INFORMATION & COMMUNICATIONS TECHNOLOGY

STANDARD

VIII

NATIONAL ANTHEM

Jana-gana-mana adhinayaka jaya he

Bharatha-bhagya-vidhata,

Punjab-Sindh-Gujarat-Maratha

Dravida-Utkala-Banga

Vindhya-Himachala-Yamuna-Ganga

Uchchala-Jaladhi-taranga

Tava subha name jage,

Tava subha asisa mage,

Gahe tava jaya gatha.

Jana-gana-mangala-dayaka jaya he

Bharatha-bhagya-vidhata,

Jaya he, jaya he, jaya he,

Jaya jaya jaya jaya he!

PLEDGE

India is my country. All Indians are my brothers and sisters.

I love my country, and I am proud of its rich and varied heritage.
I shall always strive to be worthy of it.

I shall give my parents, teachers and all elders respect, and treat everyone with courtesy.

To my country and my people, I pledge my devotion. In their well-being and prosperity alone lies my happiness

INFORMATION & COMMUNICATIONS TECHNOLOGY - VIII

PREFACE

Dear students,

The infinite possibilities of Information and Communication Technology have made many things that seemed impossible possible. The ICT textbook for Standard 8 has been designed to guide you into the world of technology, facilitating self-learning, doubt clearance and knowledge construction.

Using this book, you can practice word processing, spreadsheet and presentation software and engage in various activities. In addition, by using block coding, you can create computer games and learn the fundamental principles of machine learning. The history and various services of the internet are also explored in this textbook.

The textbook also includes resource creation using multimedia tools, such as digital painting, video editing, and music composing. Let this ICT textbook help you acquire new knowledge and enhance your creative abilities by effectively using digital technology in the learning process.

With regards,

Dr. Jayapralash R.K.
Director
SCERT

Textbook Committee

CHAIRMAN

K. ANVAR SADATH
CHIEF EXECUTIVE OFFICER, KITE

MEMBERS

Muhammed Sherif K, Master Trainer, KITE Malappuram

Sindhu Y, Master Trainer, KITE Palakkad

Jacob Sathyan, AEO Mallappally, Pathanamthitta

Pradeep Kumar T, Music Teacher, CHMKMHSS Kavanoor, Malappuram

Shaji C.K, Master Trainer, KITE Malappuram

Dr. Nishad A, Master Trainer, KITE Ernakulam

Nidhin Jose, Master Trainer Co-ordinator, KITE Kottayam

Sajith K, Master Trainer, KITE Kannur

Yasar Arafath P.K, Master Trainer, KITE Malappuram

Jayesh C.K, Master Trainer Co-ordinator, KITE Pathanamthitta

Mahesh V.V, Master Trainer, KITE Malappuram

Sumi Krishnan K, Master Trainer, KITE Malappuram

Nasriya T.P, HSST, Rahmaniya School for Handicapped, Kozhikkode

Abdul Hakeem C.P, Software Consultant, KITE Malappuram

Hassainar Mankada, Master Trainer Co-ordinator, KITE Malappuram

Dr. Shanavas K, Master Trainer Co-ordinator, KITE Malappuram
Ganeshkumar M, Academic Officer, KITE Thiruvananthapuram

English Translation

Resmi M Raj, Master Trainer, KITE Idukki
Manu M Pillai, Master Trainer, KITE Kottayam

Swapna J. Nair, District Co-ordinator, KITE Ernakulam

Language Expert

Dr. P.K. Jayaraj, Senior Consultant, (English & Pedagogy), KITE, Thiruvananthapuram

Illustration

E. Suresh, Cartoonist, Pallikkara, Kozhikkode

Co-ordinator

Muhammed Aslam A.R, Academic Co-ordinator, KITE Thiruvananthapuram

Academic Co-ordinator

Dr. Dhanya G, Research Officer, SCERT Thiruvananthapuram

State Concil of Educational Research and Training (SCERT)
Vidyabhavan, Poojappura, Thiruvananthapuram- 695 012

CONTENTS

Each chapters also contains illustrations

FURTHER READING

LET'S ASSESS

EXTENDED ACTIVITIES

THE CONSTITUTION OF INDIA

PREAMBLE

WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a [1]**[SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC]** and to secure to all its citizens :

JUSTICE, social, economic and political;

LIBERTY of thought, expression, belief, faith and worship;

EQUALITY of status and of opportunity; and to promote among them all

FRATERNITY assuring the dignity of the individual and the [2][unity and integrity of the Nation];

IN OUR CONSTITUENT ASSEMBLY this twenty-sixth day of November, 1949 do **HEREBY ADOPT, ENACT AND GIVE TO OURSELVES THIS CONSTITUTION.**

---

1. Subs. by the Constitution (**Forty-second Amendment**) Act, 1976, Sec.2, for "Sovereign Democratic Republic" (w.e.f. 3.1.1977)
2. Subs. by the Constitution (**Forty-second Amendment**) Act, 1976, Sec.2, for "Unity of the Nation" (w.e.f. 3.1.1977)

Chapter 1

Colourful Images on the Wall

The Talking Walls

Walls have been used as canvases for communication since ancient times. A timeless and universal art form, mural painting has been one of the cornerstones of human expression and communication throughout history.

