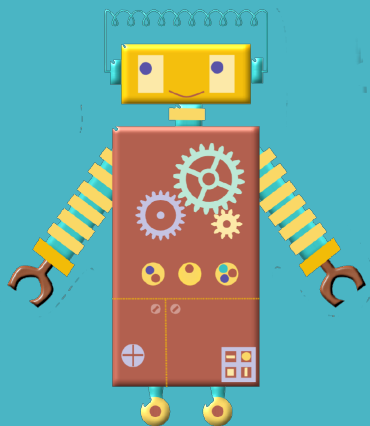


BEYOND PUSHING BUTTONS: TAKING ROBOTICS TO THE NEXT STEP

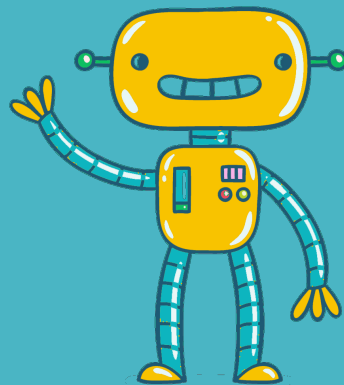


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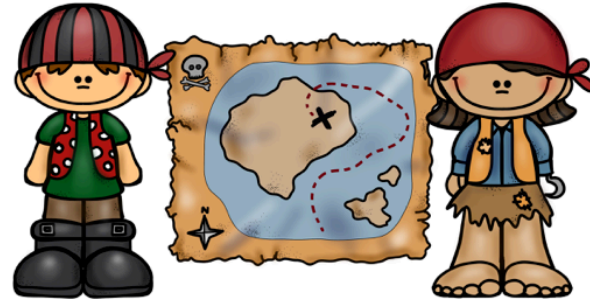
DISCLAIMERS:



- The focus of the workshop is on learners ages 3-8 years old.
- I have, from time-to-time, received robots from companies on loan, as gifts, or via discounted purchases.
- (I have also spent more money than I should on robots.)

LET'S MOVE TO A MAT ON THE FLOOR TOGETHER

- Obstacles
- Planning
- Data Collection
- Coding vs Programming
- Debugging
- Efficiency
- Creativity



Play Bee-Bot Pirate!

2 teams race their Bee-Bot Ships to the treasure.





Play Bee-Bot Pirate!

2 teams race their Bee-Bot Ships to the treasure.

Level ONE

Teams take turns giving their “ship”
one command

In this version players are focusing on each step without any record-keeping of their moves. This is good for the littlest learners or for first-timers.

Because the two teams take turns they may notice that efficiency (fewer steps) will get them to the prize faster.
(lessons: directionality, point-of-view, collaboration, cooperation)



Play Bee-Bot Pirate!

2 teams race their Bee-Bot Ships to the treasure.

Level TWO

Add Obstacles to the Game Grid

Same as version one but with added "barriers". Maybe stay thematic by adding rocks or barrels or sea monsters which they must not land on.

Possible focus points/lessons: directionality, point-of-view, collaboration, cooperation, depending on the barriers, this could be an opportunity to include some vocabulary)



Play Bee-Bot Pirate!

2 teams race their Bee-Bot Ships to the treasure.

Level THREE

From Coding to Programming

1. Give teams a certain number of minutes to plan their path, coding it either writing the steps down or using programming tiles or Bee-Bot cards to plot their course.
2. When time is up you can have the teams program their pirate ships (push all the buttons except "go")
3. On the command "YO HO HO GO!" they push the "go" button on their "pirate ships"
4. See who, if anyone, gets to the treasure.



Play Bee-Bot Pirate!

2 teams race their Bee-Bot Ships to the treasure.

Level THREE

From Coding to Programming

1. Give teams a certain number of minutes to plan their path, coding it either writing the steps down or using programming tiles or Bee-Bot cards to plot their course.
2. When lessons: moving from coding to programming, recording the steps, reading those steps and enacting those steps, possibly debugging (fixing their program and trying again) also directionality, point-of-view, collaboration, cooperation, perseverance
3. On the ships" ate
4. See who, if anyone, gets to the treasure.



Play Bee-Bot Pirate!

2 teams race their Bee-Bot Ships to the treasure.

Level FOUR

Debugging

1. Begin as in Level 3 have learners write their programs.
2. After learners have written their program, use a pirate die to create unexpected challenges and have the teams “debug” or edit their programs to get to the treasure.

lessons: debugging, reading code also directionality, point-of-view, collaboration, cooperation, perseverance



Play Bee-Bot Pirate!

2 teams race their Bee-Bot Ships to the treasure.

