



Inquiry

Ozobots ...

Books ...

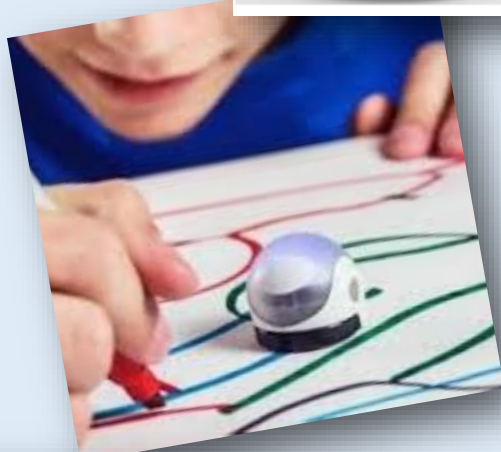
Lines ...

Colours ...

Play ...



WHAT IS AN OZOBOT?



OZOBOT Math Ideas



OZOBOT Reading Ideas



5 IDEAS for IMPLEMENTING OZOBOTS



Images and ideas from <http://www.talkinpinata.com/blog/2016/6/5/5-ideas-for-implementing-ozobots>





An **Ozobot** is a little toy robot that blends the physical and digital worlds — and teaches kids programming. ... An **Ozobot** can identify [lines](#), colors, and codes on both digital surfaces, such as an iPad, and physical surfaces, such as paper.

WHAT IS A **BOOK**?

A **book** is a series of pages assembled for easy portability and reading, as well as the composition contained in it. ...

WHAT IS A **LINE**?

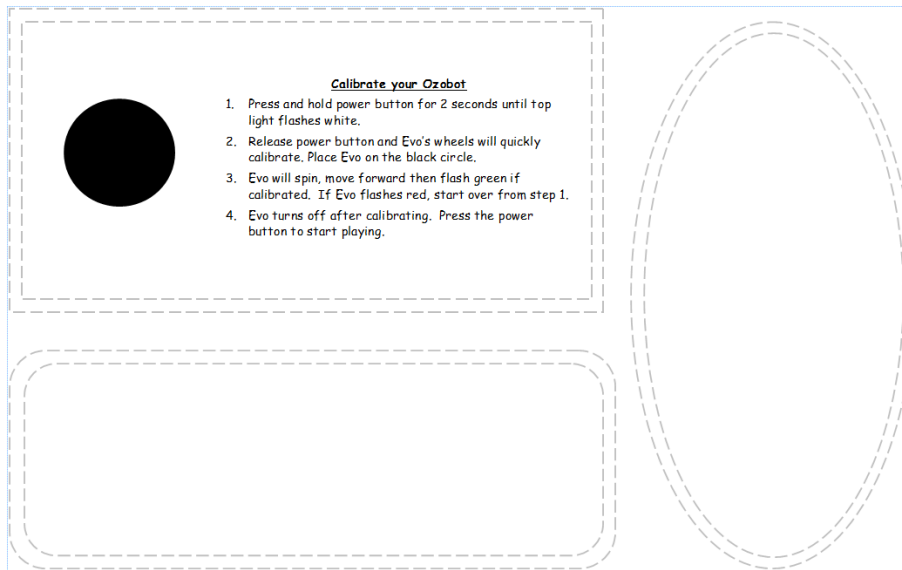
In geometry a *line*: • is straight (no curves), • has no thickness, and. • extends in both directions without end (infinitely). If it does have ends it is called a "*Line Segment*".

Can we learn and have fun with Ozobots, books and lines? **Yup!**



Before an Ozobot will work ...

It needs to be calibrated. Just breathe ... calibrating is easier than you may think. In this kit there are mats for students to use. They have calibration instructions right on them. They look like this:



Or, watch a quick video that shows what it looks like to calibrate an Ozobot. Here's the link:

<https://bit.ly/2rBMW8D>

Or scan this QR code to watch the same video.