Wall paintings, with roots in ancient civilizations such as Egyptian tomb paintings and Greek frescoes, reflect the cultural, social, and political contexts of their time.

Beyond the aesthetic appeal of visual art, wall painting plays a significant role in transforming public spaces, conveying social messages, and fostering community engagement. From simple designs to elaborate and intricate murals, artistic creations on walls serve as platforms for personal expression and storytelling.

The Headmistress mentioned in the school assembly that everyone should beautify and maintain their classrooms as much as possible. Hima and her friends took this seriously. After detailed discussions in the class, they decided to paint a beautiful picture on the back wall of their classroom.

What if this were your classroom? What would you like to paint on the class room wall?

- Trees filled with colourful flowers

- Planets and stars

- A bird perched on a tree branch

- ....

- ....

- ....

Among these you, can an idea that you think is good and start drawing. Decide which one you want. Hima and her friends decided to draw a bird sitting on a tree branch.

The Magic of Digital Drawing

There are many artists in our area who beautifully write and draw on walls, banners, and canvases. They can easily transfer their ideas directly onto the canvas.

It is better to first prepare the picture you want to draw. What if you use a computer to prepare the image?

If an image editing software is used to create the picture, it can be edited and modified both during and after the drawing process.

Last year, we became familiar with an image editing software called Krita. It is one of the best digital painting tools, offering many features. Let's create a design in Krita to paint on our wall.

Open your computer and create a new project file in Krita.

KRITA

Krita is a free software used for digital drawing and painting.

Some of Krita's special features include a highly useful brush engine, layer management, and animation tools.

It can be used on various operating systems, including GNU/Linux, Windows, and macOS.

To create a new file in Krita

- Click New File (Ctrl+N) under Start in the window that appears when Krita is opened (a new file can also be created by File – New).

- Specify in the window the required width and height of the canvas.

- Here we can use width and height proportional to the dimensions of the wall.

Let's Get Familiar with Krita's Interface

Haven't you created a new file in Krita?

The Krita window (Figure 1.1) is organized into different sections, such as the canvas, the toolbox, and various dockers.

Our artwork will be created on a canvas that we have chosen at an appropriate size. We can zoom, rotate, and pan the canvas as needed while we are working.

The toolbox on the left contains brushes, tools for creating custom shapes, and various selection tools.
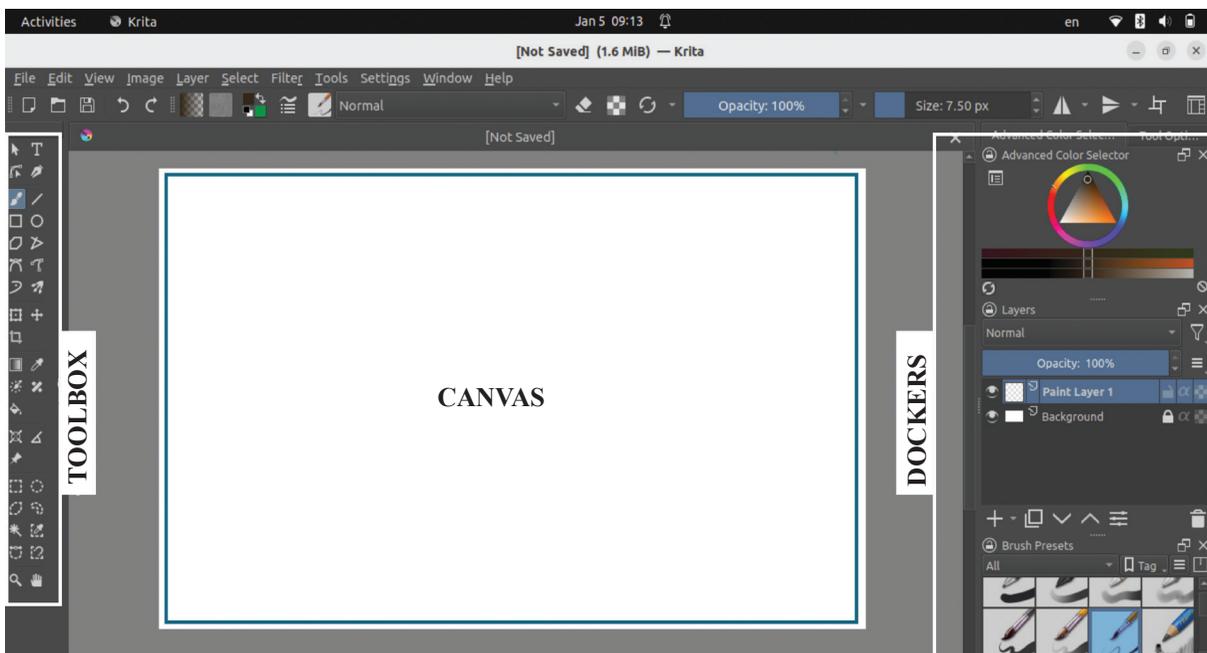

