# Lesson 1:

Introduction

The class will be introduced to Edublocks Python code by means of a comparison to an already familiar language, Scratch.

## Learning Objectives

To understand the concepts of block based coding

To understand basic coding concepts and language

Understand how a sequence / algorithm works

## Key Vocabulary

Sequence, selection and iteration.

## 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 Scratch and Python are different languages and share no concepts. This is not true. They may approach the subject differently but they both follow the same key coding concepts.

#### Pedagogy

The class should work in teams to complete the sequence activity (slide 5) but the remainder of the session is geared towards a teacher led session with elements of discussion.

#### You will need

A computer running Windows / Mac or Linux or Chromebook

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

## Assessment Opportunities

Understand that coding concepts are not tied to just one language and that skills learnt in one language can be applied to others.

Basic orientation of the edublocks interface.

Understand that there are different languages for different tasks.

## Outline Plan

This is a quick overview of the accompanying slide deck.

| Starter activity  (Slide 3 - 5)  5 - 10 minutes | What is coding? (think/pair/share)  “What is coding?”  Ask the learners to write down what they think coding is and where it appears in their lives.  Writing code is solving a problem. We use logic to break down the problem into smaller chunks and solve these problems.  Coding concepts such as   * Sequence   + Instructions given line by line, for example a recipe. * Selection   + Selecting an action based on a decision / test. For example if a driverless car sees a red traffic light, it will stop. * Iteration   + A loop which will run for a definite, or indefinite amount of times.   There are many different languages to write code with.  The class may be familiar with Scratch. But there are many other typed languages.   * C * PHP * Perl * JavaScript * Java   A popular language is Python and we can write code with Python following the same concepts as Scratch. |
| --- | --- |
| Group activity  (Slide 6)  10 minutes | What is a sequence?  In teams of 3  Can you guide a robot (one of the children) to draw a simple shape on a piece of paper?  Teams are encouraged to create their own language on paper and use that to instruct the “robot”  Suggestions for commands are   * Forward * Backward * Left * Right * Spin left * Spin right   Some children may already be familiar with Scratch and so they may use Scratch block commands, and coding concepts to automate drawing the shape (loops)  Reward any teams that manage to retrieve the gold star.  Extension Activity  Debugging  Teams should swap their code with the team next to them, can their robot follow the instructions? |
| 10 minutes  Slides (7 - 13) | How do we move from blocks to Python?  Introduce edublocks.org website and the various modes available.  We are focusing on the Python mode.  Give the class an overview of how edublocks works.  Blocks connect together just like Scratch.  We are writing Python code using these blocks.  Compare blocks such as  while True:  for i  Compare how a block language builds up code, to how Python code is written line by line. |
| Plenary  5 minutes  (Slide 14) | What have we learnt?   * Coding concepts are shared across many different languages. * If we learn the coding concepts then we can use other languages more easily. * Block languages are ideal for introducing coding. * Computers require clear instructions to work correctly. * There are many typed languages used in different industries for different purposes. |
| Next time  5 minutes  (Slide 15) | Class will get hands on with edublocks and learn how to write Python code using blocks.  Class will create a sequence of code to control a drawing tool called “Turtle” |