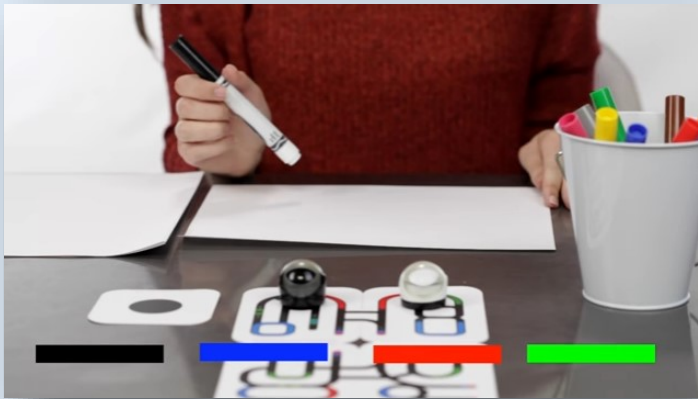
(You can scan a QR code by downloading an App called Scan. The icon Looks like this:)



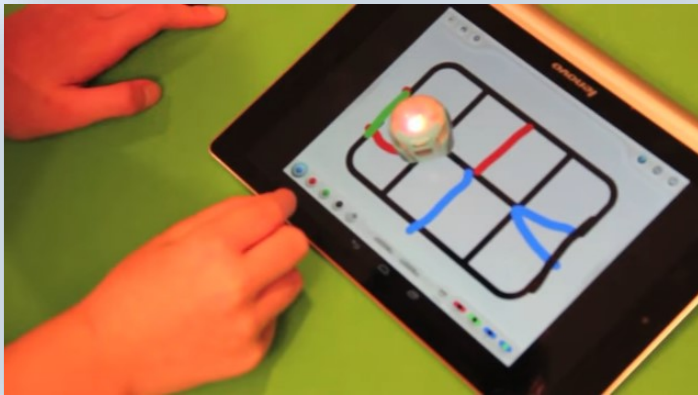


How do you play with an

OZOBOT?



<https://www.youtube.com/watch?v=m5d4iXGblGs>



https://www.youtube.com/watch?v=Aw_qJp6jm8I





What do you do with an

OZOBOT?

When in doubt, do a quick search on the internet. You'll find lots of information about Ozobots.



DRAW AND PLAY.

Control Ozobot with color markers by drawing lines and codes for it to explore. Connecting to the tiny robot like a new friend, kids of all ages will mold their own state of play, one line at a time.

Learn more:

<https://ozobot.com/play/color-code-language>

Why type in a great big long URL when you can download a 'scan' app. Simply open the app and hover over this QR code. It will launch the site for you!



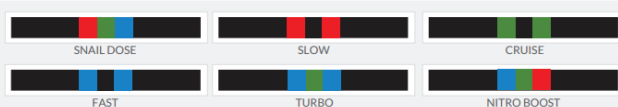


How do you code an OZOBOT?

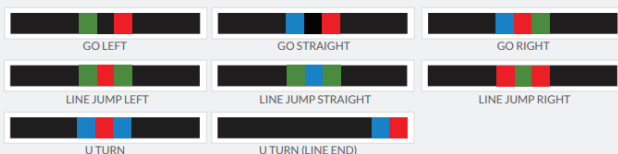


ozobot COLOR CODE REFERENCE CHART

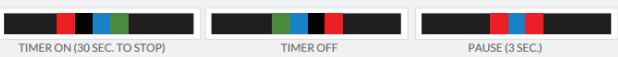
SPEED



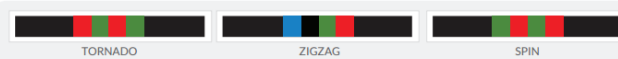
DIRECTION



TIMERS



COOL MOVES

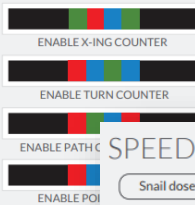


WIN/EXITS



COUNTERS

FIVE DOWN TO STOP



SPEED SPEED CODES CHANGE YOUR OZOBOT'S VELOCITY FROM SNAIL DOSE (SLOWEST) TO NITRO BOOST (FASTEST).