Fig. 1.1 Krita - Main Window

The dockers on the right include a color selector and layer manager that help with easy image manipulation tasks.

Let's take a closer look at the tools and dockers in Krita.

Use the tools you are familiar with from the toolbar to draw some lines on the canvas. Along with that the use of each tool should be identified and recorded in the table below.

No.	Tool	Usage
1	Brush Tool	Freehand drawing and painting can be done
2	Fill Tool (Bucket)	
3	Text Tool	
4	Move Tool	
5	Selection Tool	
6		

Table 1.1 Usage of Tools in Crita

A Bird on the Branch

It is a clear dawn. A solitary tree stands alone. A small bird sits on its branch. The gentle presence of the bird breathes life into the stillness of the scene, adding a sense of quiet vitality.

Let's see how to draw such a scene using a computer.

What elements need to be drawn for this scene?

1. Branch of the tree - The branch of the tree will become beautiful when its leaves are drawn together.

2. Bird - The body parts of the bird can be drawn separately and then assembled.

3. Matching background.

When drawing a picture, instead of recreating the scene exactly, we should capture the experience that the scene creates within us on the canvas. Colours of choice can be used.

It is better to draw each element of our picture in separate layers. That way, as we understood in the previous class, it will be easier to make the necessary improvements.

The Branch for the Bird to Perch on

Let's start by drawing a branch. There is no fixed shape or size for branches, so we can draw a branch according to our own imagination.

After creating a new layer in Krita, draw the branch on it. You can make use of the tips given below.
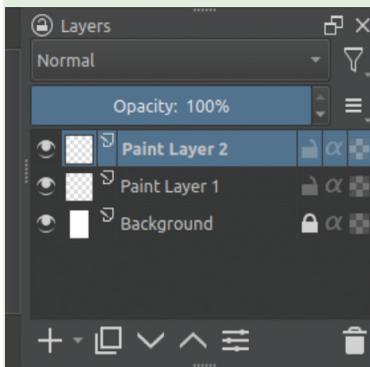
Layer can be created

Fig. 1.2 Layer Docker

To create a new layer, click the + button in the **Layer Docker** located on the right side of the screen. A new transparent layer named **Paint Layer 2** will appear at the top of the existing layers. You can double-click on this name to rename the layer.

Drawing the Tree Branch

- Create a new layer and name it "Branch."

- Using the Brush Tool (B), draw the tree branch.

  (Alternatively, you can use the Bezier Curve Tool to draw the outline and then use the Fill Tool (F) to add the necessary colours to the branch.)

- Scroll the mouse wheel to zoom in and out of the canvas, then take the required time to complete the drawing of the tree branch (an example is shown in Figure 1.3).

