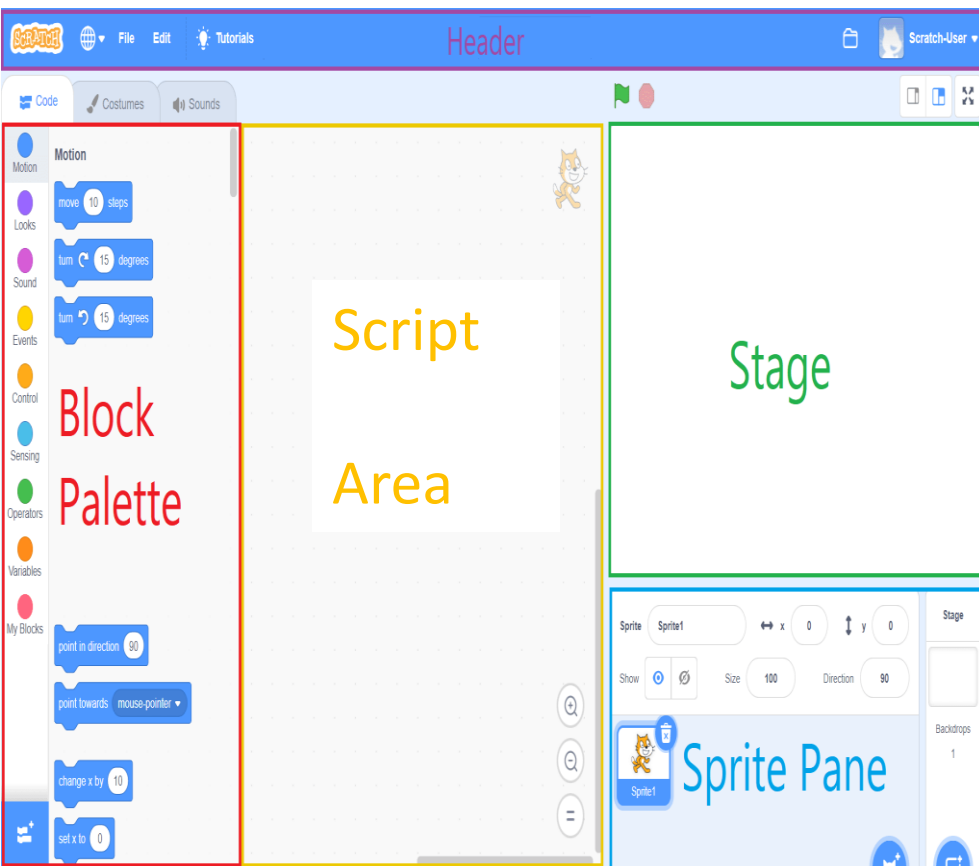# Scratch Programming

Keyword and definitions:

Scratch is the world's largest coding community for children and a coding/programming language with a simple visual interface that allows young people to create digital stories, games, and animations.

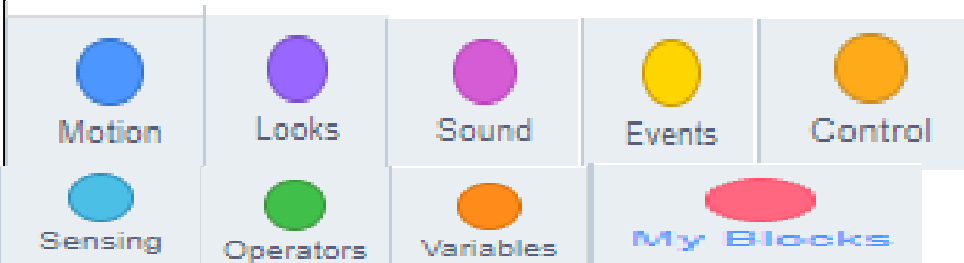The **Stage** window is the main area of scratch is where the action of your program takes place.

The set of instructions that is used to program in Scratch is called a **Script**. It is a stack or collection of **blocks** that connect with one another.

A **Sprite** is an object or character in Scratch that can be programmed to perform actions based on scripts in a project using blocks.

Script Blocks (set of instructions)

Keywords:

Stage	Direction	Sprite
Script blocks	Background	Sounds
Variable	Costumes	Axis

Scratch Programming

Script Blocks/Groups Instructions: Explained

Motion

Looks

Sound

Events

Control

Sensing

Operators

Variables

My Blocks

Motion blocks are what you use to place your sprites on the stage or move them. They are light blue. You can only use motion blocks with sprites, not with the stage.

Looks blocks are dark blue, and they control what your sprites and backdrop look like, how big they are, and whether they are displayed in front of or behind other assets. Looks blocks also include blocks that let you display text.

Using **Sound** blocks adds another dimension to your animations and games and can help enhance the user experience, for example if you add sound effects that correspond with events in a game. These blocks come in a purple block.

The yellow **Events** blocks are fundamental to Scratch as without them, nothing will happen. Each script will have an event at its start which tells the script to run.

Control (orange) blocks let you control the blocks within your scripts, inserting conditional statements, loops, repeats and pauses. They can make your code much more efficient, and can be very powerful when combined with variables and/or operators.

Sensing blocks are coloured cyan. They let you identify what's happening at a given point and make your sprites or background respond.

The green **Operator** blocks let you make comparisons between or perform arithmetic functions on different values and can be used with other data blocks or sensing blocks among others.

Variables orange blocks let you define values for a variable and then use it in your project. They're great for timing games or keeping score, or for defining how many times a loop needs to run.

Use the pink **My blocks** to create your own blocks. These are useful for making your code more efficient. If you have a set of blocks you're using repeatedly in your project, maybe across sprites or scripts for echo sprite, you can define a single block that includes that set of blocks (or routine) and just use that whenever you want to run the whole routine.

Keyword and definitions:

Sequence – One of the three basic programming constructs. Instructions that are carried one after the other in order.

Selection – One of the three basic programming constructs. Instructions that can evaluate a Boolean expression and branch off to one or more alternative paths.
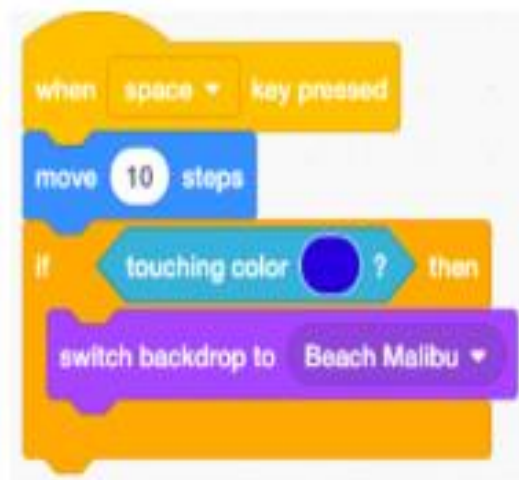
Iteration – One of the three basic programming constructs. A selection of code that can be repeated either a set number of times (count-controlled) or a variable number of times based on the evaluation of a Boolean expression (condition-controlled).

Algorithm– An algorithm is a set of instructions for solving a problem or accomplishing a task

Sequence

```
go to x: 12 y: 3
point in direction 90
move 10 steps
wait 1 seconds
move 10 steps
wait 1 seconds
turn C 15 degrees
say Hello! for 2 seconds
```

Selection/Conditional statements

```
when space key pressed
move 10 steps
if touching color ? then
switch backdrop to Beach Malibu
```

Iteration

```
when clicked
go to x: 12 y: 3
set Timer to 0
point in direction 90
repeat 10
  move 6 steps
  wait 1 seconds
  move 10 steps
```