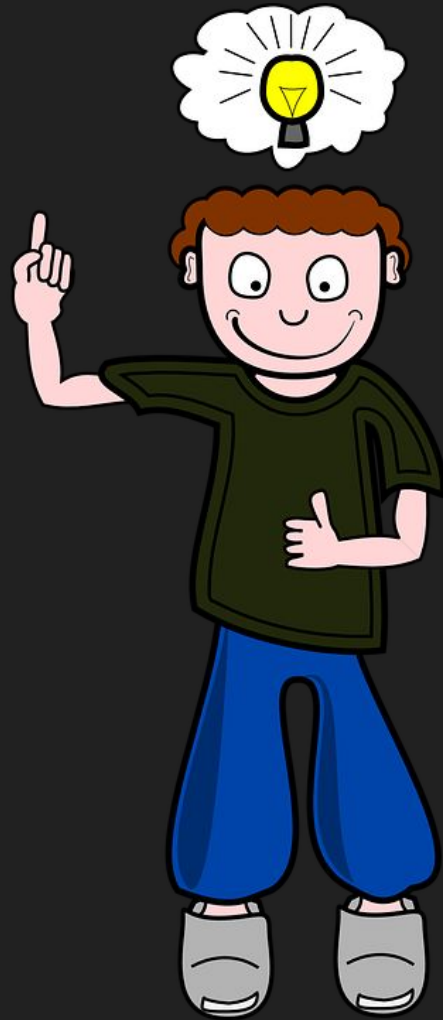
# Coding skills?

Citizenship.



# Coding skills?

Teaches kids to be innovators.



# Coding skills?



Prepares students for future prospects.

“Coding is today’s language of creativity.  
All of our children deserve a chance to  
become creators instead of consumers  
of computer science.”

-Maria Klawe

“You might not think that programmers are artists, but programming is an extremely creative profession. It’s logic-based creativity.”

-John Romero



# Kinesthetic Coding

An example of coding WITHOUT technology.

# Curriculum Connections

## **Language: Oral Communication Overall Expectations**

1. listen in order to understand and respond appropriately in a variety of situations for a variety of purposes;
2. use speaking skills and strategies appropriately to communicate with different audiences for a variety of purposes;
3. reflect on and identify their strengths as listeners and speakers, areas for improvement, and the strategies they found most helpful in oral communication situations

## **Mathematics: Geometry and Spatial Sense**

- describe the relative locations of objects or people using positional language



# Coding Resources

<http://kidscancode.org/>

<https://kidscodejeunesse.org/>

<https://code.org/>

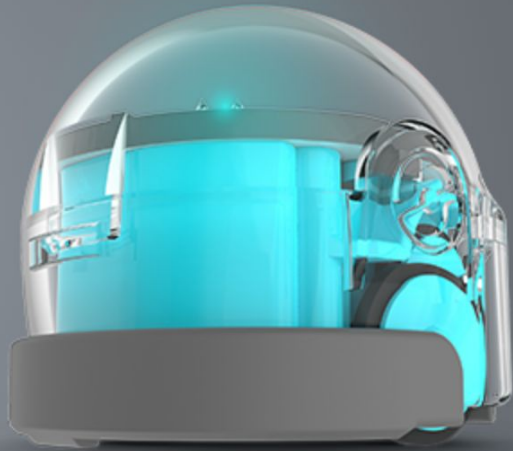
<https://www.girlscouts.org/en/about-girl-scouts/girl-scouts-and-stem.html>

# Ozobots

## Learning Goals:

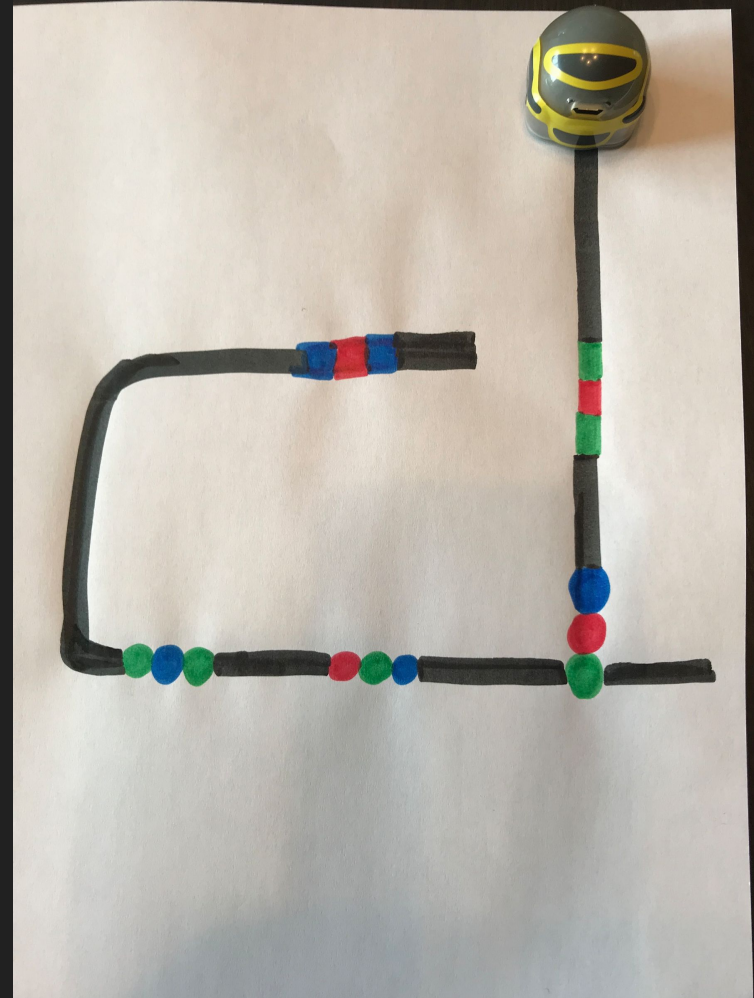
We are learning to:

