# Lesson 8 – Temperature sensor

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| The Big Picture – Why Is This Relevant? | Learning Objectives |
| * This project introduces the various sensors built into the micro:bit and explores how they can be used in a real world application * Smart homes are now becoming more prevalent and the programs and hardware used in these devices is similar to that in the micro:bit * Selection and computational logic are all key computing concepts | * Understand what a ***forever*** loop does * Understand the various sensors on the micro:bit * Understand simple selection (***if*** blocks) * Use a logical operator in a program * Learn how to duplicate blocks to save time * Consider what other applications the sensors could be used for in a product |
| Engagement – How Can I Engage Learners? | Assessment for Learning |
| * This project again has real world application and the stretch tasks take the concept into the world of Internet of Things (IoT) * Encourage learners to think about how the sensors could be used to solve a problem or how to help a person or business * Encourage learners to explore research solenoids and other peripherals to expand the capability of the micro:bit for other uses | **Expected Progress:**   * Learners will produce a temperature sensing program using selection and computational logic   **Good Progress:**   * Learners will adjust the program to suit their individual preferences   **Exceptional Progress:**   * Learners will research what a solenoid is and will consider how it could be used to control a machine |
| Key Concepts | Key Words |
| * Selection * Computational logic | * Sensor * Analogue * Digital * Solenoid |
| Differentiation | Resources |
| Most Learners will be able to follow the instructions however adding a program to a microcontroller maybe a new concept to some learners and they may need support with getting the files onto the micro:bit initially. | * Lesson 8 ppt * ‘Sensing Your World’ worksheet * Lesson 8 Activity Sheet * 1 micro:bit per learner * 1 USB cable to connect the micro:bit to a PC * A PC * Access to 30T<https://makecode.microbit.org/> * Velcro with sticky back/double sided tape |
| Lesson Flow | |
| * Introduce the concept of a ***forever*** loop * Introduce the Success Criteria for the project * Explain the logical operators if necessary * Show learners where the resources are on the PC * Learners work through resource independently; teacher intervenes where appropriate * Encourage more advanced learners to attempt the stretch tasks once they complete main task * Encourage learners to reflect on how their product could be improved or adapted to a different scenario such as measuring exposure to sunlight or pollution using different sensors | |
| Making | |
| There are no making activities in this lesson. | |