- By changing the size and colour of the brush, you can mark the rough spots on the tree trunk. To remove any unnecessary lines and refine the edges, you can use the Erase Tool (E). Later, you can try using lighter colours for highlights and darker colours for shadows on the branch.
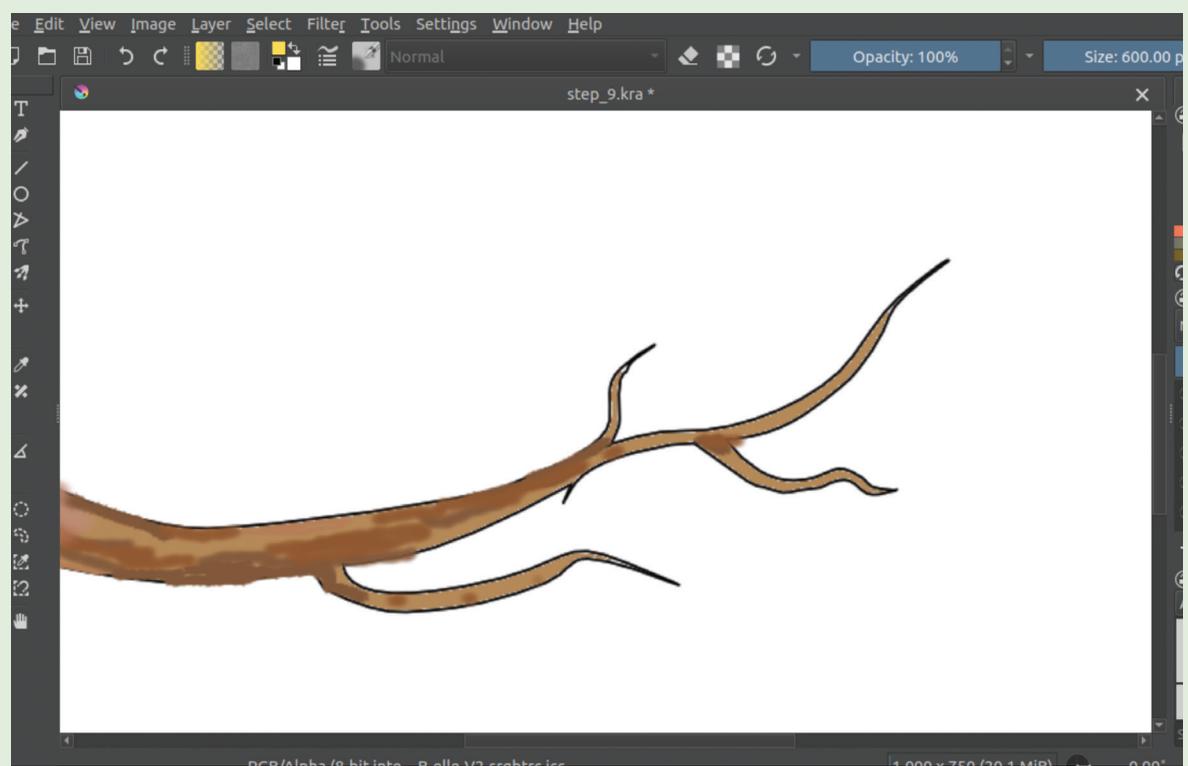
Fig. 1.3 Model of the Branch

The Bird in Lines

There won't be anybody who hasn't drawn a picture of the bird. Why not try sketching a bird from our imagination for a painting on the classroom wall?

To make drawing easier, let's first break the bird down into its different parts—head, eyes, beak, body, wings, and legs. Then, we can draw each part separately and put them together. It's best to draw each body part on separate layers for better accuracy.

Let's Draw a Bird

1. **Head, Body, and Beak of the Bird**

   Those who can skillfully draw the bird's body parts using the Brush Tool can do so. If that feels difficult, you can first draw simple geometric shapes to construct these parts more easily. To do this:

- Use the Ellipse Tool to draw the bird's head as a circle and the body as an oval. (Figure 1.4)

- Slightly rotate the ellipse slightly using the Transform a layer or a selection (Ctrl+T) tool.

- Then, use the Bezier Curve Tool to complete the shapes of the body, head, and beak.

When using the Bezier Curve tool, if you are drawing a non-closed shape, you can simply double-click to end the line.

2. **Wings and tail**

Create a new layer and use the Bezier Curve Tool to draw the wing. If needed, you can temporarily hide the "Branch" layer while drawing.

On a new layer, draw the bird's tail. You can use the Line Tool, Poly Line Tool, or Bezier Curve Tool for this. (Figure 1.4)
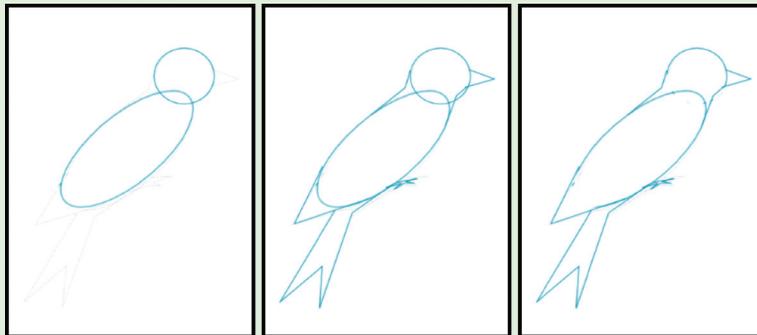
Erase any unnecessary lines using the Eraser Tool.

Fig. 1.4 Some Steps of Drawing a Bird

3. **Legs**

You can draw the bird's legs using the Brush tool. For this, adjust the colour and size of the brush appropriately. Since the bird is sitting on a tree branch, it is best to make the tree branch layer visible while drawing the legs.

Drawing with the Brush Tool

Select the Brush Tool (B) and choose a suitable brush from the Brush Preset Selector that makes it easier to draw the tree branch. (Textured/Natural brushes like Charcoal, Ink, or Dry Brush can also be used.) Next, select a preferred colour for the tree branch from the Colour Selector. Adjust the brush size as needed and start drawing.