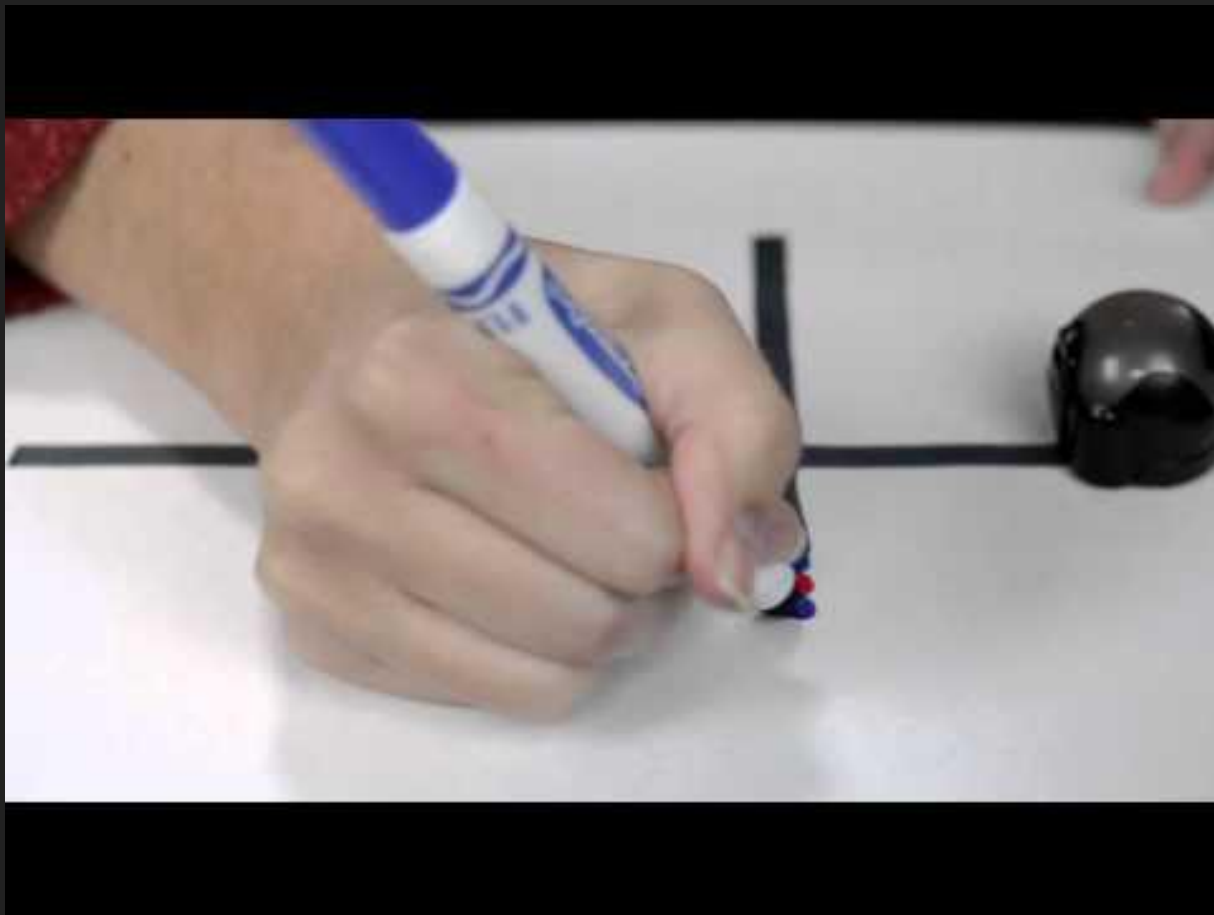
- understand that coding is a set of procedures
- create codes that our robots will follow
- develop our communication skills



bit

# Ozobot Playground

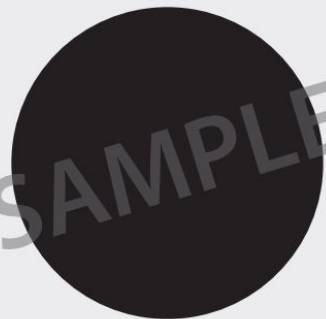




# Calibration of Ozobot

## PAPER CALIBRATION

- 1 Use a black dot slightly bigger than Ozobot to calibrate. If you are using markers, create a similar sized calibration dot using a black marker.



2



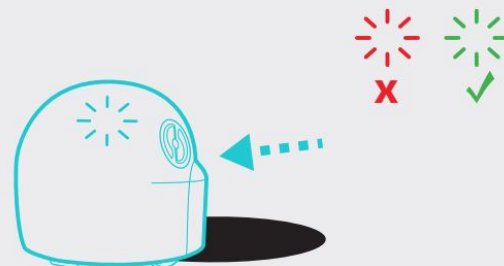
Hold down the power button on Ozobot for 2 seconds until the top LED light flashes white.

3



Quickly place Ozobot in the middle of the black calibration dot and let go.

4



If calibration is successful, Ozobot will move and then blink green. Start over if Ozobot blinks red.



# Drawing Lines

## DRAWING LINES



Too Thin!



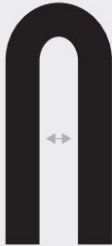
Too Thick!



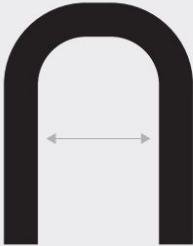
Inconsistent!



Just Right



Too Close!



Just Right



Too Sharp!

