INDIAN SCHOOL AL WADI AL KABIR

CLASS IX	DEPARTMENT OF COMPUTER SCIENCE	
TOPIC : Different components of Scratch's programming environment		Handout 2

Components of Scratch's programming environment

Scripts Area

To make a sprite do interesting things, you need to program it by dragging blocks from the Blocks tab to the Scripts Area and snapping them together. When you drag a block around the Scripts Area, a white highlight indicates where you can drop that block to form a valid connection with another block (Figure 1-9). Scratch blocks only snap together in certain ways, eliminating the typing errors that tend to occur when people use text-based program-ming languages.
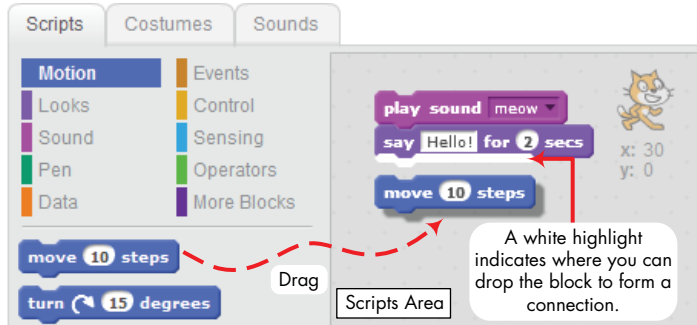

Figure 1-9: Drag blocks into the Scripts Area and snap them together to create scripts.

You don't need to complete scripts to run them, which means that you can test your script as you build it. Clicking anywhere on a script, complete or partial, runs the entire script, from top to bottom.

You can also easily disassemble a stack of blocks and test each individu-ally. This will be an invaluable strategy when you're trying to understand long scripts. To move an entire stack of blocks, grab the top block of the stack. To detach a block in the middle of a stack and all the blocks below it, grab it and drag it. Go ahead and try this out.

This feature also allows you to build your project one piece at a time. You can connect small chunks of blocks, test them to make sure they work as intended, and then combine them into larger scripts.

You can even copy a stack of blocks from one sprite to another. Just drag the stack from the Scripts Area of the source sprite to the thumbnail of the destination sprite in the Sprite List.

Costumes Tab

You can change what a sprite looks like by changing its costume, which is just an image. The Costumes tab contains everything you need to organize your sprite's costumes; you could think of it like a clothes closet. The closet can have many costumes, but a sprite can wear only one at a time.

Let's try changing the Cat sprite's costume now. Click the thumbnail of the Cat sprite and select the Costumes tab. As illustrated in Figure 1-10, the Cat has two costumes: costume1 and costume2. The highlighted costume (costume1 in this case) represents the sprite's current costume.
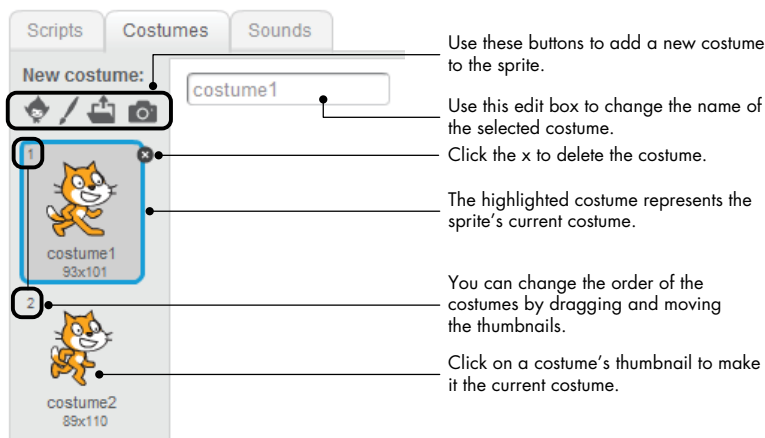
Figure 1-10: You can organize all the costumes for a sprite from the Costumes tab.

If you right-click on a costume's thumbnail, you'll see a pop-up menu with three options: (1) duplicate, (2) delete, and (3) save to local file. The first option adds a new costume with an image identical to that of the cos-tume you duplicated. The delete option deletes the selected costume. The last option allows you to save the costume to a file. You can import that cos-tume and use it in a different project using the Upload costume from file button (the third button in Figure 1-10). Go ahead and try these options out.

Sounds Tab

Sprites can also play sounds, which liven up your programs. You can, for example, give a sprite different sounds to use when it's happy or sad. If your game contains a sprite that looks like a missile, you could make the missile generate different sounds when it hits or misses a target.

The buttons in the Sounds tab will help you organize the different sounds your sprites can play. As shown in Figure 1-11, Scratch even provides a tool you can use to edit sound files. I won't discuss the details of this tool in this book, but I encourage you to experiment with it on your own.

