# Lesson 16 – Light Level Readings

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| The Big Picture – Why Is This Relevant? | Learning Objectives |
| * Light sensors are used to respond to darkness, turning on outdoor lights, car headlamps and the heating. * Light sensors can also be used to determine if a robot is close to an object. | * Know how the LEDs are used to take light sensor readings * Know how to respond to different readings |
| Engagement – How Can I Engage Learners? | Assessment for Learning |
| * The teacher could set up the light sensor program to display as the Learners enter the classroom * Discuss with Learners where light sensors are used and give some examples * Since the micro:bit is responding to light, Learners can go outside the classroom | **Expected Progress:**   * Learners are aware of how LEDs measure light * Learners take a light reading   **Good Progress:**   * Learners are able to explain how the LEDs take light readings * Learners program a real time light sensor   **Exceptional Progress:**   * Learners can make a micro:bit respond to different levels of light with a range of feedback, (images, text, sound) |
| Links to KS3 Programme of Study | |
| * use 2 or more programming languages, at least one of which is textual, to solve a variety of computational problems * understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems | |
| Key Concepts | Key Words |
| * How the LEDs are used to take light level readings * How to take a light level reading * Responding to the light level reading | * LED * Diode * Photodiode * Current |
| Differentiation | Resources |
| It is fairly simple to write the program code to take a basic light level reading. Learners may need support in the Stretch Task where they program the micro:bit to respond to different levels of light. The teacher may need to suggest or give explicit levels of light | * Lesson 16 ppt * Lesson 16 Activity Sheet * Sample Python code * 1 micro:bit per Learner * 1 USB cable to connect the micro:bit to a PC * A PC * Battery pack * Access to [micro:bit Python Editor (microbit.org)](https://python.microbit.org/v/3) * Some black paper or card |
| Lesson Flow | |
| * Teacher could demonstrate the light sensor program working as the Learners enter the room * Ask Learners for examples of where light sensors are used (cars, street lamps etc.) * Ask Learners to find the light sensor on the micro:bit * Discuss how the LEDs are used to take light level readings * Demonstrate the example program code * Learners complete activity one * Teacher to check * Learners program the real time sensor * Teacher to support Learners where required * Learners complete Stretch Task * Teacher to support Learners where required * Recap main learning content of the lesson | |
| Making | |
| There are no making activities in this lesson. | |