EdPy worksheets

Student worksheets and activity sheets

Name_____

Lesson 9: Worksheet 9.3 – Light following

In this activity, you will write a program so that your Edison robot will follow the light from a torch (flashlight).

Look at the following program:

```
#-------------Setup----------------

import Ed

Ed.EdisonVersion = Ed.V2

Ed.DistanceUnits = Ed.CM
Ed.Tempo = Ed.TEMPO_MEDIUM

#--------Your code below-----------

while True:
    if Ed.ReadRightLightLevel() - Ed.ReadLeftLightLevel() < 0:
        Ed.Drive(Ed.FORWARD_LEFT, Ed.SPEED_5, Ed.DISTANCE_UNLIMITED)
    else:
        Ed.Drive(Ed.FORWARD_RIGHT, Ed.SPEED_5, Ed.DISTANCE_UNLIMITED)

```

This program compares the light level between the right light sensor and the left light sensor to determine the flow of the program.

The presence of the torch on either the left or right of the robot will cause the robot to read a higher light level on that side of the robot. The logic of this program says that when the right light level minus the left light level is less than zero, the robot drives left towards the higher source of light, else the robot drives to the right.

Your turn:

Task 1: Trace the program

In worksheet 5.2, you learned about 'tracing' a program. When there are lots of calculation and different possible values in a program, it can be useful to trace the program. This allows you to understand the different values that can occur and predict the associated behaviour.

1. Fill out the following tracing table for this program. The expected behaviour should either be 'drive forward right' or 'drive forward left'.

	Right_Light	Left_Light	Expected behaviour
Torch on right	200	100	
Torch on left	100	200	
No torch	100	100	

Name_____

Task 2: Write and run the program

Write the program and download it to your Edison robot. After you press the play button, shine a torch at Edison. The robot will drive towards the light. Use the torch to control where Edison drives.

2. What happens if you change the ‘less than’ symbol (<) to a greater than symbol (>) in this program?

_____

_____