Name_____

Lesson 9: Worksheet 9.1 – Light alarm

In this activity, you will write a program to make your Edison robot sound an alarm when the lights in the room are turned on.

Using Edison's light sensors in programs

Your Edison robot has two light sensors, one on the left and one on the right, which can detect visible light. We can use these sensors to program Edison to respond to light.

In a program, we can have these sensors read the amount of light detected and return this as a digital value.

Look at the following program:

```
1
2  #-------------Setup----------------
3
4  import Ed
5
6  Ed.EdisonVersion = Ed.V2
7
8  Ed.DistanceUnits = Ed.CM
9  Ed.Tempo = Ed.TEMPO_MEDIUM
10
11 #--------Your code below-----------
12
13 while Ed.ReadLeftLightLevel() < 100:
14     pass
15 while True:
16     Ed.PlayBeep()
17
```

This program uses the Ed.ReadLeftLightLevel() function in line 13. This function tells the program to read the light level from the left light sensor on Edison and return a value between 0 and 1023.

Because the Ed.ReadLeftLightLevel() function returns a value, we can do maths to that value. The first loop in this program uses mathematics to determine what to do. This first loop says to pass (in other words, to do nothing) while the value returned by the Ed.ReadLeftLightLevel() function is 'less than' (<) 100.

When the value returned is greater than (>) 100, the program exits the first loop and goes to the next loop, which sounds an alarm continuously.

Your turn:

Write the program and download it to your Edison robot. Place the Edison robot in the dark before you press the play button.

Once you have the lights off or have blocked out Edison's left light sensor, press the play button. When the lights are turned on, or whatever is blocking Edison's left light sensor is removed, the robot will raise the alarm.

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1. Think of a real-life situation where this type of alarm would be useful. Describe the situation and how the alarm could be used.

2. What changes need to be made to the program to make it a dark alarm?