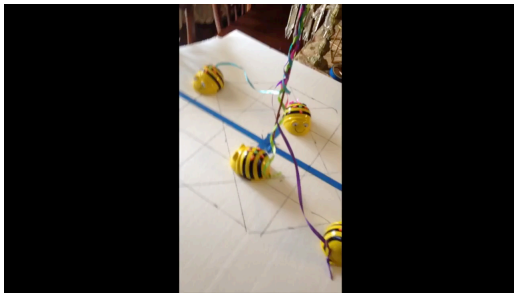
Level FIVE

Creativity and Planning

Use this Pirate Game as a basis for creating your own bot-game.



SOME OTHER WAYS TO STRETCH WITH BEE-BOTS



https://www.youtube.com/watch?v=V_hbzrgE_bl&feature=youtu.be



<https://www.youtube.com/watch?v=aIDcjwwnErE>

And context – costumes, environments, story, purpose



BIG IDEA SO FAR

ADDING CONTEXT, CONTENT, AND/OR “OBSTACLES”
CREATES A NEED FOR MORE COMPLEX THOUGHT



BEYOND PUSHING BUTTONS...

- Obstacles
- Planning
- Data Collection
- Coding vs Programming
- Debugging
- Efficiency
- Creativity



BLUEBOTS

Like Bee-Bot but also:

- Bluetooth enabled
- App enabled
- Tile enabled
- More options with app (45° angles etc.)



BLUEBOT APP

- Free APP
- Connects to BlueBot via Bluetooth
- Adds capabilities
 - 45 degree angles
 - audio recording
 - Challenges
 - Saving programs
 - Capturing grids



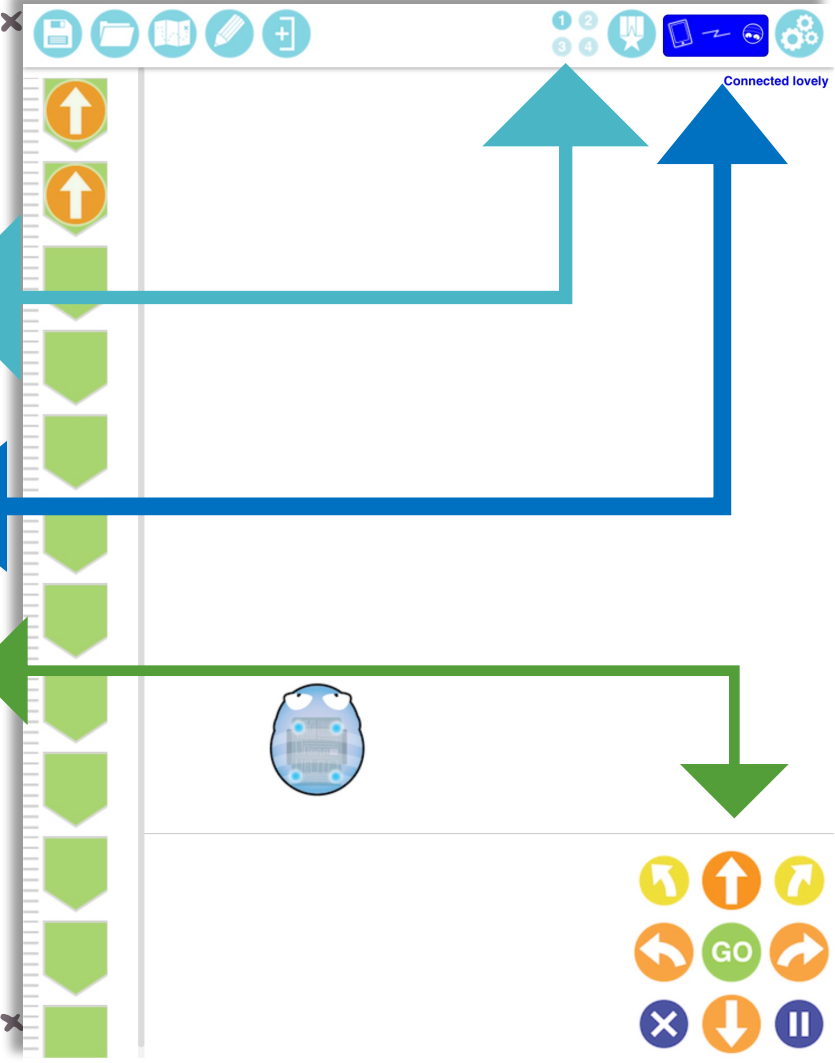
BLUEBOT APP

Turn on Bluebot and open the App

Select grid, Choose Explore Mode and 45 degree turns

On top left of screen choose to connect

Use the "buttons" on the Ipad Screen to input code for the Blue Bot (it will appear on the left side of the screen)



