# Lesson 18 – Radio Part 1

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| The Big Picture – Why Is This Relevant? | Learning Objectives |
| * Radio signals are a key part of everyday communication, from entertainment to Wi-Fi * Radio is also used to control devices and hardware such as drones, cars, machines and robots | * Know how micro:bit radio chip works * Understand the role of channel numbers in radio transmissions * Program a micro:bit to send data through the radio hardware * Program a micro:bit to receive data through the radio hardware |
| Engagement – How Can I Engage Learners? | Assessment for Learning |
| * The radio module is inspiring as data is being sent to other micro:bits without wires * The teacher could demonstrate a radio program at the start of the lessons * This works well if all the Learners’ micro:bits are set to the same channel and receive the radio transmission from the teacher at the same time | **Expected progress:**   * Learners are aware of radio chip and how it works   **Good progress:**   * Learners write and test the sender program * Learners write and test the receiver program   **Exceptional progress:**   * Learners complete the activity stretch tasks |
| Links to KS3 Programme of Study | |
| * understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems * use 2 or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions | |
| Key Concepts | Key Words |
| * How the radio chip works * Sending data to another micro:bit * Receiving data from another micro:bit | * Transmission * Broadcast * Data * Byte * Bit * Channel number |
| Differentiation | Resources |
| The concept of sending data to and from the micro:bits is fairly simple to understand. Learners often forget to set the same channel number as their partner.  Sometimes Learners load the same sender program onto both micro:bits. One micro:bit must have the sender program and the other the receiver.  More able Learners should be encouraged to try out the Stretch Tasks. | * Lesson 18 ppt * Lesson 18 Activity Sheet * Sample Program 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) |
| Lesson Flow | |
| * Teacher could demonstrate a radio sending example as the Learners enter the room * Ask Learners for examples of where radio signals are used * Teacher to explain how the radio chip on the micro:bit works * Teacher to explain how the radio chip uses addressing and channel numbers to send data * Teacher to discuss the basic sender code * Teacher to discuss the basic receiver code * Learners get into pairs and decide who will be the sender and the receiver * Learners completes activity task as per there role (sender or receiver) * 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. | |