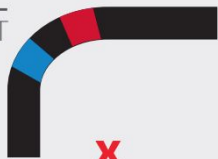


Just Right

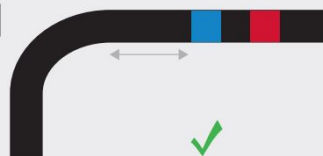


Just Right

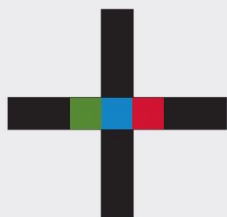
# CODE PLACEMENT



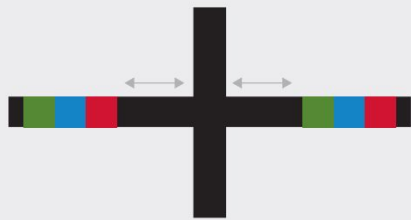
**X**  
Codes on corners



Keep codes on straight lines  
away from corners



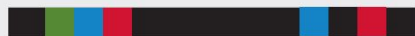
**X**  
Too close to  
intersection



Place codes away  
from intersections



**X**  
Codes too close



Codes at least 1" apart



Two-color codes need to  
be at line end



All other codes need black line  
before and after

# DRAWING CODES



**X**  
Codes on  
colored lines



**X**  
Different sizes



**X**  
White spaces



**X**  
Overlapping colors



**X**  
Too dark



**X**  
Single color squares  
larger than 1/4"



Single color squares  
approx 1/4"  
Codes on black lines

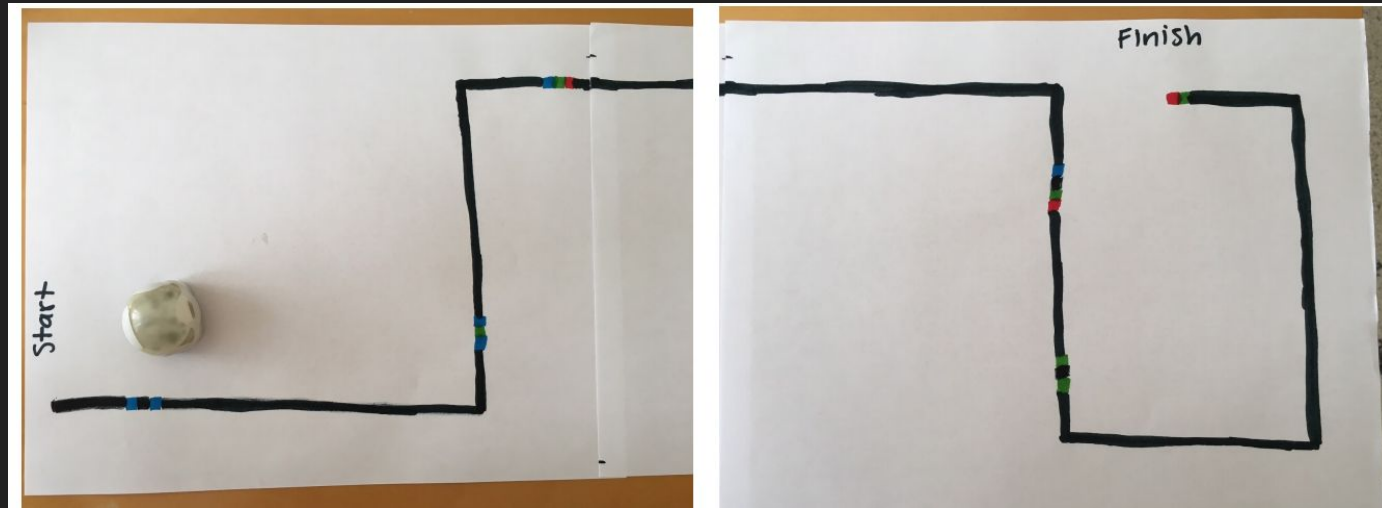
# Ozobot Challenge

Design a 100 centimeter race track (with OzoCodes), that will get Ozobot to the finish line as fast as possible.

Course should be straight with only right-angles. Must use 5 OzoCodes- these can be spaced out in anyway, can be spaced or cool moves, but no code may be reused.

## Materials:

- Chart paper
- Markers
- Ozobot
- Code sheet



# Code.org



# Code.org

# 25%

of U.S. students have accounts on Code.org

of



## Students

Explore our courses

Try Code Studio

Find a local class

Other online courses



# Scroll Down to Hour of Code



## Minecraft

Minecraft is back with a brand new activity for Hour of Code!



## Star Wars

Learn to program droids, and create your own Star Wars game in a galaxy far, far away.



## Frozen

Let's use code to join Anna and Elsa as they explore the magic and beauty of ice.



## Classic Maze

Try the basics of computer science. Millions have given it a shot.

