Ozobot – User Guide

Overview

The Reef Guardian School team have designed a series of reef-themed STEM Challenge sheets that students can use with Ozobot robots. These are available on Reef Education Resources | Reef Guardian School. **Search:** *STEM Activity Ozobot.*

Ozobots are mini robots that use sensors to follow lines (tracks) and read colour codes that you make with coloured markers. The colour codes tell the ozobot what to do.
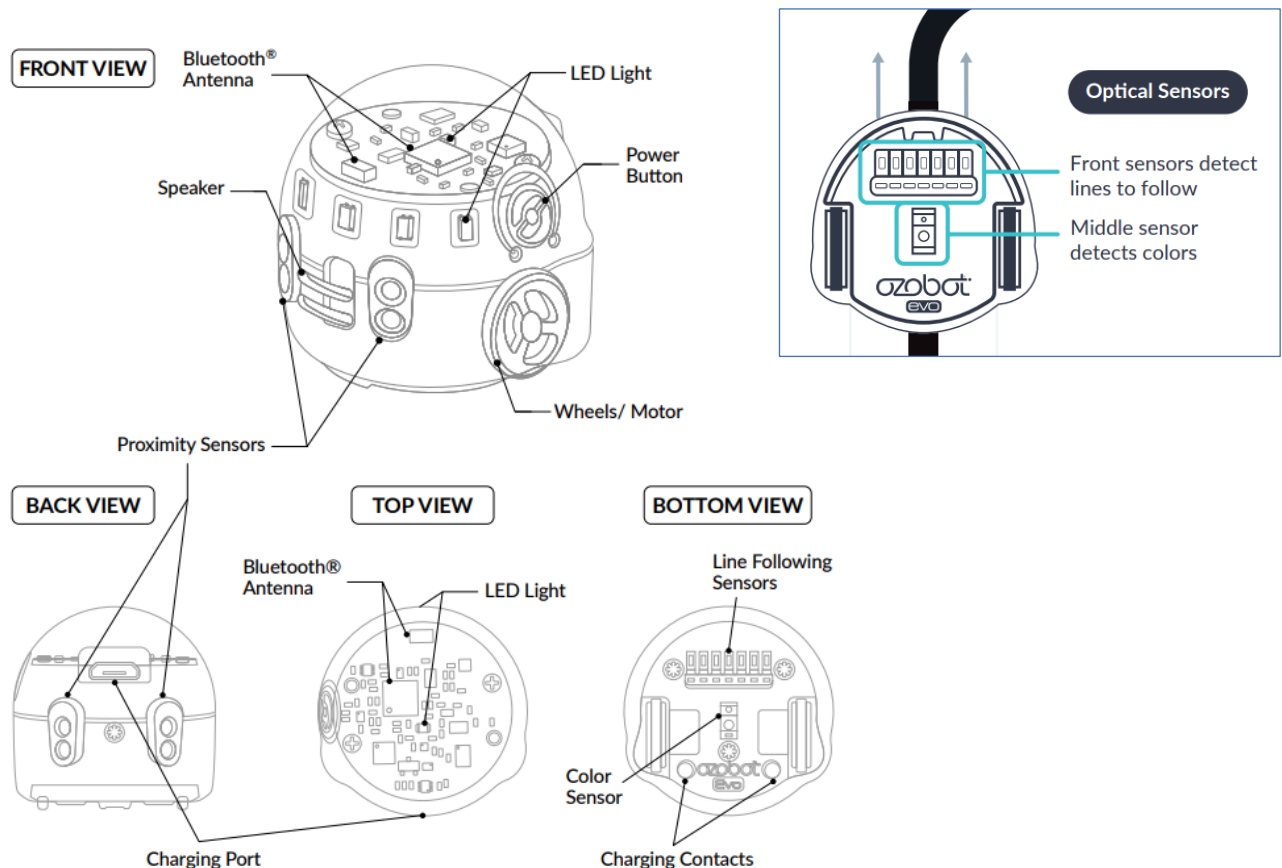
What is a colour code?

A colour code is a short sequence of 2 to 4 colours that Ozobots can read and respond to.

Ozobots use optical sensors and respond with pre-programmed behaviours by speeding up, slowing down, changing direction, or making cool moves.

For further information refer to the Ozobot-Colour-Codes-Chart.

Getting to know your Ozobot:

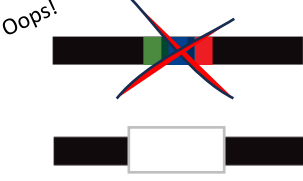## How to use/demonstrate:

- Turn on the Ozobot by pressing the power button on the side.
- The Ozobot will light up. Blue lights indicate it is fully charged.
- When demonstrating how to use the Ozobot, point out the power button. Explain that the lights at the front are used by the Ozobot to detect lines to follow. The lights underneath detect colour codes which tell the Ozobot what to do.
- Explain that there are codes for speed, direction and cool moves. For further information refer to the Ozobot-Colour-Codes-Chart.
- Choose an activity sheet to use. There are activities sheets available on Reef Education Resources | Reef Guardian School. Search: *STEM Activity Ozobot.*
- Using the activity sheet, explain that the challenge is to colour in the white squares using the correct codes to make the Ozobot move safely from the start position to the end point.
- Hand out the activity sheet and a set of four coloured markers, the Instructions sheet and the Ozobot-Colour-Codes-Chart
- Once the students have colour coded their sheet, they can use an Ozobot to test if they have coded correctly.
- There are several activity sheets to choose from ranging from beginner, easy and intermediate.

Tips:

- Remember – put the Ozobot on the track with the front lights facing in the direction that you want the Ozobot to follow.
- If the Ozobot is not going in the direction that you tried to program it, check that you have coded correctly (sometimes people colour code in the reverse direction by mistake).
- If someone makes a mistake, give them a small piece of white sticker to place over the part of the code is incorrect and get them to colour that part in again using the correct codes (this saves time and paper).
- If the ozobot starts working erratically, try recalibrating it using the black recalibration dot included. If this doesn't work, it might be getting low on battery, so swap it for another fully charged one.

Trouble shooting:

Problem:	Solution:
Squares should not have space in between them	Ensure your colour codes meet each other and the track. If there is a white space between the coloured squares the Ozobot might not read the code correctly.
Squares should not overlap	Keep your colouring-in neat. If the colours overlap that area becomes black and the Ozobot might not read the code correctly.
Codes should be the same height as the line	Colour your code the same width as the track. If the codes are wider than the track the Ozobot might not read the codes correctly.
Squares should be the same size	Colour your codes the same length (not too long and not too short). If the colour codes are different lengths the Ozobot might not read the codes correctly.
Too dark	Use the correct coloured markers to colour in your code. If your coloured markers are too dark the Ozobot might not read the codes correctly.
Codes on black lines only	Colour your track black. If your code is on a coloured track the Ozobot might not read your code correctly. **Try this cool move –** make a long track using different Ozobot coloured markers. Watch as your Ozobot's lights change colour as it moves over the different colours on the track.
Oops!	Did you make a mistake? Don't throw your worksheet away, simply place a white sticker over your mistake and try colouring your code again!