Ellipse Tool

- The Ellipse Tool is used to create perfect circular or elliptical shapes in Krita.

- From the toolbox, select the Ellipse Tool, click on the canvas, and drag to form an oval. To create a perfect circle, click on the canvas and start drawing, then hold down the Shift key while completing the shape.

- To change the size or curvature of the oval, use the Transform a layer or a selection (Ctrl+T) tool, and you can adjust it using the handles that appear around it.

4. Make the Lines Natural

By removing certain parts of the lines and merging the drawn areas with flowing lines, the bird will appear more natural.

You've drawn the outline of the bird. Now let's colour it.

Don't forget to save the file after each activity. Krita projects are saved in a file format with the extension **.kra.**

A Multi Coloured Bird

We often see birds in many different colours. There are also multicoloured birds. Try adding your favourite colours to the bird you've drawn to make it more beautiful. You can use appropriate tools like the Brush, Fill Tool, and Gradient for this purpose.

To Add Colour to the Bird

- Select the appropriate colour from the Foreground colour selector.

- Then, use the Brush Tool to add colour (Adjust the brush size and opacity as needed).

- You can also use the Fill Tool (F) to add colour to closed shapes.

Fig. 1.5 After Colouring the Bird.

The Gradient Tool can be used to create a design by blending two colours.

Leaves, a Tree full of Leaves

Trees full of leaves are always a refreshing sight. How about adding full leaves to our tree too? Try to see if you can draw leaves on the branches of the tree without changing the focus of the line. You can also draw leaves using the preset stamp brush.

To DrawLaves Using a Preset Stamp Brush

This is the process of drawing a single leaf, then converting it into a preset stamp and cloning the remaining leaves. To do this:

- Draw a leaf using the Bezier Tool, on a new layer.

- Apply colour to the leaf.

- Now, to convert the drawn leaf into a preset stamp,

  - Hide all other layers except the one with the leaf drawn on it. Then use a selection tool (e.g. Rectangular) to select the leaf we drew.

  - Select the Edit Brush Settings → Predefined Predefined tab above the canvas.

  - In the window that opens when you click on the Stamp below, name the new stamp Leaf and save it.

- With this, the preset stamp brush is ready. Now you can load this brush, adjust its size, and draw a leaf. When you click and drag this brush, clones of the leaf are created.
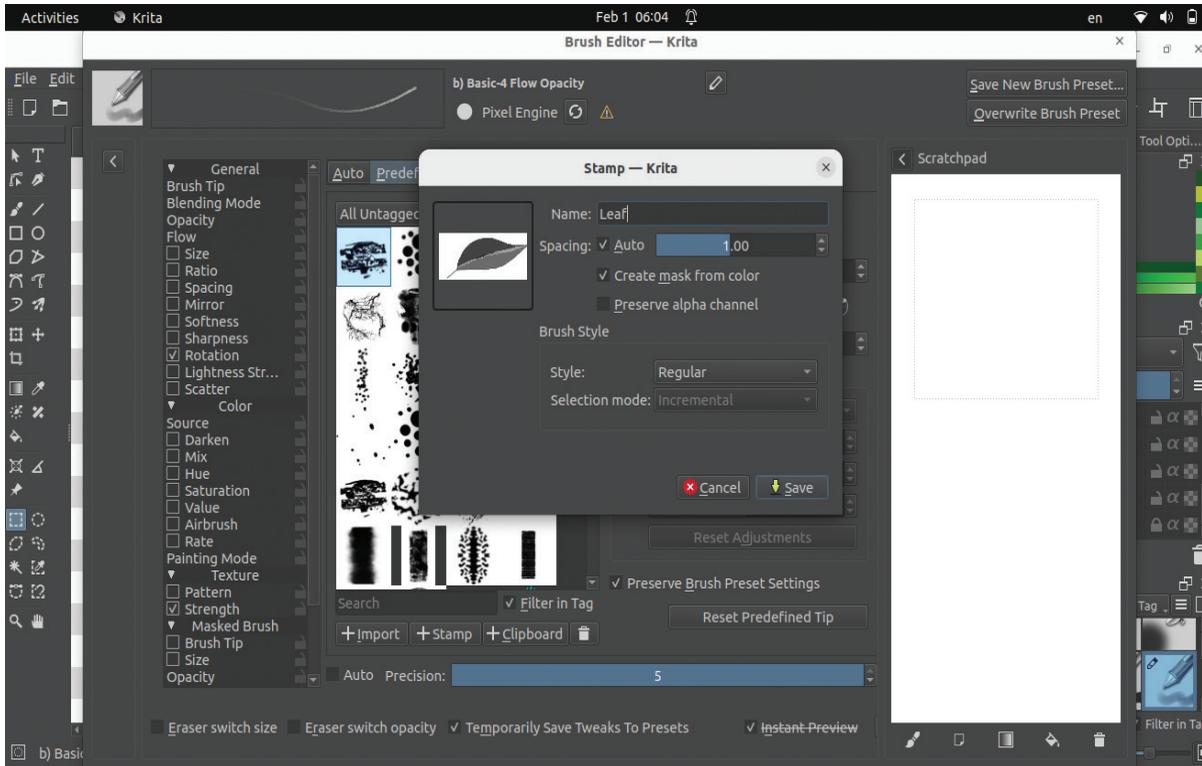
Fig. 1.6 Creating a Preset Stamp