# Spheros

Robots you can code using Blockly and Bluetooth

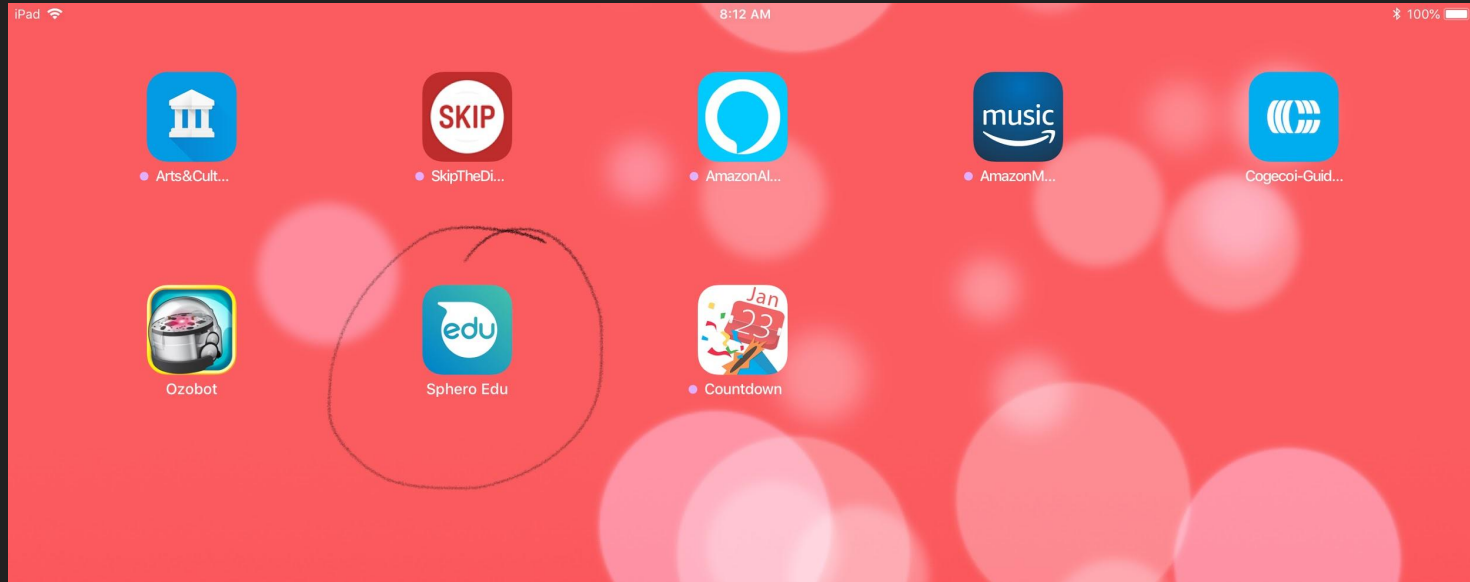


# Inspiration



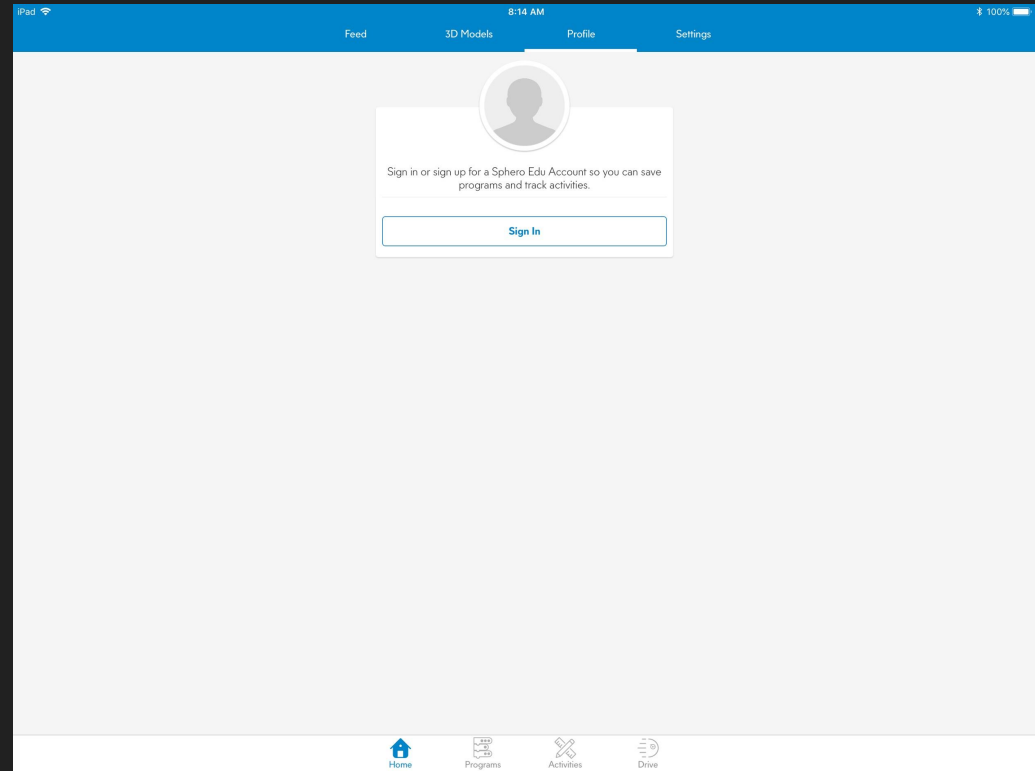


# Logging Into Sphero - find the Sphero Edu app



# Sign In

Remember to use your  
KPR account or parent  
Google account.



[username@kprschoools.ca](mailto:username@kprschoools.ca)

# Sign in - Part 2

iPad 8:15 AM

Done < > accounts.google.com

Sign in with Google

## Sign in

Continue to [Sphero EDU](#)

Email or phone

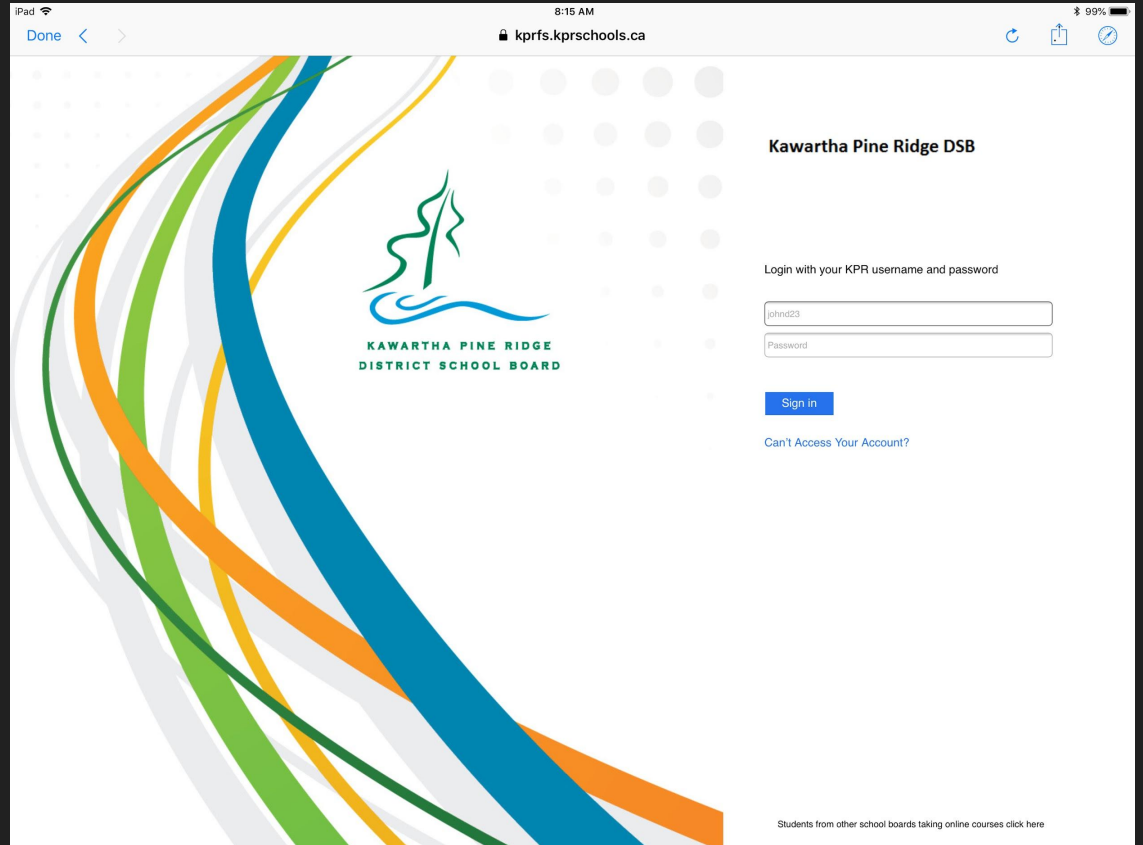
[Forgot email?](#)

