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More on Scratch

In the previous chapter, we have studied about the basic components of a Scratch window and how to create a simple Scratch program using basic blocks. In this chapter, we will study more about Scratch blocks and basic operations on a sprite.







LESSON SKILLS

- ▶ Scratch Blocks
- ▶ Changing Sprite on the Stage
- ▶ Changing Backdrop
- ▶ Changing Size and Color of the Sprite
- ▶ Moving a Cat Sprite

SCRATCH BLOCKS

Blocks are used to create scripts in Scratch. They represent the actions, we can do with the selected sprite. These actions are grouped under different categories. To tell a sprite, what to do, these blocks are snapped together from various categories in the coding area. A set of blocks stacked together is called a **program** or a **script**. These scripts control the action of sprite on the stage.

The various block categories are:

Block Categories	Function
 Motion	These are used to control the movement of the sprite in a specific direction. These are of blue color. There are total 18 Motion blocks.
 Looks	These are used to control the appearance of the sprite and to add speech or thought bubble to the sprite. These are of purple color. There are total 20 Looks blocks.
 Sound	These are used to control the sound in the script. These are of pink/magenta color. These are 9 in number.
 Events	These blocks sense the events like mouse click, key press etc. These are of yellow color. There are 8 blocks in this category.
 Control	These blocks are used to control the execution of the statements. These are of golden color. There are 11 control blocks.
 Sensing	They are used to detect situations like mouse down, touching colors etc. These are used for making animations. These are of cyan color. There are 18 sensing blocks.

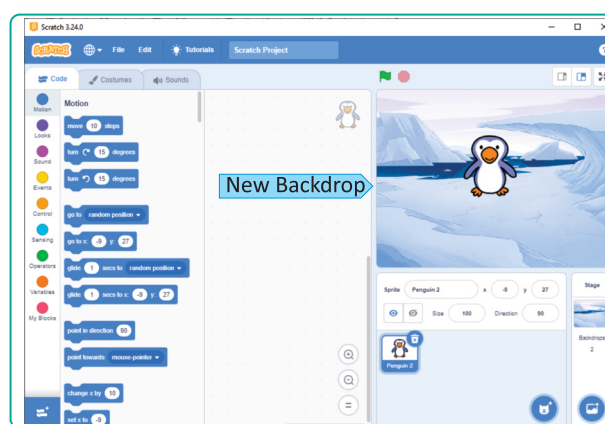
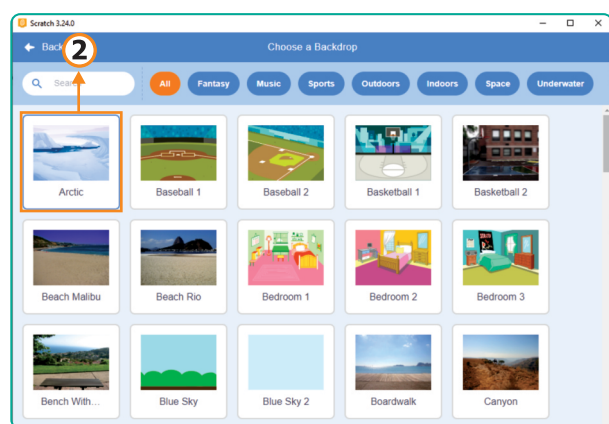
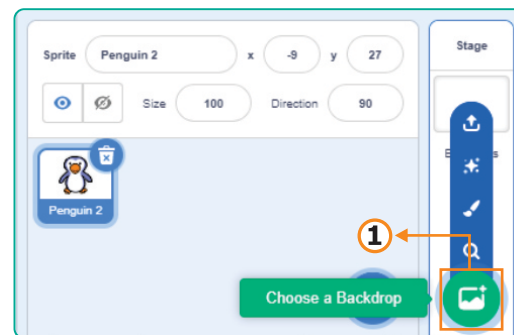
CHANGING THE BACKDROP

The stage, on which the sprite is animated appears in **white** color by default. Scratch offers backdrop library to choose some suitable background for the stage.

To change the backdrop, follow the given steps:

1. Click on the **Choose a Backdrop** button in the Stage Info Pane. **Choose a Backdrop** window appears as shown.
2. Click the suitable backdrop thumbnail, to add it in the stage background.

The selected backdrop appears on the stage.



Changing the Backdrop

CHANGING SIZE AND COLOUR OF THE SPRITE

Scratch also provides the command blocks to change the color and size of the sprite being used in the project. These command blocks can be accessed from the **Looks** block category.

