# Lesson 5:

Introduction

The class will be introduced to functions using Edublocks by creating an application that will draw different shapes on the screen, while using only one module of code.

## 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 reuse code

## Key Vocabulary

Sequence, selection and iteration, functions, subroutines.

## 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 variables are complicated.

#### 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 that variables are temporary storage.

How to update the contents of a variable in the sequence.

How to read the contents of a variable.

## Outline Plan

This is a quick overview of the accompanying slide deck.

| Group Activity  (Slide 3)  5 Minutes | Here we introduce the concept of functions using a cup of tea.  The goal is for children to understand that by giving the command “Make a cup of tea” a sequence of code is executed to complete the task. |
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| Group activity  (Slide 4-5)  10 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  On slide 4 we start by defining a function, called circles. This function is the most basic version of a function.  On slide 5 we develop the code which will go inside the function, this code will draw 10 circles on the screen in a rotating pattern.  The last block in the sequence calls the circles function |
| Group Activity  5 Minutes  Slide (6) | A function with an argument is a way for us to pass extra information to the function when we call it.  Going back to the cup of tea analogy, we can say “Make me 2 cups of tea” with the number of cups being the argument.  Here we create a function that will draw shapes with n number of sides. |
| Group Activity  10 Minutes  (Slide 7 - 8) | Slide 7 highlights the blocks needed to draw a shape with any number of sides. It reuses a lot of code from previous sessions.  Slide 8 concentrates on calling the function, and using the input block to capture the number of sides from the user. |
| Group Activity  10 Minutes  (Slide 9 - 10) | Slide 9 covers the addition of the Turtle blocks, something that the class have done since Lesson 2. It also shows the complete code for this project.  Slide 10 elaborates on calling the function and showing the sequence which the function handles. |
| To the class  5 Minutes  (Slide 11) | We discuss that functions are powerful tools, which can reduce the amount of code needed in a sequence.   * This means that we do not have to write as much code. * We can reuse code. * Our code is smaller and easier to understand. |
| Plenary  2 Minutes  (Slide 12) | Here we recap the learning from this lesson.   * How to create a function. * How to create a function with an argument. * How functions can be reused for different outputs. |
| Next Time  1 Minute  (Slide 13) | Next lesson, we will build a project to create patterns using shapes and colours! |