Variables -Storing and Retrieving Data

All computer applications require some sort of data with which to work as they execute. This is true of even the simplest applications. The data processed by an application may be embedded within it. Data may also be randomly generated or collected from the user as the application executes. In order to work with and manipulate data, programmers need the ability to store, retrieve, and modify data when an application runs.
Within Scratch applications, data is managed using variables.

Variables:

A variable is a container for storing data. Variable allows a data element to be reused many times within a program. Every variable has two parts, a name and a value.

Example: Score = 10; Variable name is score and value is 10.

Assigning Names to Your Variables:

Unlike many programming languages, Scratch is very flexible when it comes to naming variables. You can make variable names as long or as short as you want.

Variable names can include:
- Letters
- Numbers
- Special characters
- Blank spaces

Make your variable names as descriptive as possible. This will help make your scripts self documenting. Although Scratch variable names can be extremely long, it's a good idea to limit their length to a maximum of 30 characters. This provides you with plenty of room to create descriptive, manageable variable names.

Data Types:

Like most programming languages, Scratch lets you work with a number of **different types of data**. Each of these different types of data, listed next, is handled differently by Scratch.

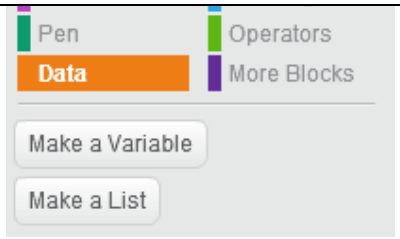
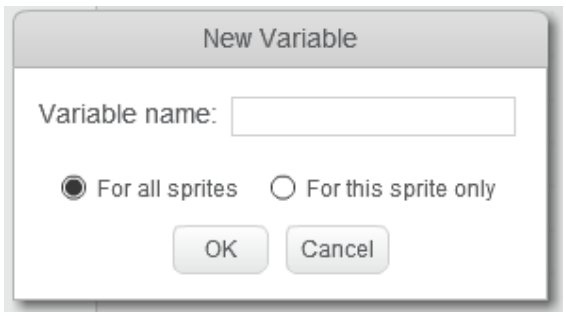
- String
- Boolean
- Integer
- Real

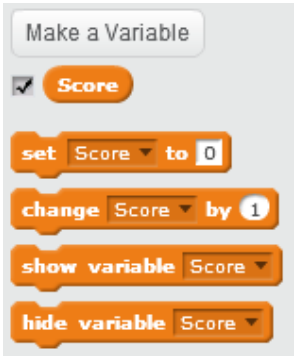
A **string** is a piece of text data that you hard code within Scratch applications using different types of looks code blocks.

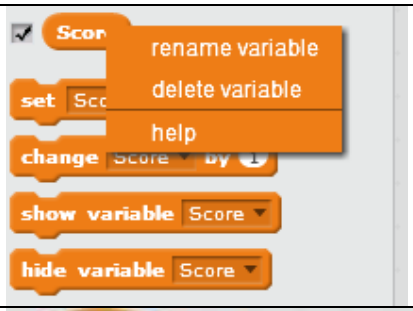
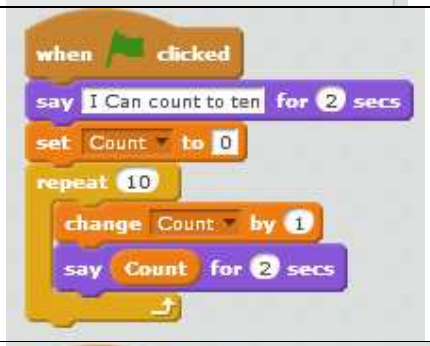
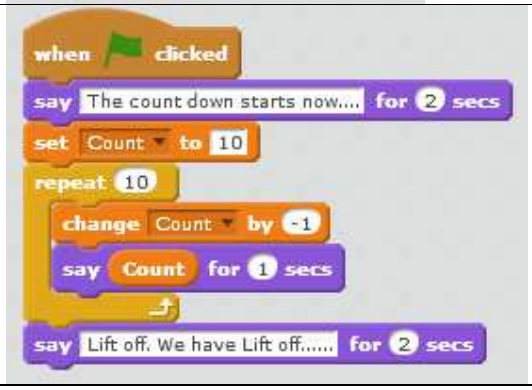
A **Boolean** value represents data that has an assigned value of either True or False.

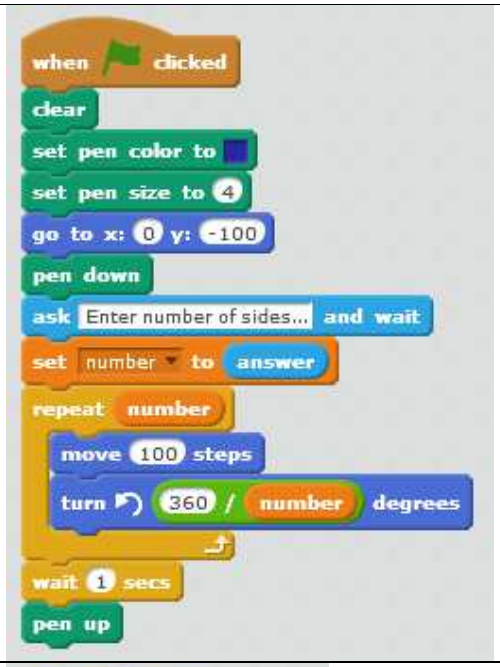
An **integer** is a numeric value that does not include a decimal point (sometimes referred to as a whole number). Scratch lets you enter integer values as input into numerous different types of code blocks. It also allows you to store numeric data inside variables, allowing you to store, retrieve, and manipulate the data as necessary during application execution.

A **real number** is a number that includes a decimal number.

Sl. No.	Activity Name	Activity Image
1	Creating Scratch Variables. i) To create a new variable in Scratch , you need to go to the block palette and select the **Data blocks** category. ii) Once here, you click the **Make a Variable** button to open the **New Variable window** iii) Here you **enter a name for the variable** and select if you want the variable to be available for this sprite only	 

	or for all sprites. **Variable Scope:** If you select **For this sprite only** , the variable is considered a **local variable**, meaning that it is only available to the sprite that was selected. If you chose **For all sprites** , the variable is considered a **global variable**. This means that the variable is available to all sprites in the specific project that it was created in. iv) Click the OK button when ready. v) After you create a variable, Scratch adds several other blocks of code to the Data category. These new blocks enable you to work with your variables.	
2.	Know Variable blocks	 A variable reporter block with the same name as your variable. It holds and reports the current value of the variable.  assign a specific value to your variable.  changes the value of the variable by the specified value. This block of code accepts numbers only.  To show a reporter

		window in the stage area that displays the current value of a variable.  you can hide the reporter window with this block.
3.	Renaming or Deleting of a variable. Right click on the variable and select rename variable or Delete variable.	
4.	Count to Ten	
5	Countdown	

6	Polygon	
7	Use of Inbuilt variables