BLUEBOT TACTILES

- Connect to BlueBot via Bluetooth
- Provides Programming tool without adding a screen
 - Up to 10 commands
 - One Step more abstract
 - Extension pack includes loops and repeats



BLUEBOT TACTILES

- Turn on the BlueBot
- Turn on the Tactile Reader (on bottom).
- Press the blue button to connect to the BlueBot.
- Create a simple set of commands using the tiles.
- Press the green button to send the commands to the BlueBot



OTHER BUTTON ON BOARD ROBOTS:



Robot Mouse

- Less expensive
- Less precise



Matatalab Lite (we will look at this a bit later)

- More options (drawing, removable controller)
- Advanced functions (sensors and more)

OZOBOT

Bit and Evo



LET'S PLAY

OZOBOT - A FEW CLUES...

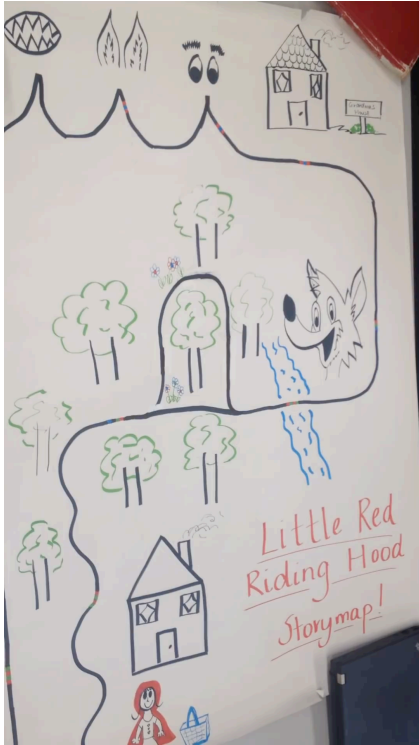
- Turn it on
- Hint: It follows lines.

What TYPES of lines does it follow?

What does it do if there is an intersection of lines?

MORE STRETCHING WITH OZOBOTS

Add context and content and complexity to add computational thinking.



FLOW...

Exploring

Tinkering, playing, poking... usually out-of-context or content

Coding

Using the “language” and “syntax” of a device to be able to make it act, solve a problem or respond appropriately

Programming

Putting together new ideas and actions into a program. Solving problems and creating ways for others to use your creations

Debugging

MATATABOT LITE



3 modes

- Remote control
- Coding
- Sensors

MATATABOT LITE

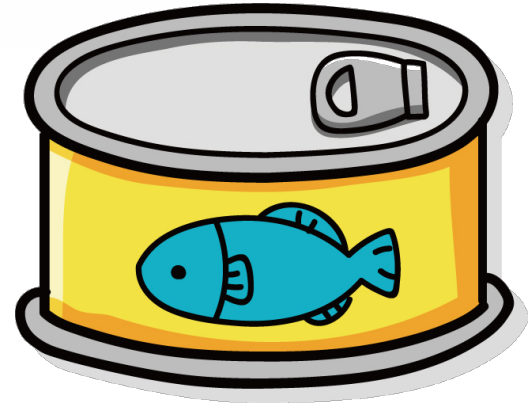


3 modes

- ~~Remote control~~
- Coding
- Sensors

MATATABOT LITE

Food Foraging Game



MATATABOT CODING SET

Uses tiles and
And control tower

MANY Options



SPHERO

3 modes

- Remote control
- Coding
- Sensors

ADDING CONTEXT TO CODING AND CT

Sphero Mini Golf

Sphero Jousting

Sphero Battlebots

Games, Challenges, Contests



BUT WAIT... THERE IS
MORE...

. ~~~~~ .

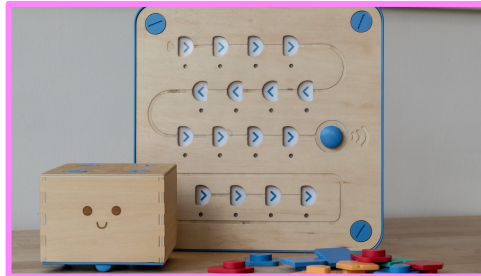


Dot and Dash from Wonder Workshop

Kibo from Kinderlab Robotics

Robo Wunderkind by Robowunderkind

Cubetto



A few Important Thoughts...

1. Who is doing the thinking?
2. What is the context?
3. Are there multiple ways to accomplish the challenge?
4. Does the robot matter?



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THANK YOU FOR

WORKING WITH ME!