

What is Ozobot Bit?

Ozobot Bit is a small smart robot that is programmable through drawn lines and color codes. Ozobot Bit supports all skill and grade level from K-12. Elementary students can start programming Ozobot Bit with OzoCode color codes on a tablet with a free app, or with any standard markers and papers.

How to operate the Ozobot

- 1. Charging:** Make sure your Ozobots are fully charged before each lesson. The Ozobot comes with its own charging cable that the teacher can use. For long periods of disuse, it is recommended to keep Ozobots at medium charge in cool, dark places. When the Ozobot starts blinking RED, use the included cable to plug into any USB outlet. While charging, Ozobot blinks:
 - a. Blinks RED/GREEN on low charge,
 - b. Blinks GREEN on ready charge,
 - c. Turns SOLID GREEN on full charge.
- 2. Markers:** Many lessons require black, red, light blue and light green markers. Do not use Crayons and white board markers with Ozobot. Any regular sharpie or Crayola classic markers can be used for Ozobot lessons.
- 3. Code Reference Chart:** Have an “OzoCodes Reference” chart available for students to use whenever they are working with color codes. The chart is included in the Ozobot kit but can be downloaded at: <http://files.ozobot.com/stem-education/ozobot-ozocodes-reference.pdf>

How to Start

- 1. Calibrate Ozobot:**
 - a. 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.
 - b. Hold down the power button  (at the side) on Ozobot for 2 seconds until the top LED light flashes white.
 - c. Quickly Place Ozobot in the middle of the black calibration dot and let go.
 - d. If calibration is successful, Ozobot will move and then blink green. Start over if Ozobot blinks red. (See the Calibrate sheet on p. 8-9)
- 2. Power Button:** Turn Ozobot on and off by shortly pressing the button  on its side .
- 3. Let's Play:** Start right away by drawing mazes with markers.

Resources:

Ozobot Lesson plans: <http://portal.ozobot.com/lessons>

Calibrate Template:

file:///C:/Users/Fatima%20Syeda/Documents/2ND%20YR/Robotics/print%2010%20ozobot-tips.pdf

What are other benefits to coding? (Pinkston, 2015)

- Provides immediate feedback to students.
- Allow teachers to observe students' thinking and make students' learning visible.
- Provides students with control and responsibility over their own learning.
- Gives students the opportunity for self-correction since the program does not operate if coded incorrectly
- Allows students to work collaboratively on projects and learn from each other.
- Does not require a trained computer programmer to teach students but an open-minded teacher willing to learn coding.
- Easily accommodated to ESL/ELL students and students with special needs, especially autism.

What is the history of coding in schools?

- LOGO was the first version of programming language, which was designed for students to explore concepts found in math, language, music, robotics, telecommunications and science. It used language commands such as *forward*, *back*, *left* and *right*. (Pinkston, 2015).
- Scratch is a popular program that provides instant feedback. The colors indicate classification of programming modes/actions and it is free to download. The different shapes are intended to make elements of code easier to link together (Francis, Khan & Davis, 2016).
- EV3 is a program that is free to download but only works with the (costly) Lego Mindstorms robot. It is assembled on a 2-D computer screen which controls the movement of the robot in 3-D (Francis, Khan & Davis, 2016).

Future Research / Implications:

Statistic findings have shown that women are a minority in high-tech firms (Echeverri-Carroll, Oden, Gibson & Johnston, 2017). There seems to be a substantial gender gap in the field of coding/computer communications. Some schools have started **“girls-only” coding clubs** to provide a safe learning environment for girls to become equipped with the skills and knowledge required to code in more a relaxed and comfortable setting (Pinkston, 2015). Future research should focus on how educators can address this issue and help bridge the gender gap in coding.