# Lesson 6:

Introduction

The class will be asked to create a project using their knowledge from the past five lessons.

## Learning Objectives

How to use edublocks

To understand how a sequence of code works.

To understand what a function is.

To understand what a function with argument is.

How to create and update variables.

How to create loops with definite ranges.

How to capture user input.

How to ensure the right data types are used.

How to reuse code

## Key Vocabulary

Sequence, selection and iteration, functions, subroutines, loops, variables, data types

## Preparation

#### Subject Knowledge

An understanding of creating code in a block based environment and understanding how key coding concepts are across all languages and can be illustrated using different languages.

Possible Misconceptions

That code has no creative purpose, and that code cannot be reused.

#### Pedagogy

Ideally the class will each have access to a computer and complete the tasks individually. The lesson can be completed with 1 computer per 2 children.

#### You will need

A computer running Windows / Mac or Linux or Chromebook

A web browser (Firefox, Edge, Google Chrome, Safari)

## Assessment Opportunities

Understand the coding concepts that have been covered in the previous five lessons.

Creativity and free

## Outline Plan

This is a quick overview of the accompanying slide deck.

| Group Activity  (Slide 3 - 4)  5 Minutes | The goal of this slide is to remind the class on the coding concepts that we have learnt   * Sequence, the blocks / lines of code that make up a project. * Selection, using logic to determine the correct path based on input / data. * Definite iteration, count controlled loops such as for loops. * Indefinite iteration for example while True. * Subroutines are called functions in Python and they enable blocks of code to be reused without retyping their contents. * Assignment, where we save and use data stored in variables. |
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| Group activity  (Slide 5)  5 Minutes | To start Edublocks, ask the class to open a web browser and type in  app.edublocks.org/editor  Select Python 3 as the mode, give the project a file name and click Create  The class should already be familiar with these blocks, they have been using them for the past four lessons.  Two new blocks are   * screen.bgcolor(0,0,0)   + This sets the background colour to black. * turtle.speed(100)   + Increases the speed at which the turtle moves around the screen. |
| Group Activity  5 Minutes  Slide (6) | This code continues from the previous slide.  Here we introduce a question to the user, do they want to play the game? If they answer y, then the code inside the if condition activates.  Anything else will end the code. |
| Group Activity  10 Minutes  (Slide 7 - 8) | This code continues from the previous slide.  Slide 7 shows the code to draw a star on the screen.  Slide 8 will draw a circle, using the radius of the circle to set the size |
| Group Activity  5 Minutes  (Slide 9) | This code continues from the previous slide.  We ask the user to set the radius of the circle by capturing the user input. This is then saved as an integer to a variable called number.  Can the class remember where they make variables? |
| Group Activity  5 Minutes  (Slide 10) | This code continues from the previous slide.  Using a for loop means we can call the star() function to draw a star, then change the pen colour, then draw another star. |
| Group Activity  5 minutes  (Slide 11) | This code continues from the previous slide.  Here a for loop (definite iteration) is used to draw eight green circles on the screen. |
| Group Activity  10 minutes  (Slide 12) | All of the code for this project is available as a download  **Project 6 Example - The complete code listing.**  This code will need to be opened in Edublocks via the open menu. You can then scroll through the code with the class, and show it working.  **Lesson 6 Extension.xml - Extension activity, all of the alterations made.**  This is the code that shows off the extra features requested. |
| Plenary  2 Minutes  (Slide 13) | Here we recap what we have learnt in this lesson. |
| Congratulations  1 Minute  (Slide 14) | All of the lessons have now been completed.  Well done! |