To change the size and color of the sprite, follow the given steps:

1. Choose the sprite you want to use in your project and add a suitable backdrop to the stage.
2. Select the **when clicked** block from the **Events** block category and drag it to the coding area.
3. Now, click on the **Looks** category and add **set color effect to 0** and **change size by 10** blocks to the script under the **when clicked** block and enter the suitable values in the blocks.
4. Now, click the **Preview** button and see the change in the looks of the sprite.



Changing Size and Colour of the Sprite






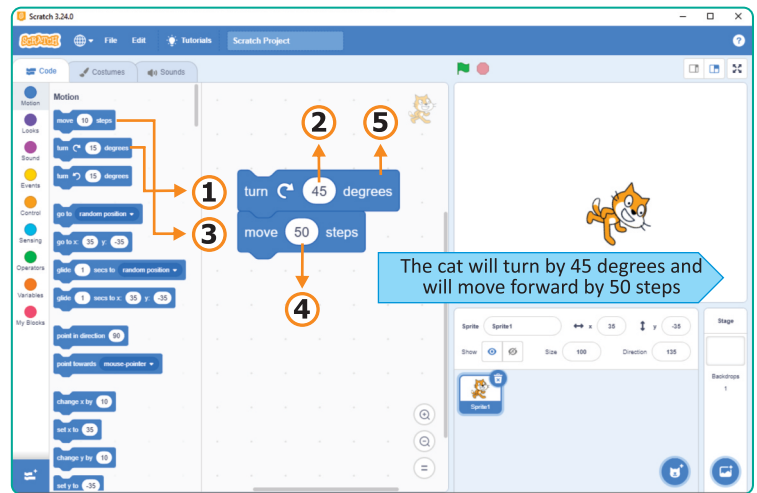
Tech Info

To make the cat sprite move in the backward direction, click and drag 'Move 10 Steps icon image' to the script area. Then type a number with the minus sign in the number box. For example, if we type -50 instead of 50, the cat sprite will move in the backward direction by 50 steps.

TURNING THE CAT SPRITE BY 45 DEGREES


To turn the cat sprite by 45 degrees and move forward 50 steps, follow these steps:

1. On the Code tab, from the **Motion** block, drag  to turn the sprite to the right or clockwise direction.
2. Click in the **number box** and type **45**.
3. Drag  and place it below the  block. Both the blocks should fit together.
4. Click in the **number box** and type **50**.
5. Click on any of the blocks to see the cat sprite move on the stage.




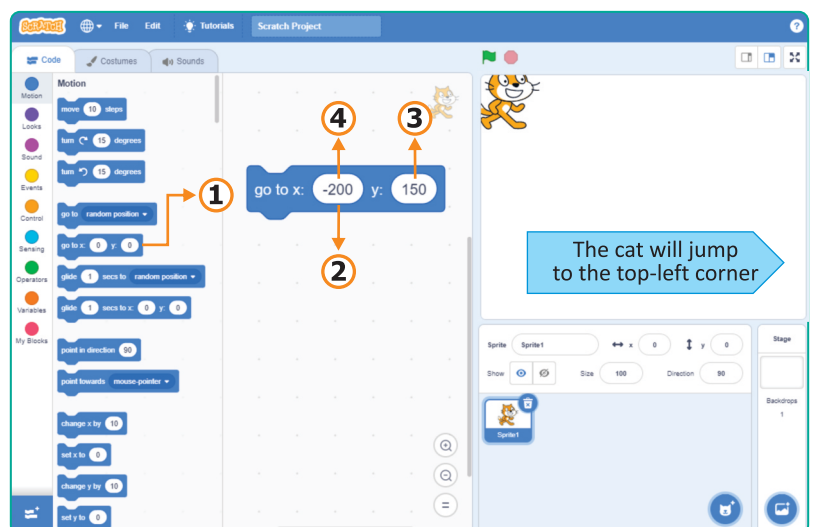
Turning the Cat Sprite by 45 Degrees

MOVING A CAT SPRITE TO A PARTICULAR POSITION

When we open the Scratch window, by default the cat sprite appears at the center of the stage. The x-y coordinates at this position are (0,0). To move it to a specific position, drag the  block into the coding area. A cat sprite can be made to move to a particular position by specifying its x-y coordinates.

