



Introduction

Scratch is a programming language that lets you create your own interactive stories, animations, games, music, art etc. It provides a graphical environment that lets you learn the basics of programming in an easy and fun manner. Programming is a set of Instructions that can be used to produce various kinds of outputs.

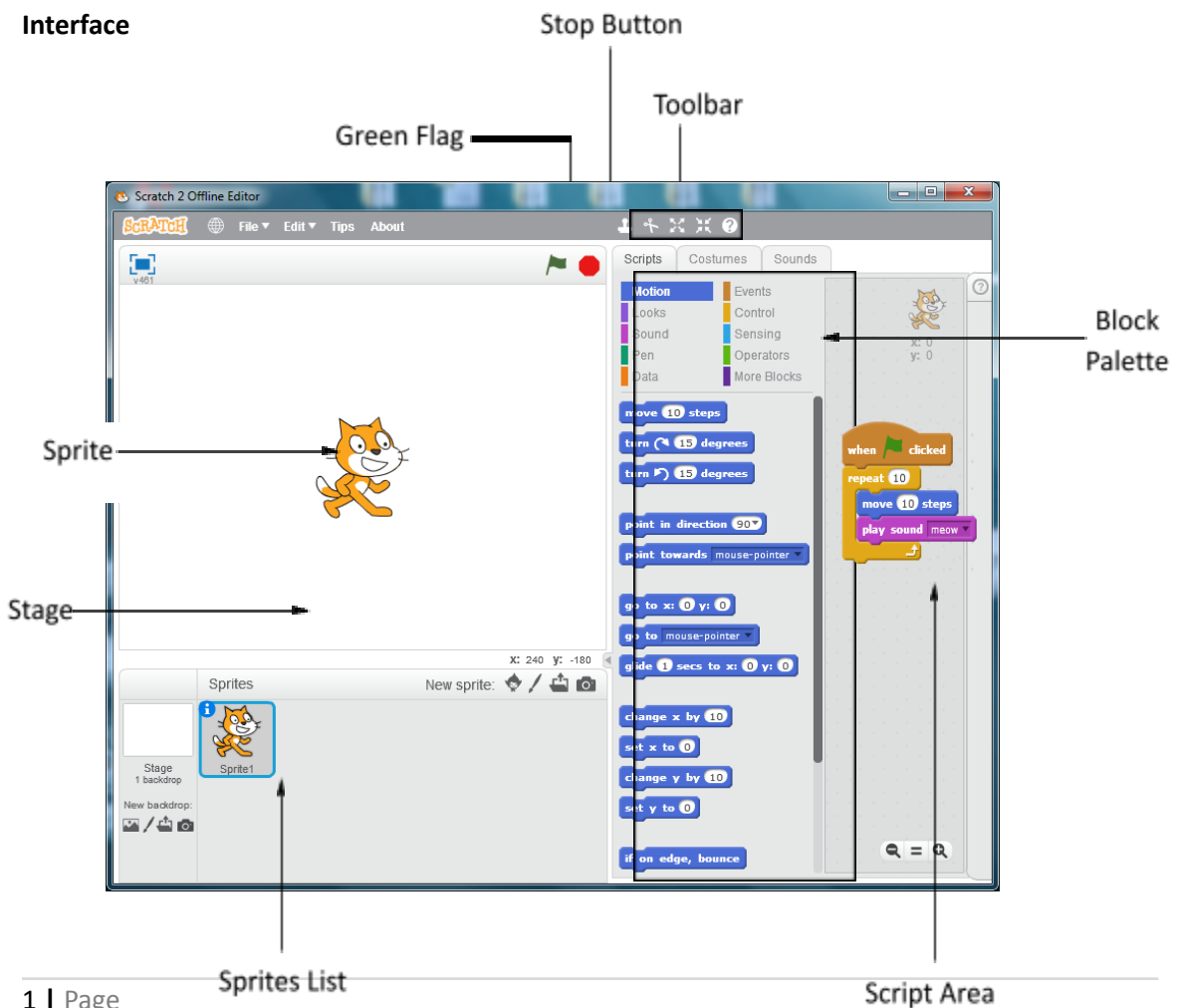
Path

Start → All Programs → Scratch

Icon



Interface





Components of a Scratch Window

Sprite

The name for a character in Scratch is known as Sprite. Scratch projects are made up of objects called Sprites. We can add more than one sprite to a project. Sprites can move, turn, play sound, play drum, think, say etc. Sprites are programmed by putting various blocks in the script area. We can import an existing sprite or paint a new sprite.

