# Lesson 28 – Bluetooth

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| The Big Picture – Why is this Relevant? | Learning Objectives: |
| * Learners have used the **Radio** blocks in a number of projects. This lesson introduces them to another technology that is used to allow them to communicate wirelessly | * Understand that Bluetooth is used to connect the micro:bit wirelessly to another Bluetooth mobile device * Understand that devices have to be paired to give them permission to talk to each other * Understand how to pair two devices |
| Engagement – How Can I Engage Learners? | Assessment for Learning |
| * Learners will enjoy discovering about a technology they may recognise from mobile phones. Some will have heard of the term Bluetooth and will be interested to find out that the micro:bit uses this * Learners will be able to pair their device with a mobile device and also install the Bluetooth library * Learners will enjoy the fun word search activity which will test their knowledge of the topic | **Expected Progress:**   * Learners will understand that Bluetooth is used to connect two Bluetooth devices together wirelessly * Learners will be able to follow the instructions on the ppt to connect the micro:bit to an Android device   **Good Progress:**   * Learners will understand that Bluetooth is a wireless standard which enables devices to connect each other and communicate * Learners will understand the benefits of the using the low energy version of Bluetooth * Learners will understand that the range is approx. 400m but that this is reduced when physical objects are in the way * Learners will understand that the **Radio** blocks used so far use a different protocol to Bluetooth   **Exceptional Progress:**   * Learners will be able to connect their micro:bit to an external device using Bluetooth and will be able to independently use an app to send applications / data between the devices |
| Key Concepts | Key Words |
| * Bluetooth low energy is used to enable the micro:bit to connect wirelessly to another device * The low energy version is used to preserve the battery power * The range of the latest version of Bluetooth is up to 400 metres * When connecting the micro:bit to an external device it must be paired | * Bluetooth * Wireless * Library * Standard * Low energy * Pairing |
| Differentiation | Resources |
| Some Learners may have difficulty recognising that the **Radio** blocks use the same hardware as Bluetooth but a different protocol (software). The lesson teaches learners to connect their micro:bit to an external device. There are number of apps and sample code (such as bitty blue) which more capable learners could independently explore | * 1 micro:bit per learner * 1 USB cable to connect the micro:bit to a PC * A PC * Access to <https://makecode.microbit.org> * Lesson 28 ppt * Word search * Android device * Rock, paper, scissors game |
| Lesson Flow | |
| * Using the ppt as support discuss wireless communication. Ask learners where they have used wireless to date. Ask where they have found the blocks that allow wireless communication to take place. Some will identify that **Radio** blocks are used. They will have used these when they produced the rock, paper, scissors app * Ask learners how far they think the micro:bits can communicate. If there is space, carry out an experiment playing the rock:paper:scissors game to discover what the range is. It is approximately 400 metres although this will be reduced if there are any physical objects in the way. Learners will be amazed at the range at which they can communicate. If there is space, learners could carry out the experiment for themselves and see which objects (walls, doors etc) impact on the range * Discuss Bluetooth using the ppt for support. Highlight how the usability of the device is enhanced through using the low energy version of Bluetooth * Demonstrate how to pair the micro:bit with an Android device. This is highlighted in the ppt * Learners should then pair their micro:bit with their own devices. They will see a tick on the screen of the micro:bit which will highlight a successful pairing * More capable learners could explore how apps such as the official micro:bit app and bitty blue can be used to program the micro:bit * Learners should then complete the wordsearch activity which reminds them of a number of key terms from the course | |
| Making | |
| There are no making activities in this lesson. | |