[Create account](#) [NEXT](#)

English (United Kingdom) Help Privacy Terms


# Authenticate

KPR username and password



iPad 8:15 AM 99%

Done < > kprfs.kprschools.ca

  
KAWARTHA PINE RIDGE  
DISTRICT SCHOOL BOARD

**Kawartha Pine Ridge DSB**

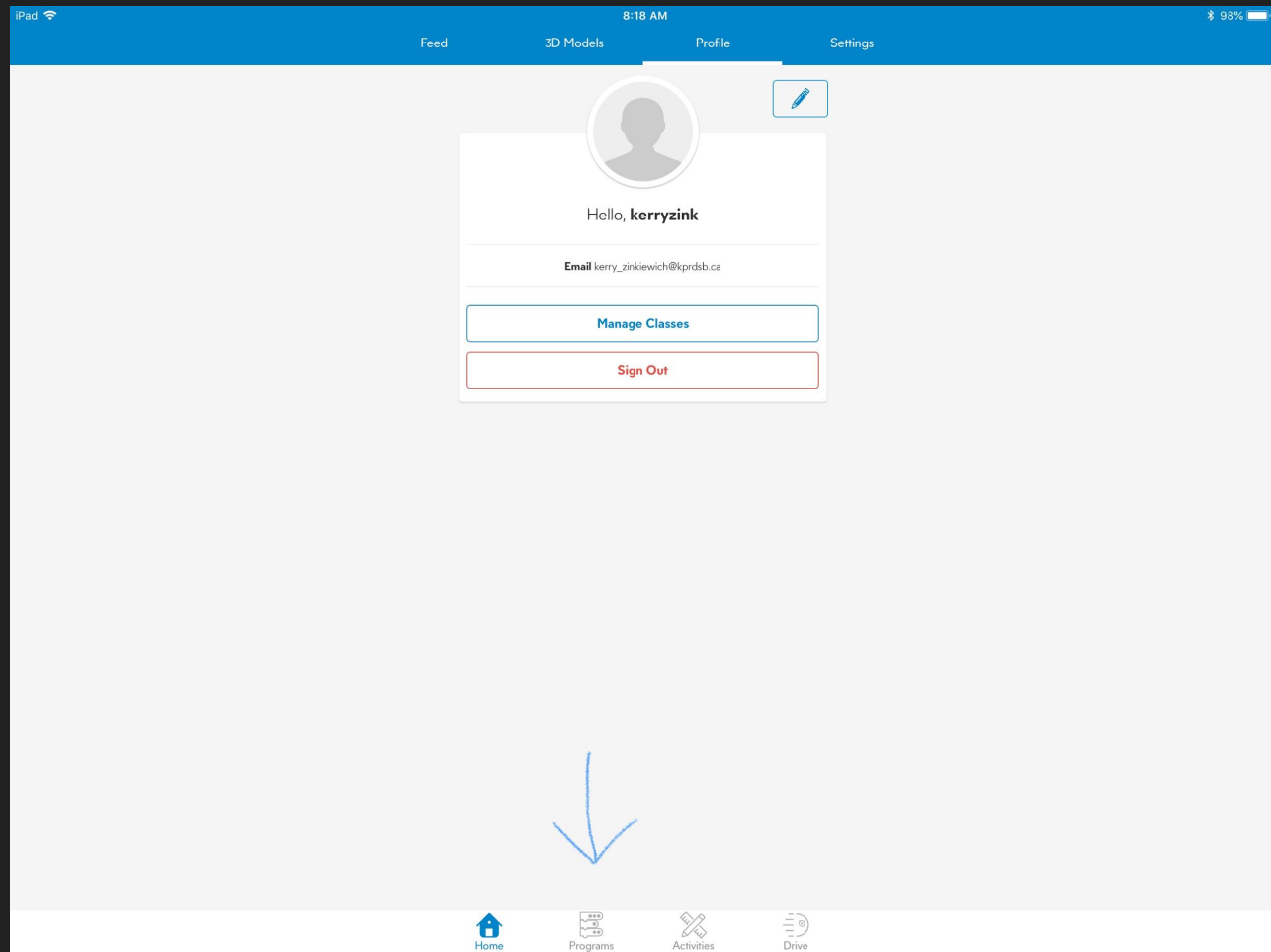
Login with your KPR username and password

[Sign in](#)