Stage

The background of a project is known as Stage. It is a graphical area of a scratch programme, where sprites move and interact with each other. It is where the sprites perform.

Script Area

It is where all the blocks for sprites are placed. We can join multiple blocks together to form a stack in Script area. A stack of blocks represents a group of instructions for the sprite. The instructions on all the blocks in the stack get executed when we click anywhere on the stack.

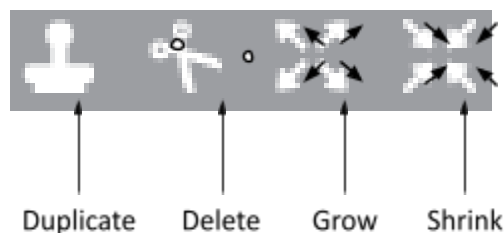
Green Flag

This is used to start the project.

Stop Button

This is used to end the project.

Toolbar



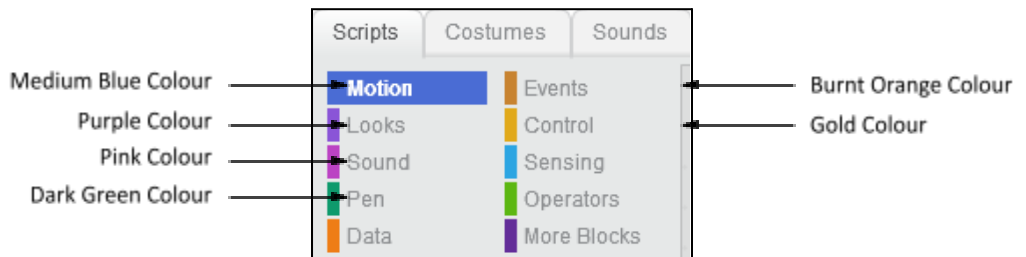
Sprite List

This displays the thumbnails of all the sprites in a project.



Block Palette

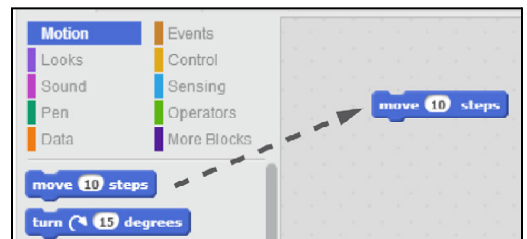
We can give instructions like move, rotate and play music to a sprite by making use of various blocks in the block palette. These blocks are divided into various block categories such as Motion, Looks, Sound, Pen, Control, Events etc. To program a sprite, we have to drag blocks from block palette to Script area.



Motion Block Category

Move - Start moving

- Select Motion block category
- Drag a move block into the scripts area.
- Change the number of steps to be moved.
- Click on the block to make the sprite move.



Some of the other blocks available in this block category are:

Turn, If on edge bounce, Point towards etc.

Sound Block Category

Play Drum - Play a sound of a drum

- Select Sound block category
- Drag a play drum block into the scripts area.
- Choose different drums from the pull-down menu.



- Click on the block to add that sound for the sprite.

Play Sound - Play a sound of a sprite

- Select Sound block category
- Drag a play sound block into the scripts area.
- Click on the block to add that sound for the sprite.

Some of the other blocks available in this block category are:

Stop all sound, set volume to 100%, Change volume by -10 etc.

Looks Block category

Say

- Select Looks block category.
- Drag out a say block to the script area.
- Click inside the say block and type to change the words.

Change colour effect

- Select Looks block category
- Drag out the change colour effect block to the script area

Some of the other blocks available in this block category are:

Think, Change size by etc.

Pen Block Category

Some of the other blocks available in this block category are:

Pen up, Set Pen colour, Pen down, Change pen size by etc.

Control Block category

Wait

This block makes the script wait for a specified number of seconds and then continue with the next block.

- Select Control block category
- Drag out the wait block to the script area.



- Change the number of seconds to wait.

