GETTING STARTED

1. **What is the Ozobot?**
   The Ozobot is a miniature robot that can follow lines or roam freely, detect colours and can be programmed using visual codes. The Ozobot has five (5) sensors on its base that detect colour. That colour is interpreted to allow the Ozobot to:
   - Reflect colour (a red line will mean the Ozobot shows a red light)
   - Read a visual code (a sequence of colours which instruct the Ozobot)

2. **Charge the Ozobot**
   You will need to make sure your Ozobot is fully charged. To do this, connect your Ozobot via the charging cord to a USB port (on your computer is easiest). When the Ozobot is almost charged it will flash green. When your Ozobot is fully charged the light will stop flashing and will turn solid green.

3. **Calibrate the Ozobot**
   When you calibrate your Ozobot you are making sure that it will read the lines and instructions that you are giving it – similar to an eye test. You can calibrate your Ozobot one of two ways:
   - **Using the Calibration Card from the pack**
     1. Hold down the on/off button on the side of the Ozobot until the light turns white and flashes.
     2. Place the Ozobot on the Calibration Zone (the large black dot). The Ozobot will move around the dot – when it flashes green it will be calibrated.
     3. If this doesn’t work – try again.
   - **Using a tablet**
     1. Make sure the brightness level on your tablet is high.
     2. Open one of the Ozobot Apps (OzoGrove or Ozobot) and select Ozobot Tune-Up.
     3. Select *Calibrate Sensors* and hold down the on/off button as above
     4. Place the Ozobot on the white dot. The Ozobot will move around the dot – when it flashes green it will be calibrated.
     5. If this doesn’t work – try again.

   You will need to calibrate the Ozobot each time you use it. You also need to re-calibrate Ozobot if you switch between using paper and a tablet. Any time Ozobot is behaving strangely, it is a good idea to re-calibrate for the surface you are using.

   **Ambient Light**
   Please note that the Ozobot is very sensitive to light. If you are using the Ozobot close to bright lights or in a very sunny space it may affect the way the Ozobot works. Try moving to a less brightly lit space.

4. **Codes for the Ozobot**
   The Ozobot is programmed to follow visual coding – the coding that it uses are colour codes. Red, green and blue are used to issue direction to the Ozobots, these codes are included with the lines of the map that you can create on paper or a tablet.
The codes are very simple, you will find it is useful to have copies of the codes on hand when you have a group using paper.

You can download these from: http://www.ozobot.com/gamezone/color-language/

5. Tips for the Ozobot
There are some additional tip sheets you will find useful to assist groups when they are using the Ozobot with paper. You may want to print out tip sheets for reference to assist participants.

   Code Quick Reference Sheet:

   Drawing Tips:
   See the ‘Ozobot Tips’ sheet provided in each kit or online at:

   There are additional free handouts available:
   The makers of the Ozobots have developed some activities that you can provide to participants to get started. You can use these as stand-alone activities or as a guide to help participants to develop their own mazes, games, races and brainteasers.

   http://www.ozobot.com/gamezone/print-n-play-zone/

6. Cleaning the Ozobot
   • To clean the wheels – turn the Ozobot off, take a piece of clean sheet of white paper and roll the Ozobot over the paper at least 5 times
   • Wipe over with a damp cloth

   CAUTION
   • Never place Ozobot in water
   • Do not apply water or a damp cloth to the base of the Ozobot.

7. Tuning Up
   If your Ozobot is not performing the way it should (going slow, not following lines properly) you will need to:
   a. Make sure the Ozobot is fully charged
   b. Calibrate the Ozobot
   c. Tune the Ozobot
      • Open one of the Ozobot Apps (OzoGrove or Ozobot) and select the Ozobot TuneUp.
      • Select Tune Motors and follow the follow the instructions
QUICK TIPS

• LINES:
  o Should be approximately 6mm wide
  o Should be consistent
  o Should not be closer than 15-20mm apart
  o Coloured lines can be used – see notes on codes below

• CURVES & INTERSECTIONS:
  o Curves should not be too tight (the lines should not be too close to one another)
  o Angles within curves and intersections should not be less than 90°

• CODES:
  o Should only have black lines preceding and following
  o Should be of equal size (approx. 5mm wide)
  o Should have no spaces between
  o Should not overlap one another
  o Should all be the same size (no one colour should be bigger than the others)
  o Should not be too dark
  o Should not be placed in corners or intersections – they should be at least 10mm away

• COLOUR:
  o Codes use red, blue, green and black
  o Colours should not be too dark, they should have good contrast to one another
    (you should be able to see clearly the difference between black, blue and green)

• PENS:
  o A bullet tip or chisel tip is effective (such as Crayola or Sharpie)
    o Whiteboard makers are best (permanent markers may be too dark)
    o Check how much the ink bleeds on the paper you wish to use

• PAPER:
  o Butchers paper is effective – check the colour of the pens you wish to use
  o Other paper will work check pens and size of paper for activities
    When checking your pens, make sure the ink doesn’t bleed (clean lines) and that the
    colour is clear and that it is easy to differentiate the colours.

• TAPE:
  If you are using cut out codes that you will tape over lines make sure that:
  o the lines align and are the same width
  o Use magic tape™ – as it has a matt finish similar to the paper (sello tape is shiny and
    may affect the performance of the Ozobot)
  o You may need to calibrate the Ozobot (run the calibration process over the tape so
    that the Ozobot recognises the tape)
• **CLEAR SLEEVE:**
  You can use a clear sleeve to protect pre-printed maps, mazes and challenges
  - Calibrate the Ozobot to the clear sleeve (place the calibration dot under the sleeve)
  - Use the sleeve to hold codes in place in place of sticky tape
  - Use the Ozobot on the outside of the sleeve

• **STICKY DOTS**
  You can use sticky dots over the lines to add code
  - Dots must be at least 5mm in diameter – 8mm works
  - Check the colours will work

**CODE QUIRKS**
Several of the codes will work in either direction the Ozobot reads them. These are:
  - Zig Zag ←→ Backwalk
  - Tornado ←→ Spin
  - Snail ←→ Nitro

**NOTE:** The speed the Ozobot is traveling may affect the Ozobot reading code

**TINKERING**
Sometimes the Ozobot does not do what you are expecting – how do you manage this?

**Trial and error**
  - Try again
  - What is different?
  - Do you need to recalibrate?
  - Does the Ozobot need to be charged?
  - Check the Quick Tips – lines, curves, codes, colour?
  - Make a register and check with other Ozobots

An important part of learning and understanding a new skill is making errors. It is okay not to know the answer. Check with other members of the group:
  - Have they had a similar problem?
  - How did they fix it?
  - Can you Google it?