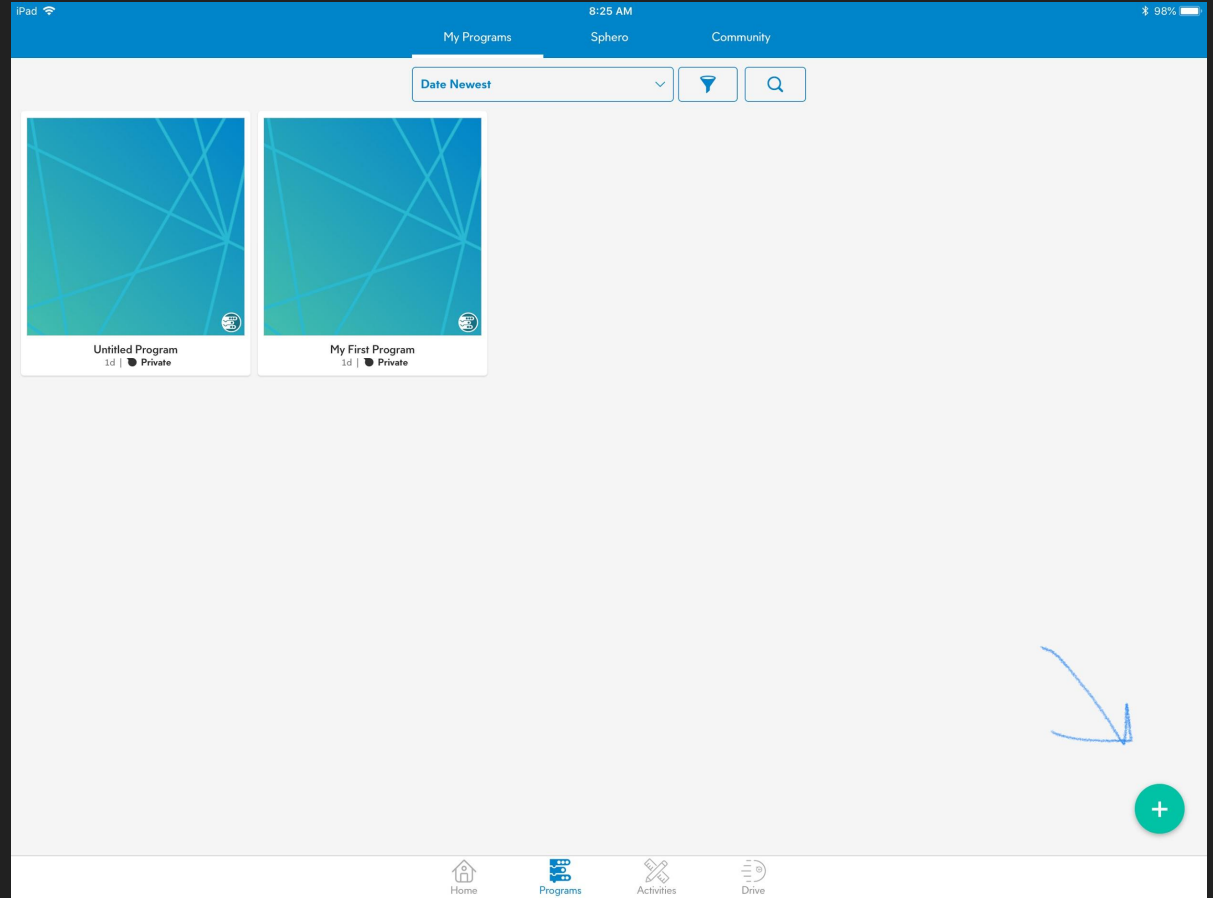
[Can't Access Your Account?](#)