Create a new layer and draw the leaves around the tree branch.

Right-click on the canvas to open the Pop-up Palette, where you can adjust the Angle to set the orientation of each leaf.
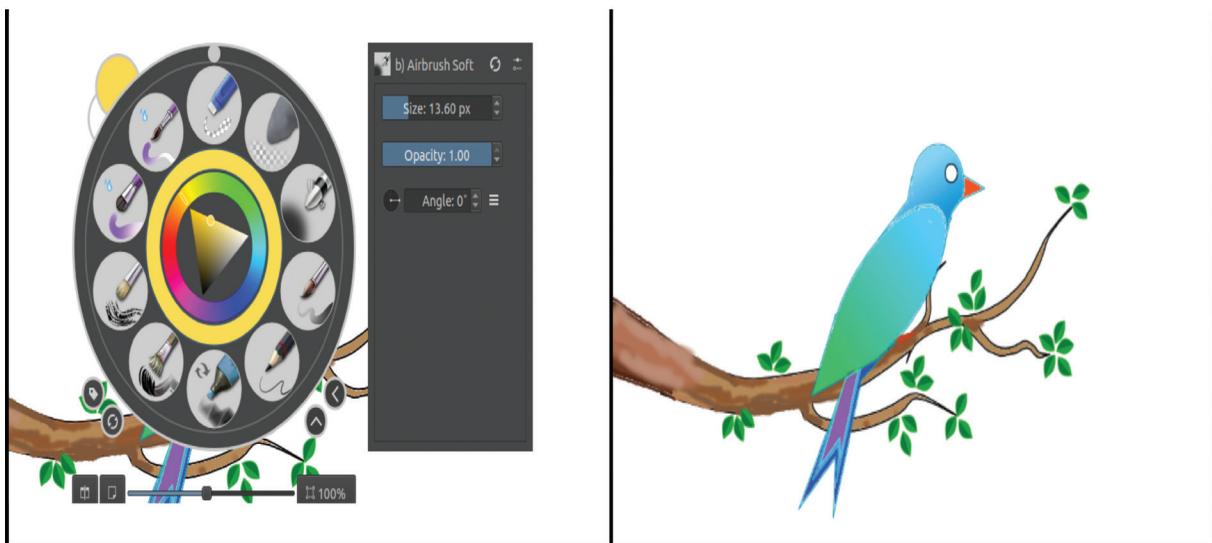

Fig. 1.7 Leaves Using Preset Stamps

A Background that can be Used to Make a Visual Experience

A well-designed background breathes life into any artwork, elevating it to a whole new visual experience.

A well-crafted background can effortlessly draw the viewer's attention while highlighting the importance of the main subject. By using design techniques that focus on simplicity, such as subtle gradients, textures, blurred elements, and abstract patterns, the main subject can be made more visually appealing.

Consider what kind of background would complement the bird on your branch. Using the suggestions provided, create a background that enhances your artwork.

Creating the Background

- Create a new layer named "BG" and place it at the bottom of all other layers.

- Use appropriate selection tools (e.g., Freehand Selection Tool) to select the desired areas on the canvas or create shapes.

- Choose a suitable colour and apply it using the Fill Tool.

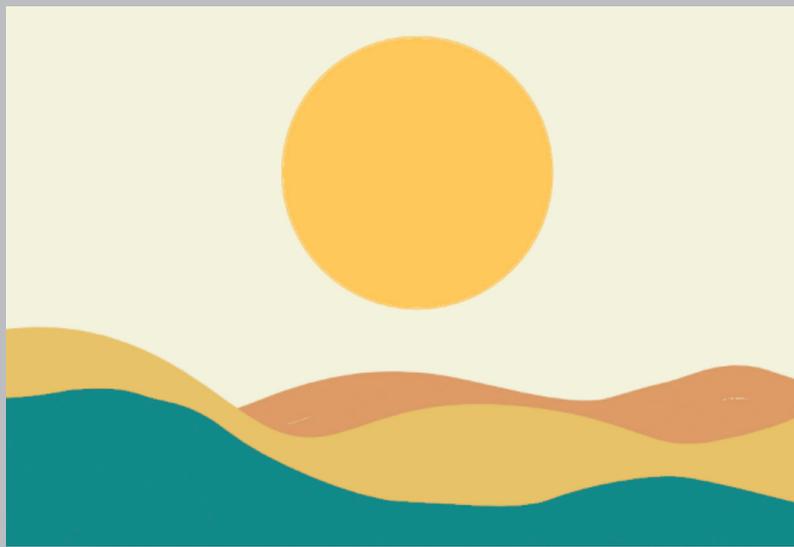- Try adding a setting sun as part of the background for the bird (see Image 1.8).