Figure 1-11: The Sounds tab allows you to organize the sounds of a sprite.

Most of the time, you'll need only the three buttons at the top of the Sounds tab. They allow you to choose a sound from Scratch's sound library ❶, record a new sound ❷ (if you have a microphone), or import an exist-ing sound file from your computer ❸. Scratch can read only MP3 and WAV sound files.

Backdrops Tab

When you select the thumbnail of the Stage in the Sprite List, the name of the middle tab changes from *Costumes* to *Backdrops.* Use this tab to orga-nize the Stage's background images, which you can change with your scripts. For example, if you're creating a game, you might show one backdrop with instructions to begin and then switch to another when the user starts the game. The Backdrops tab is identical to the Costumes tab.

Click the **Choose backdrop from library** button below the thumbnail of the Stage in the Sprite List. Select the xy-grid backdrop from the window that appears and click OK. Scratch will add the xy-grid to your project and make it the default backdrop. (The xy-grid shows a 2-D Cartesian plane, which is useful when you're working with the Motion command blocks.) Repeat these steps and select any other back-drop that you like.

Sprite Info

You can view the sprite info area by clicking the small icon at the top-left edge of a sprite's thumbnail, as illustrated in Figure 1-12. This area shows the sprite's name, its current (x,y) position and direction, its rotation style and visibility state, and whether it can be dragged in Presentation mode. Let's briefly talk about each of these options.
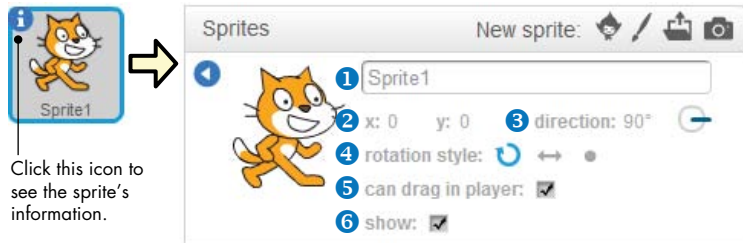
Figure 1-12: Sprite info area

The edit box ❶ at the top of this area allows you to change the sprite's name. You'll use this box many times in this book.

The *x* and *y* values ❷ show the sprite's current position on the Stage. Drag the sprite onto the Stage and watch what happens to these numbers.

The sprite's direction ❸ indicates which direction the sprite will move in response to a movement block. Drag the blue line emanating from the center of the circle icon to rotate the sprite.

The three rotation-style buttons ❹ (named Rotate, Left-right flip, and No rotate) control how the costume appears as the sprite changes its direction.

Toolbar

Let's take a quick look at Scratch's toolbar in Figure 1-14, starting with some of the buttons. (The toolbar will look slightly different if you are signed in, as covered in Appendix A.) Use the Duplicate and Delete buttons to copy and remove sprites, costumes, sounds, blocks, or scripts. The Grow button makes sprites bigger, while the Shrink button makes them smaller. Just click the button you want to use and then click on a sprite (or a script) to apply that action. To return to the arrow cursor, click on any blank area of the screen. You can use the Language menu to change the language of the user interface.
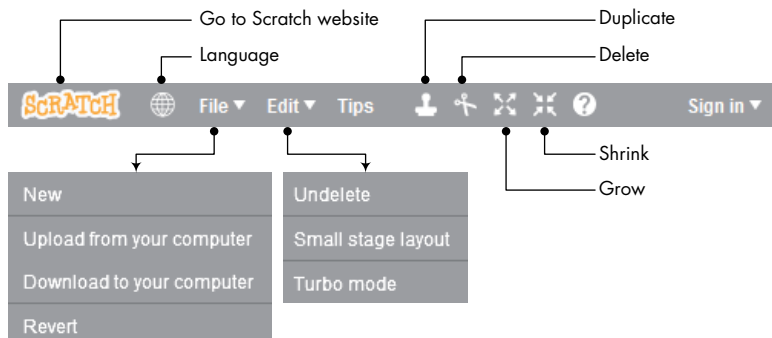
Figure 1-14: Scratch's toolbar

From the File menu, you can create new projects, upload (open) an existing project from your computer, download (save) the current project to your computer, or revert (undo) all your changes to the current project. Scratch 2 projects have an *.sb2* file extension to distinguish them from proj-ects created in the previous version of Scratch (*.sb*).

In the Edit menu, Undelete will bring back the last block, script, sprite, costume, or sound you deleted. The Small stage layout option shrinks the Stage and gives the Scripts Area more room. Selecting Turbo mode increases the speed of some blocks. For example, executing a **move** block 1,000 times may take about 70 seconds in normal mode and about 0.2 seconds in Turbo mode.