Students from other school boards taking online courses click here

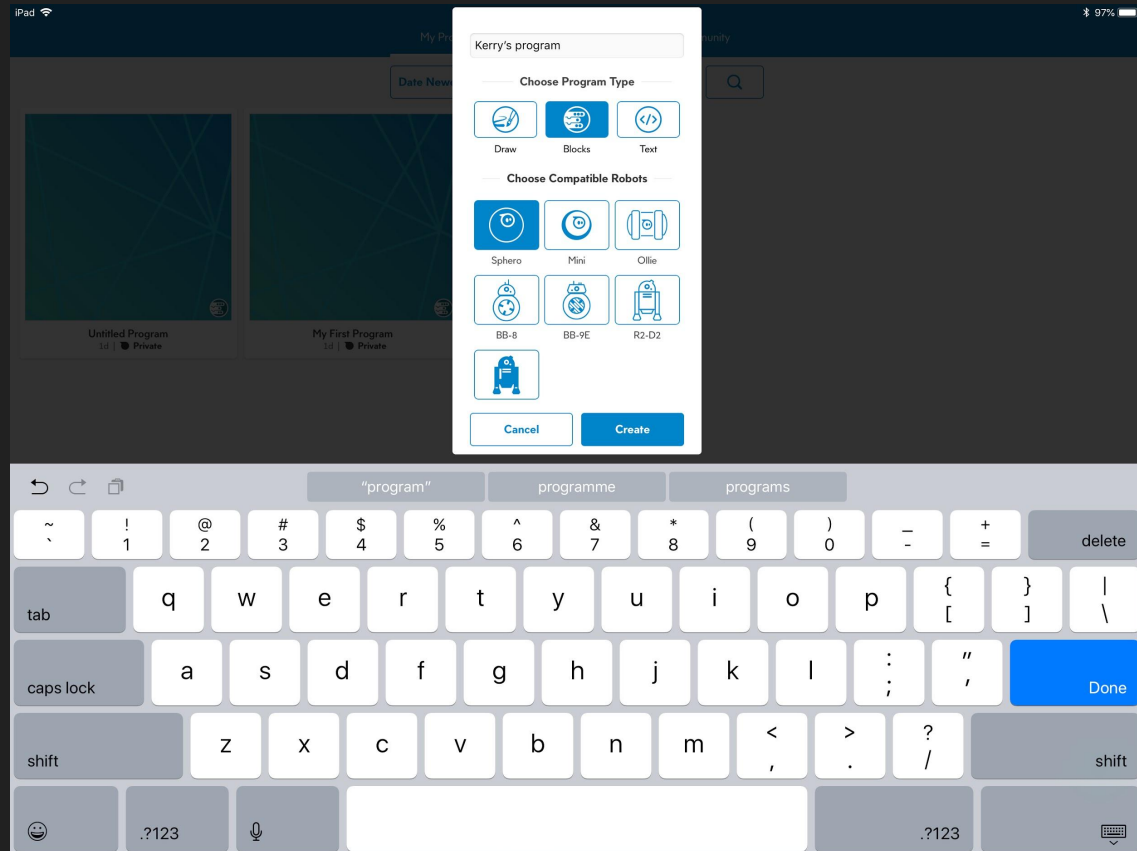
# Programs



# New Program



# Naming the Program

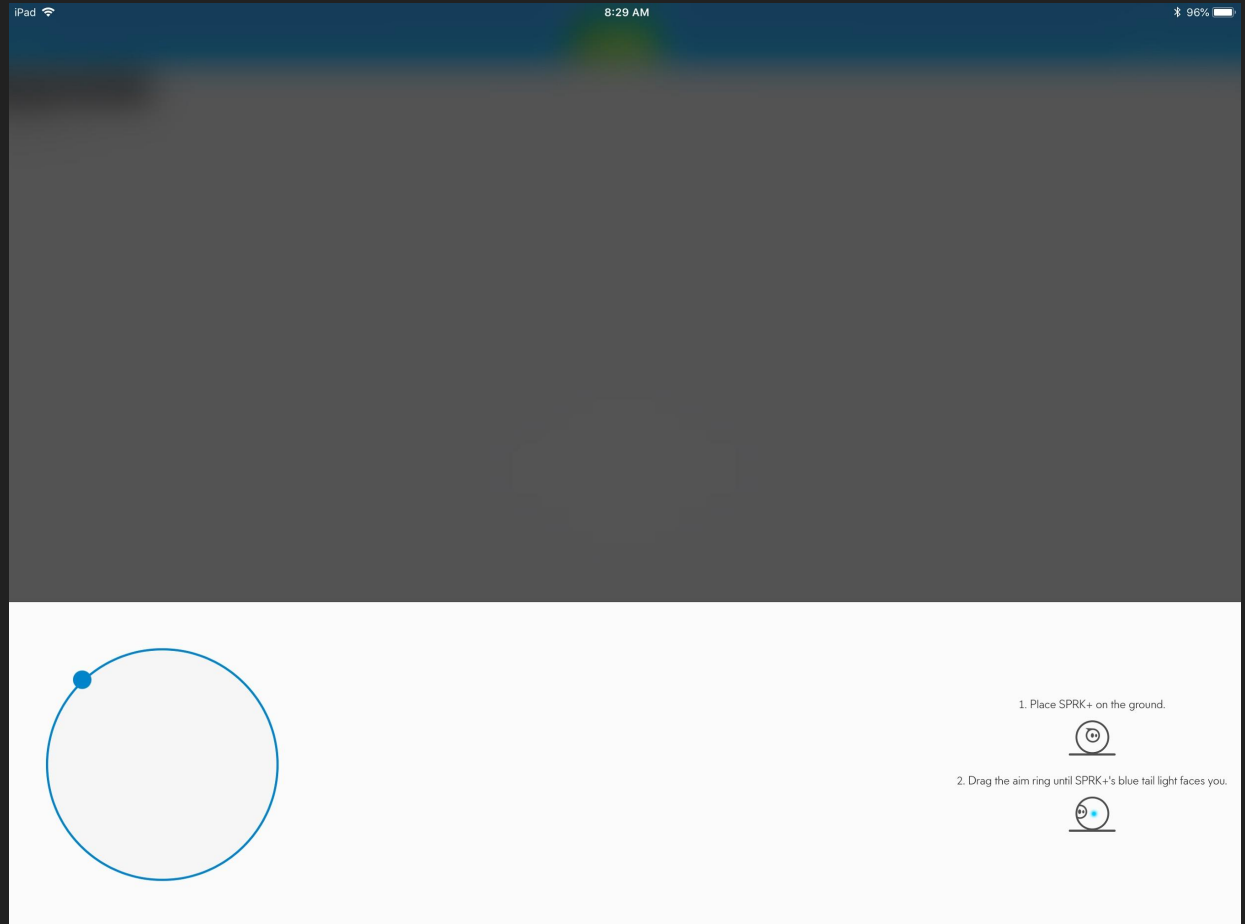


# Aiming Sphero

The screenshot displays the Aiming Sphero application interface on an iPad. At the top, the status bar shows 'iPad', signal strength, '8:28 AM', and '96%' battery. Below the status bar is a blue header with a back arrow, a green 'Start' button, and icons for undo, redo, and a menu. The main workspace is a large, empty white area. In the top left of this workspace, there is a dark grey box labeled 'On Start Program' and a dashed-line box labeled 'Drag Block Here'. A blue hand-drawn arrow points from the top right towards the center of the workspace. At the bottom, a category menu contains the following items: 'Movement', 'Lights & Sounds', 'Controls', 'Operators', 'Comparators', 'Sensors', 'Events', 'Variables' (highlighted in pink), and 'Functions' (highlighted in green).