Fig. 1.8 When the Background is Added

Save & Export

In Krita, the project file is usually saved at every stage of progress. The completed artwork can be exported into various common image file formats (JPG, PNG, Web, etc.).

The created image (Figure 1.9) can be exported to any image file format that you are familiar with and saved.

My Happy Classroom

Seeing the artwork we created displayed in our classroom every day is truly a delightful experience.

How do you plan to recreate the image of the bird sitting on the tree branch, drawn using the Krita image editor, on the classroom wall?

This can be done in two ways. Choose the method that suits you best.

Fig. 1.9 When the Picture is Finished

From Computer to Wall

1. Using our class projector

- Using the classroom projector, project the image created on the computer onto the wall.

- Ensure that the projection is at the desired size on the wall.

- Now, trace each part of the image onto the wall using a pencil. Make sure to stand in a position where the projection light is not blocked while doing this.

- Once the tracing is complete, turn off the projector and finalize the outline of the image.

2. Take a printout of the line and mark the grid on it.

- We can take a printout of the picture we drew in Krita and mark a grid on it. The image with the grid marks can also be printed.

- Create a proportional grid on the wall using a pencil and scale.

- Then, carefully transfer the image onto the wall.

The next step is to add colour to the outline drawn on the wall.

- Prepare the necessary paints, paint brushes, rollers, trays, etc.

- Start painting according to the outline you drew earlier. Ensure the desired result is achieved by combining the use of brushes and rollers.

- Sometimes you will have to mix different colours to get the desired colour.

- Once the main painting is completed, add details and textures using small brushes.

Before you start drawing, don't forget to clean the wall and apply primer.

Now, try using the techniques we've learned to make your classroom more beautiful.

Let's Assess

♦ What is the default file format for saving projects in Kria?

a) .psd   b) .kra

c) .png   d) .jpg

⬧ What is the most commonly used tool for drawing freehand lines in Krita?

    a) Fill Tool   b) Transform Tool

    c) Brush Tool   d) Gradient Tool

⬧ In drawing software, which feature lets you perform operations on specific elements of a drawing without affecting the rest of the image?

    a) Layers   b) Masks

    c) Groups   d) Brushes

Extended Activities

1. Draw a cartoon character you are familiar with using Krita.

2. Prepare the figure below (Lady Bug) in Krita.

3. Draw and paint a simple nature scene in Krita.

4. Create a New Year's greeting card in Krita

5. Draw a penguin in Krita.

❖ ❖ ❖

Chapter 2

Page Designing in a Word Processor

"Journeys are the best teachers of man"

This year's school study tour is to Ajanta-Ellora, a long-awaited sight for us. The journey lasts five days. Our group consists of 45 students and 7 teachers. We traveled by train to Aurangabad, had breakfast there, and then proceeded to Ellora by a hired bus. Ajanta-Ellora is a visual treat that everyone should see at least once in their lifetime. Even today, these sites are considered gems of Indian history and remarkable examples of artistic expression. Ajanta and Ellora are included in UNESCO's World Heritage list.

Diya is excited about the study tour from school. When she returned after visiting the Ajanta Ellora caves, the teacher asked her to prepare a detailed travelogue. The best travelogues will be compiled into books and kept in the library. The travelogue needs to be typed on the computer, formatted, printed, and submitted. For this, she is working on preparing the travelogue in a word processor.

Did you change the Keyboard Layout to Malayalam?

Don't you have a similar situation? Malayalam typing and page setting are required when preparing travelogues, seminar papers, project reports, and documenting school activities.

How can documents like the one mentioned above be made attractive by setting up the page and layout in a word processor?

Some parts of the travelogue prepared by Diya are provided in our computer's School_Resources folder under the name ajanta.ott. Let's open this file in LibreOffice Writer and try adjusting the page layout in an attractive manner.

Let's Type in Malayalam

We have already learned how to set the keyboard language on the computer to Malayalam and type using it. Let us recall them. Using the diagram of the Malayalam keyboard layout in Figure 2.1, let us try typing the words given below in LibreOffice Writer.

