# Lesson 7 – Disco Car

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| The Big Picture – Why Is This Relevant? | Learning Objectives |
| * Support the concept of count controlled and conditional loops * Giving the Learners an environment to express creativity | * Apply your understanding of outputs and loops * Create a program to flash a single LED in a single colour * Create a program to alternate the colour of a flashing LED, eg red, blue, green (RGB) * Create a program that will rotate which LED is on and run down one arm of the Bit:Bot |
| Engagement – How Can I Engage Learners? | Assessment for Learning |
| * If you have access to YouTube show some videos of Japanese car culture and LED displays on cars, eg <https://www.youtube.com/watch?v=3tBnupnQxYg> * Give the Learners the opportunity to express themselves with this lesson * Learners will enjoy the concept of being able to make patterns and change colours | **Expected Progress:**   * Learners create a disco light show   **Good Progress:**   * Learners complete one Stretch Task   **Exceptional Progress:**   * Learners complete more complex Stretch Tasks 2 and 3 using conditional and count controlled loops appropriately |
| 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; 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 |
| * Use of Neopixel extension * Iteration using count controlled and conditional loops | * LEDs * RGB * Neopixel * Iteration * Count controlled |
| Differentiation | Resources |
| Some Learners may only be able to do this using a sequence of instructions,  encourage Learners to use iteration to create repeating patterns and encourage more able Learners to differentiate between different loop types for different purposes | * Lesson 7 ppt * Lesson 7 Activity Sheet * PC * micro:bit and USB cable * Access to <https://makecode.microbit.org> * Access to [www.4tronix.co.uk/bitbot](http://www.4tronix.co.uk/bitbot) if required * Bit:Bot * <https://www.youtube.com/watch?v=3tBnupnQxYg> * <https://www.youtube.com/watch?v=LnP_In85sWs> |
| Lesson flow | |
| * Discuss and try to show examples of using LEDs to modify cars * Discuss why people may do this – distinctive, one of the kids, expression, rebelling against the norm * Add the extensions if not already added (Neopixel and Bit:Bot) * Demonstrate how to use both Neopixel and the Bit:Bot extension and then allow Learners to be creative * Encourage iteration for repeating patterns rather than sequences of instructions | |
| Making | |
| No making activities in this lesson. | |