Snail dose (slowest) → slow → cruise (default) → fast → turbo → nitro boost (fastest)

- **Snail Dose:** A three-second dose of super slow speed.
- **Slow:** A slow speed command effective until the bot reads a new speed code or is turned off.
- **Cruise:** The default speed command.
- **Fast:** A high speed command effective until the bot reads a new speed code or is turned off.
- **Turbo:** An extra high speed command effective until the bot reads a new speed code or is turned off.
- **Nitro Boost:** A three-second dose of Ozobot's highest speed.

DIRECTION DIRECTION CODES TELL YOUR OZOBOT WHAT TO DO AT AN INTERSECTION.

Ozobot's default intersection behavior is random. If a given turn, i.e. "Go Left" is not possible, Ozobot defaults back to random behavior.

- **Go Left:** A command to turn left at the next intersection.
- **Go Straight:** A command to continue straight at the next intersection.
- **Go Right:** A command to turn right at the next intersection.
- **Line Jump Left:** A command to immediately turn 90 degrees to the left, move forward to a new line, then make a random turn to follow along the new line.
- **Line Jump Straight:** A mid-line command to continue straight after the line ends. The code will not work if Ozobot encounters an intersection before the line ends.
- **Line Jump Right:** A command to immediately turn 90 degrees to the right, move forward to a new line, then make a random turn to follow along the new line.
- **U Turn:** A mid-line command to turn around 180 degrees and follow the same line in the opposite direction.
- **U Turn (Line End):** A line-end command to turn around 180 degrees and follow the line in the opposite direction.

TIMERS TIMER CODES TELL YOUR OZOBOT TO PAUSE OR COUNT SECONDS.

- **Timer On (30 sec. to stop):** A command to make your Ozobot countdown from 30 seconds, but continue to move and read codes while counting down. Ozobot will flash its light(s) at a rate of one flash per second, flash rapidly to signify time is up, then shut off.
- **Timer Off:** A command to stop counting down seconds and return to default behavior.
- **Pause (3 sec.):** A command to stop moving for three seconds, then continue with default behavior.

COOL MOVES COOL MOVE CODES TELL YOUR OZOBOT TO BUST A MOVE!

- **Tornado:** A command to spin around twice at increasing speed, then continue following the line in the same direction.
- **Zigzag:** A command to sway right-left-right-left while moving forward, then continue moving straight.
- **Spin:** A command to spin around twice at a consistent speed, then continue following the line in the same direction.
- **Backwalk:** A command to quickly turn 180 degrees, wiggle backwards for one second, then turn 180 degrees again and continue following the line in the same direction.

COUNTERS COUNTER CODES TELL YOUR OZOBOT TO COUNT FIVE INTERSECTIONS, TURNS, OR LINE COLOR CHANGES.

- **Enable X-ing Counter:** A command to make your Ozobot stop following lines after it crosses five intersections ("T" or "+" intersections). After the fifth intersection, Ozobot executes a "done" maneuver, stops following the line, and blinks red.
- **Enable Turn Counter:** A similar command to the Enable X-ing Counter, except that Ozobot only counts intersections where it makes a turn. It will not count intersections where it continues straight. Ozobot can randomly choose to go straight at an intersection, or be commanded to go straight with a "Go Straight" code.
- **Enable Path Color Counter:** A command to make your Ozobot stop following lines after it reads five color changes in the line. If the line Ozobot is following transitions from red to green, it counts as one color change. Transitions to and from black lines are not counted, and color segments less than two centimeters in length are not counted.
- **Enable Point Counter:** A command that tells your Ozobot to count point codes down from five. Each time Ozobot reads a "Point -1" code it counts down. After the fifth "Point -1" code Ozobot will make a "done" maneuver, stop following lines, and blink red. You can add more to the total count (not to exceed five) with "Point +1" codes. You can reset Ozobot by turning it off, then on.

