

Activity 7 – Worksheet

Line Bump Experiments



Experiment 1 – Bump Mode:

1. Create a continuous line on a sheet of paper using black tape. Make sure there are no gaps.
2. Use the robot without the switch controller.
3. Place your robot in centre of area and power on. Select mode '**b0**'. Switch sequence is '**A_2D_2A**'.
4. Now press **SW-A** to start. If all is OK the robot will bump its way around the area set by the tape. It will stop after 2mins or if you press and hold **SW-A** or **SW-C** for a few seconds.
5. Insert felt-tip pen and press **SW-A** again. What kind of pattern has the robot drawn?

Experiment 2:

1. Now experiment with the POT settings:
 - POT-1 sets the amount of reverse when the robot detects the black tape.
 - POT-2 sets the amount of spin after the robot has reversed.
 - POT-3 sets the speed difference between the two wheels. A greater difference means that it moves more in a tighter curve.(Remember to press **SW-B** to get the robot to read the POT settings.)
2. Swap pens with another group to get a multi-coloured picture.

Experiment 3 – Mouse Mode:

1. Turn paper over and make a new shape for Experiment 3.
2. Place your robot in centre of area and power on. Select mode '**b1**'. Switch sequence is '**A_2D_A_D_A**'.
3. Now press **SW-A** to start. If all is OK the robot will bump its way around the area set by the tape. It will stop after 2mins or if you press and hold **SW-A** or **SW-C** for a few seconds.
4. How is this different from Bump Mode in Experiment 1?
5. IMPORTANT: The POTs have no effect in this mode '**b1**'.

Experiment 4:

1. Design an experiment to see if you can use other black materials in place of the black tape. Try black felt-tip pen, black biro, black photocopier ink, black poster paint (make sure it's dry before running the robot) and others.
2. Discuss the results with your teacher.