# Aiming Sphero



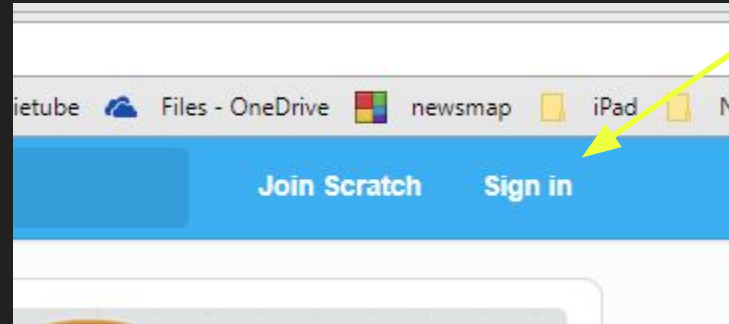
# Sphero Challenge

## 6 Challenges:

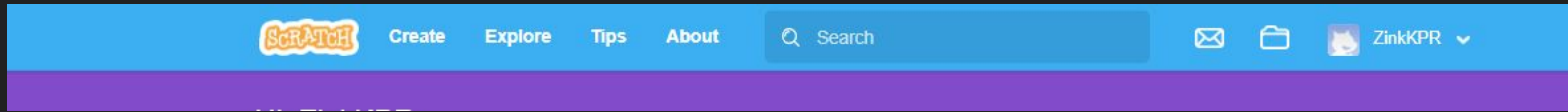
1. Drive your sphero a specific distance and land within a circle?
2. Same as #1, but with a right turn thrown in.
3. Draw a rectangle
4. Draw a triangle
5. Weave through 3 cones 20 cm apart
6. Drive a short distance, change the colour of sphero and repeat

# Scratch

<https://scratch.mit.edu/>



# Create



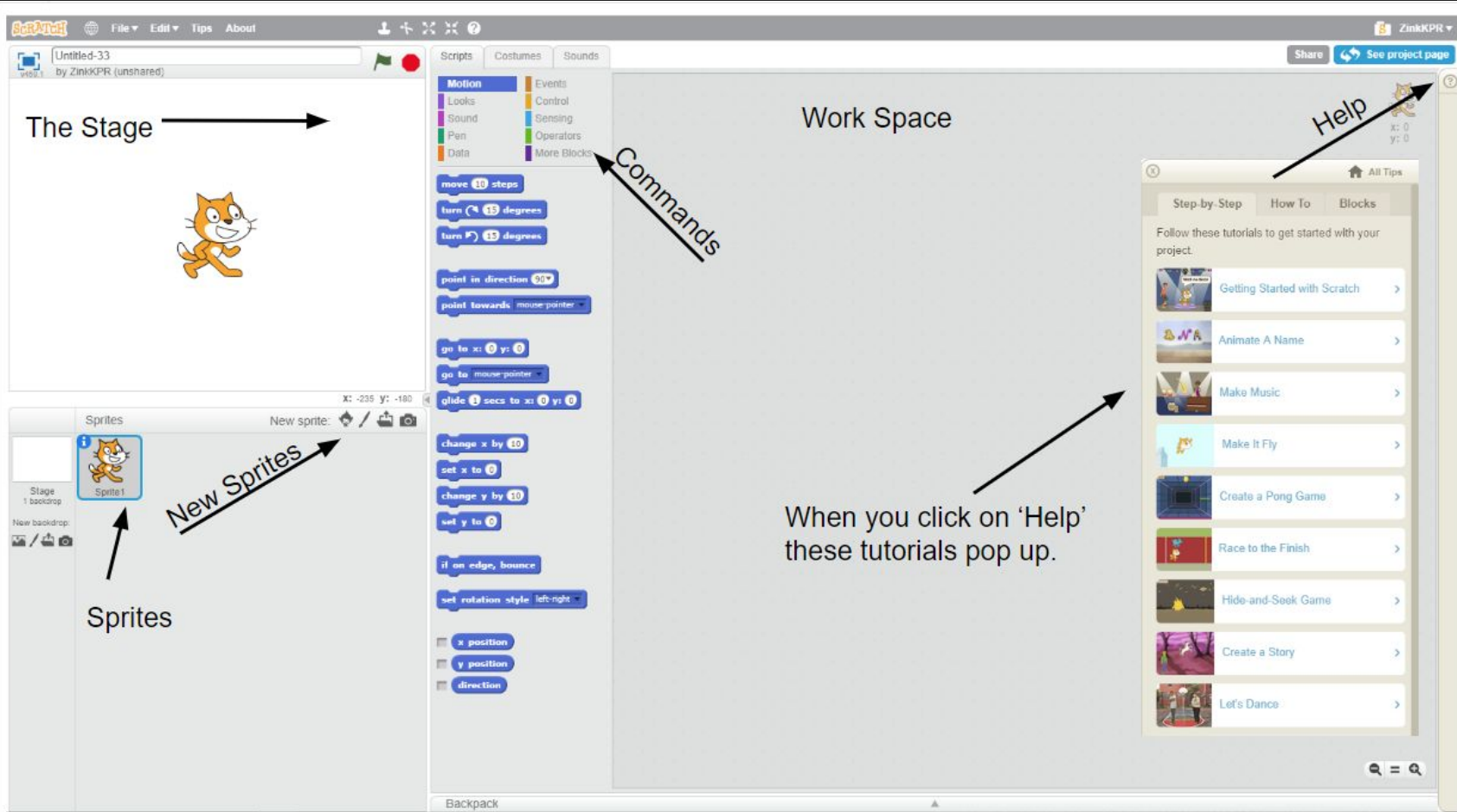
How to  
program

Scratch

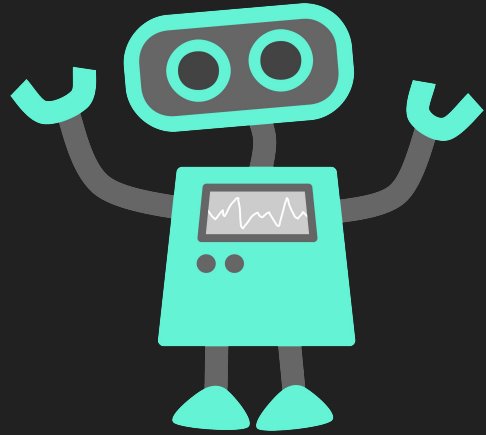
Programming

Lesson 1





Not sure where to start? Can you Animate Your Name? Or Create a Pong Game?



Time to  
Code!