WIN/EXITS WIN/EXIT CODES TELL YOUR OZOBOT TO CELEBRATE ITS SUCCESS, THEN EITHER START OVER OR STOP

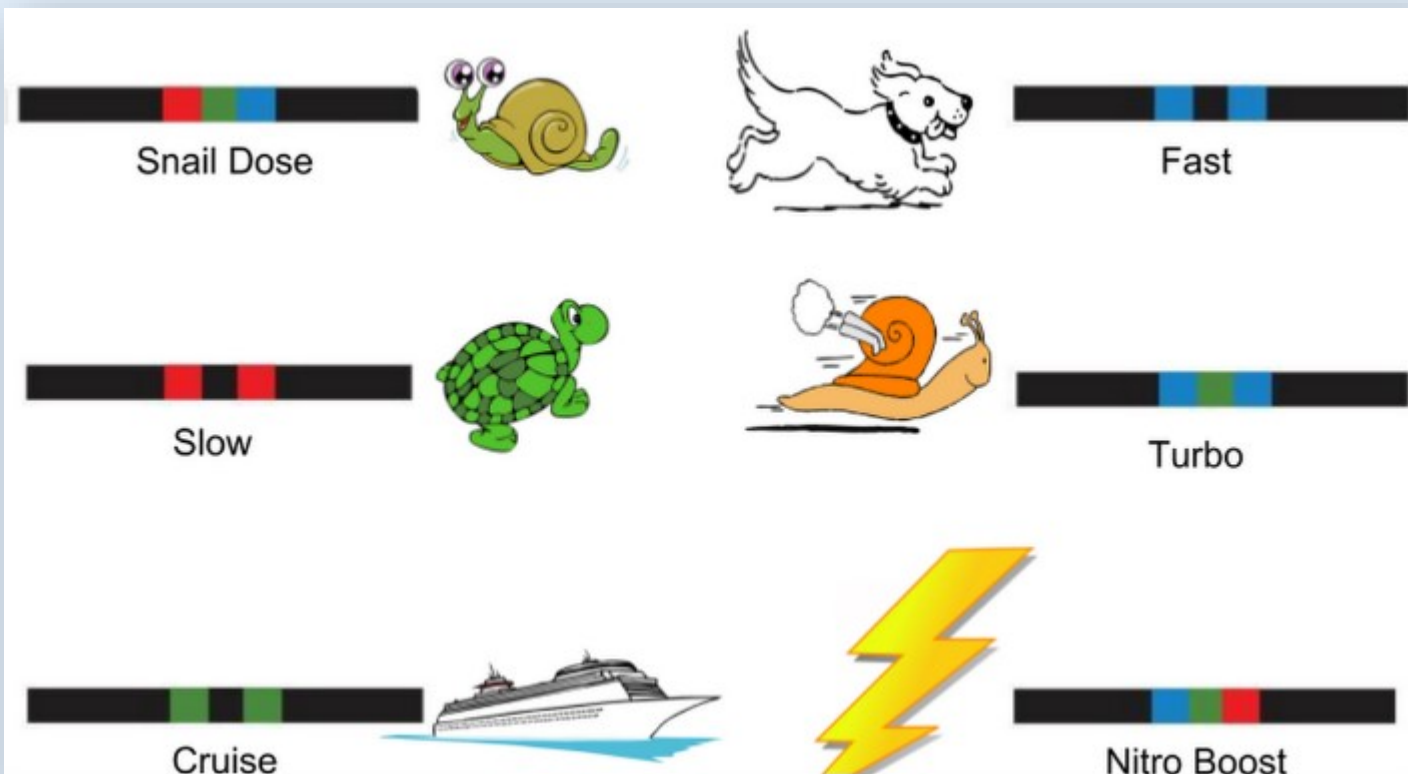
- **Win/Exit (Play Again):** A command to perform a "success" animation, then continue to follow the line.
- **Win/Exit (Game Over):** A command to perform a "success" animation, then stop following the line.

