Indian School Al Wadi Al Kabir

Department of Computer Science

Class XII – Work Experience

Handout 1 – Getting Started with Scratch

Scratch

The Scratch programming language and environment are a project of the Lifelong Kindergarten Group at the MIT Media Lab. They are available free of charge.

Create a Scratch Account

Before you start programming, you will need to create a Scratch account/Download and Install Scratch.

1. Go to scratch.mit.edu.
2. Click *Join Scratch/Sign In*.
3. Enter the requested information.

Scratch Editor

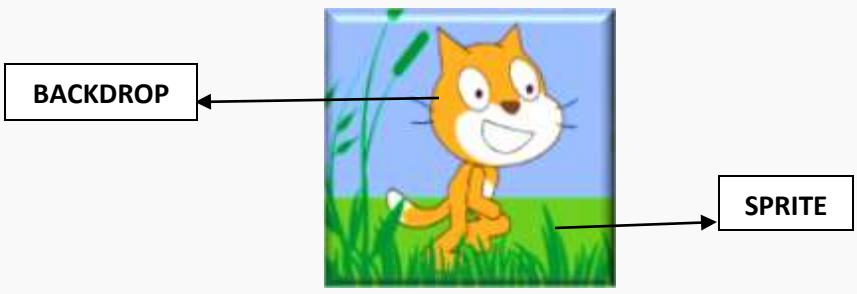
The Scratch editor has three main parts:

- **Stage:** Where your program runs.
- **Sprite list:** A list of the sprites (objects) in your program.
- **Script editor / costume editor:** Where you edit your programs or your sprite's pictures. When the ***Scripts*** tab is chosen, the script editor is shown (outlined in red):

The script editor has three main parts:

- **Script area:** Where you build scripts.
- **Block menu:** Where you choose the category of blocks (programming statements) to use.
- **Block palette:** Where you choose the block to use.

Sprites are the images on a **Scratch** computer program screen.
Every **Scratch** program is made up of **sprites** and the scripts (instructions) that control them.
Scripts are programmed to make the **sprites** do things.
A **backdrop** is an image that can be shown on the Stage.



Block categories have provided a user-friendly way of sorting blocks ever since the release of Scratch. Blocks are categorized based on their functionality, and blocks within the same category share the same color. The separation of color among categories can allow better distinction of the parts of a project, as well as increase the ease of access.

- **Motion blocks** deal with the movement of sprites. They relate mainly to the x and y position and direction of the sprite, as almost all the blocks correspond to them. The Stage does not contain any Motion blocks since it is a still object.

- **Events blocks** are related to various triggers in a project, or when one part signals another to run. The Events blocks used to be part of the Control category prior to Scratch 2.0.

- **Looks blocks** are related to the appearance of sprites and the stage. Some of the functionalities are changing costumes and applying graphic effects.

- **Control blocks** run the basic flow of a project in the desired fashion, whether it be organized or unexpected. They provide functions for looping various blocks and scripts. They "control" the project and enhance its running.

- **Sound blocks** are related to playing various sounds, whether they be MIDI notes or saved sounds.

- **Sensing blocks** associate with sprites and the stage detecting conditions. For example, sensing blocks can be used to detect when one sprite touches another. They consist of many booleans and can work with Control blocks to stabilize a project' a flow.

- **Pen blocks** are related to a sprite's pen, which is a feature that allows a line to be to be drawn in accordance with a sprite's location (the line or "pen" is always at the costume center of the sprite it is in). The blocks are associated with turning the pen on and off, stamping a sprite's image onto the stage, and adjusting the various appearance values of the pen.

- **Operators blocks** originally called "Numbers" blocks, deal with many mathematical functions within a project. They are a green color and provide the capabilities of simple to complex mathematical operations. "Operators" also contains blocks for modifying strings and implementing them into various uses. There are some boolean blocks, too, in which some are related to mathematical outputs, while others are used for adjoining other booleans into one or a different output condition.

- **Data blocks** include two subcategories, Variables and Lists, but both are related to storing and accessing data. Prior to Scratch 2.0, this category was called "Variables". Data blocks are used for storing information, such as a score in a project, and using it in scripting and other beneficial purposes.

Variables are a subcategory of Data blocks. They become visible once a variable, a changeable value, is created. They are color-coded orange and consist of four stack blocks.

Lists are another subcategory of Data blocks. The blocks become visible once a list is created.

➢ My Blocks

My blocks are blocks that hold custom procedures for a selected sprite. The blocks are useful for running a script without screen refresh and organization of the scripts.