Forever

This can be used to check conditions and repeatedly executes the blocks within it.

- Select Control block category
- Drag out the forever block to the script area.

Repeat

This block runs the blocks inside it a specific number of times.

- Select Control block category
- Drag out the repeat block to the script area.
- Change the number of times to repeat the blocks inside repeat block.

Events Block Category

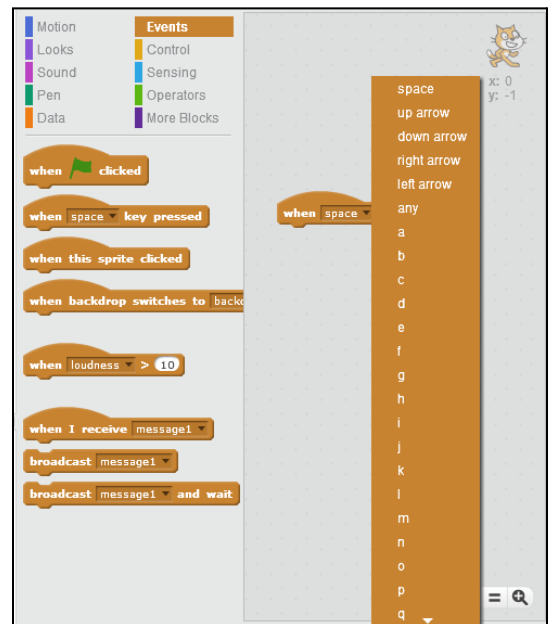
When Green Flag clicked

Whenever you click the green flag, your script will start. The actions of the blocks get executed. To stop click the stop button.

- Select events block category
- Drag out when green flag is clicked block and snap it on the top of the stack.

WhenKey Pressed

- Select Events category
- Snap on Whenkey pressed
- You can choose different keys from the pull-down menu.
- Press the selected key in the keyboard to run the program.

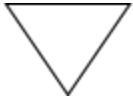
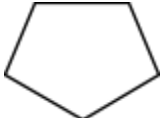




Costumes

It is a different way a sprite looks. You can create animation effect by quickly changing the costume of a sprite. Changing the costumes of the sprites give an illusion of movement.

Drawing Geometrical shapes

Name	Shape	Blocks of Stack
Square		Repeat 4 Pen down Move 100 steps Turn 90 degrees
Rectangle		Pen down Move 200 steps Turn 90 degrees Move 100 steps Turn 90 degrees Move 200 steps Turn 90 degrees Move 100 steps Turn 90 degrees
Triangle		Repeat 3 Pen down Move 100 steps Turn 120 degrees
Pentagon		Repeat 5 Pen down Move 100 steps Turn 72 degrees
Circle		Forever Pen down Move 10 steps Turn 15 degrees

Creating a New Project

File menu  New

Saving a Project

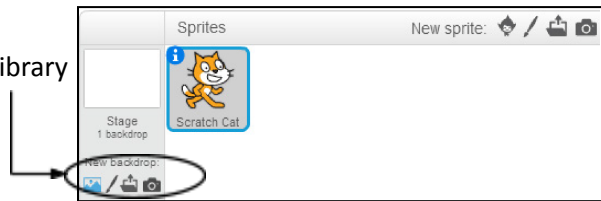
File menu  Save

Opening a Project



Add a backdrop

- Click choose backdrop from library



NOTE :- Backdrop buttons



Choose backdrop from library



Paint new backdrop



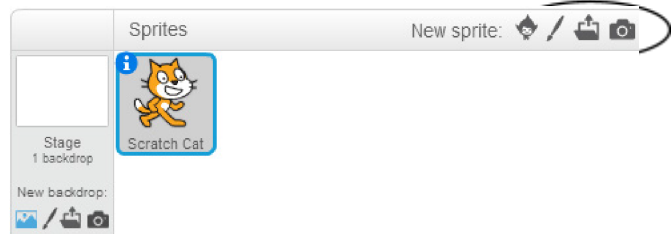
Upload backdrop from file



New backdrop from camera

Add a sprite

- Each object in Scratch is called a sprite.
- To add a new sprite click one of these buttons



NOTE :- New Sprite buttons



Choose sprite from library



Paint new sprite



Upload sprite from file



New sprite from camera