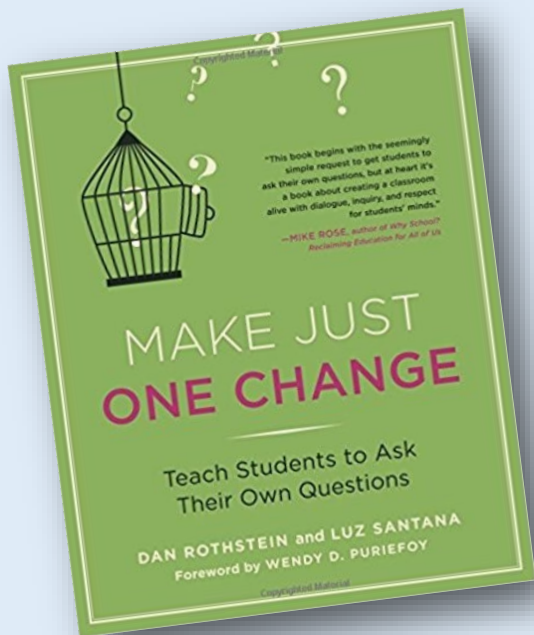
Find out about cool Ozobot Moves!



What are some codes for

OZOBOT?





Make Just One Change: Teach students to ask their own questions.

In this book, authors Rothstein and Santana invite educators to launch inquiry work with a statement rather than a question. They suggest that while teachers spend decades crafting their questioning skills, students are rarely taught this skill explicitly. Try this phrase as a launch ...

playing with lines and Ozobots

In this way, students are encouraged to ask their own questions such as:

- How do we play with lines?
- What's an Ozobot?
- What does it do?
- How do we find out how to use an Ozobot?
- What does an Ozobot look like?
- Do we have any Ozobot? How many do we have?
- Who uses Ozobots?
- Do we get to play? **Are they getting curious? Yup!**



As students work with Ozobots, they can reflect on:

- which questions they've been able to answer,
- Which ones they haven't,
- Which ones were quick to answer,
- Which ones required lots of work to answer. Which ones were open, and which ones were closed.

Ozobots

So many possibilities ...

Applied Design, Skills, and Technologies

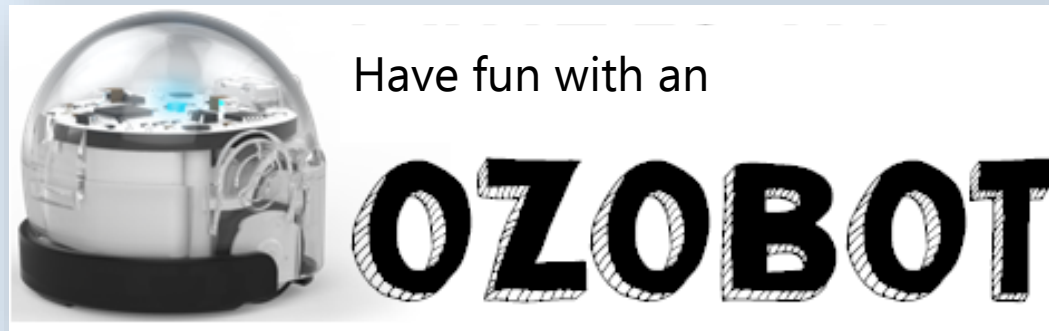
Kindergarten 1 2 3

Big Ideas

Designs grow out of natural curiosity.

Skills can be developed through play.

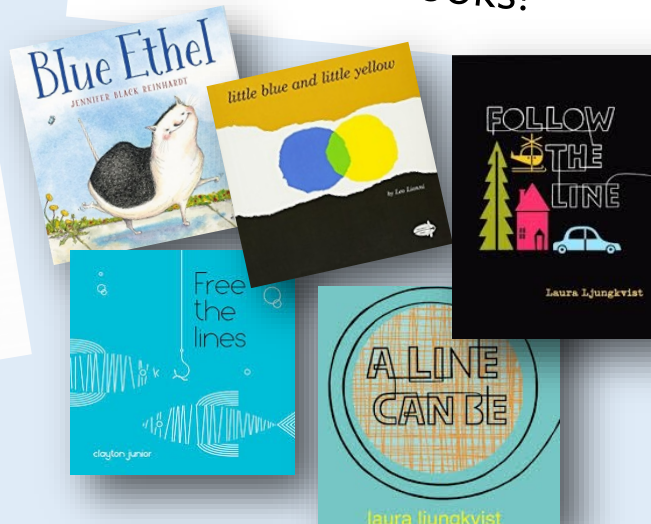
Technologies are tools that extend human capabilities.



Have fun with lines!



Have fun with books!



Have fun with colours!

