# Lesson 27 – Real Time Temperature Display

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| The Big Picture – Why Is This Relevant? | Learning Objectives |
| * As the micro:bit operates it generates heat which increases the temperature of the board. * It has an inbuilt sensor which can be used to monitor the temperature of the micro:bit. | * Recap how the micro:bit can be used to take temperature readings * Create program that uses the Halo to display the temperature in real time * Adjust the program code to reflect hotter or colder temperatures * Program a real time temperature sensor |
| Engagement – How Can I Engage Learners? | Assessment for Learning |
| * Begin the lesson asking Learners to guess the current temperature of the classroom. * The teacher could also use the Halo display as the Learners enter the room. * Ask Learners to guess what the current temperature is based on the real time display. | **Expected Progress:**   * Learners will program a temperature display   **Good Progress:**   * Learners edit the colours of the display   **Exceptional Progress:**   * Learners will adjust the program code to reflect hotter or colder temperatures. |
| Key Concepts | Key Words |
| * Taking temperature readings * Storing the values * Adjusting the values * Using selection | * Temperature * Real time * Celsius |
| Differentiation | Resources |
| Learners can work in pairs to write up the code and build the displays. The code is fairly simple but does require the correct indentation. One Learner can type whilst the other checks for accuracy. This will reduce errors and the program not working. | * Lesson 27 ppt * Lesson 27 Activity Sheet * Sample Python code * 1 micro:bit per Learner * 1 battery pack for micro:bit * 1 USB cable to connect the micro:bit to a PC * Access to <https://python.microbit.org/v/1.1> * Kitronix Halo (or alternatives such as NeoPixel Ring) |
| Lesson Flow | |
| * Introduce the concept of temperature and ask the Learners to guess the current temperature in the room as they enter * Recap the use of the micro:bit as a temperature sensor * Remind the Learners how to take a temperature reading * Teacher could demonstrate the Halo real time temperature display as an introduction to the activity * Learners to complete activities and Stretch Task * Create and program the real time display * Teacher to support as required | |
| Making | |
| There are no making activities in this lesson. | |