To move a cat sprite to a particular position, follow these steps:

1. On the **Code** tab, from the **Motion** block, drag  to the script area.
2. Click in the first number box and change the x coordinate to -200.



Moving the Cat Sprite to a particular position



Tech Info

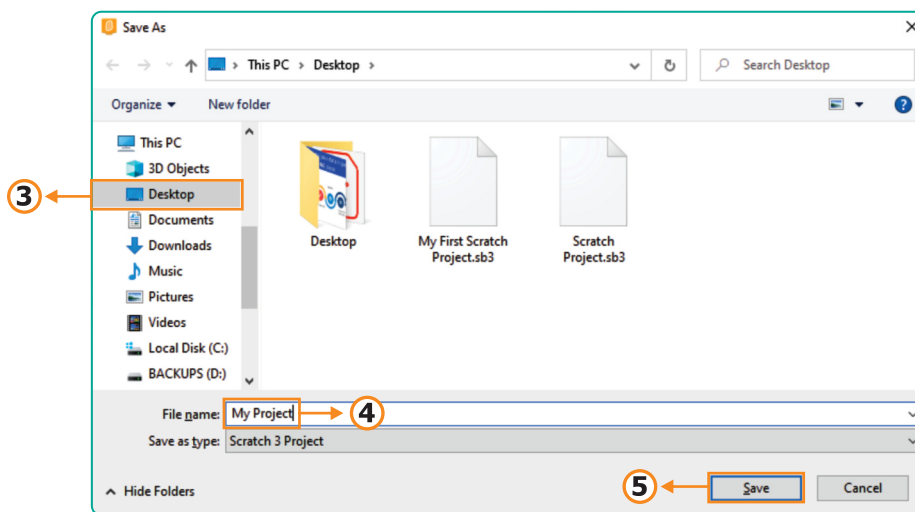
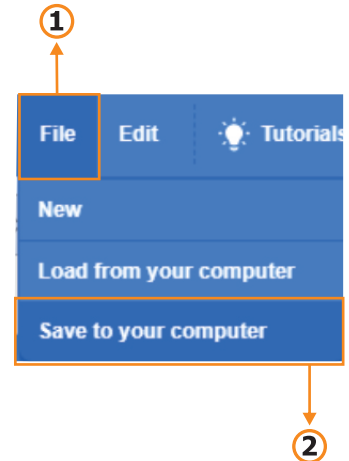
If the sprite reaches the edge or border of the stage, we can use the **if on edge, bounce** block to bounce the sprite in the opposite direction. Else, the sprite will go out of the stage.

SAVING A PROJECT

You can save a project at any time, even while working.

To save a project, follow the given steps:

1. Click on **File** menu.
2. Select the **Save to your computer** option. The **Save As** dialog box opens.
3. Open the location where you want to save the project.
4. Type the name of your project in the **File name** box.
5. Click on **Save** button. The file gets saved with the extension **.sb3**.



Saving a Scratch Project



Quick Revision

- ▶ The blocks that are used to control the movement of a sprite are known as Motion Blocks.
- ▶ The position of a sprite is given by the x and y values on the screen.
- ▶ Looks blocks control how a sprite appears on a stage.
- ▶ To change the sprite's look we can use costumes tab.
- ▶ Sound blocks control sound functions. We can add music to our Scratch project by using Sound blocks.

D Answer the following questions

1. Name the categories of blocks present in the Scratch window.

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2. Explain any two Motion blocks.

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3. Differentiate between Control blocks and Events blocks.

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4. Write steps to rotate the sprite by 40 degrees.

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5. When do you use the Looks block?

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Concept Based Questions

1. Atul has created a project in Scratch. Now he wants to move the given sprite to a particular position on the stage. Suggest him the correct block to perform the given task.

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2. Sheetal has created a Scratch project. In her project she has created a script to move the cat sprite. Now she wants the sprite to move in backward direction. Suggest her the correct block to perform the given task.

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B Write a Scratch program to perform the following tasks:

1. Open Scratch and start a new project.
2. Delete the default sprite.
3. Add 'Blue Sky' as a new backdrop on the stage.
4. Add the following two sprites on the stage:
 - i. Frog
 - ii. Butterfly
5. Change the size and colour of the 'Frog' sprite.
6. Change the costume of 'Butterfly' sprite.
7. Run the script and observe the output.

C Create a Scratch program using two sprites. For example, Abby and Sam. Make them talk to each other using speech bubble from looks block category.