അക്ഷരം   നൂറ്റാണ്ട്   പേരാൽ   തൈമാവ്   താഴ്‌വാരം
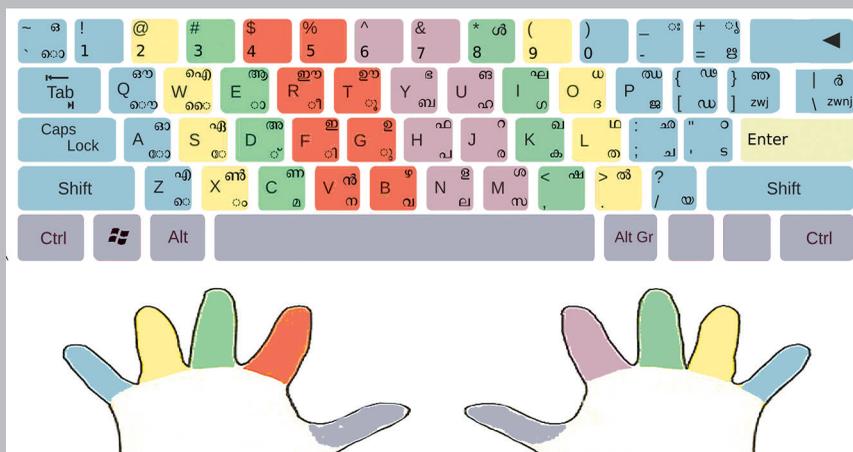ഓടക്കുഴൽ   മനുഷ്യൻ   മൺപാത്രം   ഴഗ്വേദം   സബ്‌വേ

Fig. 2.1 Malayalam Inscript Keyboard Layout

Open the file (ajanta.ott) and type the quote "മനുഷ്യനെ പഠിപ്പിക്കുന്ന ഏറ്റവും നല്ല അധ്യാപകരാണ് യാത്രകൾ" at the top of the page. Then press Ctrl+S, give it a filename and don't forget to save the file.

Practice Typing

Typing accurately and quickly is a skill that we need to develop through practice. There are several software programs available for learning typing scientifically, including KTouch and Tux Typing.

Different Forms of Letters

Everyone's handwriting is unique. Different font styles are available to make this possible in digital documents. The names of some Malayalam fonts installed on your computer are given below. Open Writer and try using these fonts to observe the difference in the letters.

Malayalam Fonts:

- Anek Malayalam
- Thumpapoo
- Gayathri
- Keraleeyam
- Rechana
- Noto Serif Malayalam

You have saved the file with a quotation. Now, what else can be done to make this document more attractive?

- Font style, size, and colour can be changed.

- Spacing between lines can be adjusted.

- Spacing between paragraphs can be adjusted.

- Background colour and a border can be added to paragraphs.

- ....
- ....

You have already learned from previous classes how to choose font styles and apply size, colour, and alignment to text.

Some formatting techniques for fonts in Writer are listed in Table 2.1. Arrange them in the correct order. If needed, open Writer and check them.

Activity	Formatting technique to be used
Changing the font to Noto Serif Malayalam	Font Color
Changing the font size to 13 pt	Align Center
Aligning the heading to the centre	Font Name
Changing the font colour to blue	Font size

Table 2.1 Character Formatting Techniques in LibreOffice Writer

Let's adjust the font style, size, colour, and heading alignment in our document according to the formatting instructions given in the table.
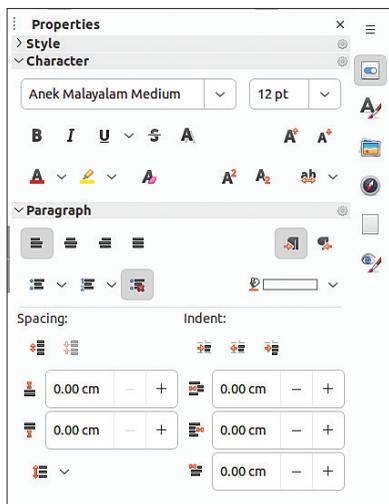
Fig. 2.2 Paragraph Formatting in the Properties Window

What other things can be done, besides text formatting, to make the document more visually appealing? Examine textbooks and magazines to find out.

Make the Paragraph Attractive

Adjusting the spacing between paragraphs, line spacing, margin distance, borders, and background colour makes the paragraph more attractive and improves readability.

Using the **Paragraph** option in the **Properties** window of LibreOffice's sidebar, these adjustments can be made (Figure 2.2). The spacing between paragraphs should be adjusted first. Give it a try!

To Adjust the Spacing between Paragraphs

- Select the paragraph (or click on the paragraph).

- Click the **Increase Paragraph Spacing** tool in the **Spacing** section of the **Paragraph** panel in **Properties** (Figure 2.3).

- This sets the spacing between paragraphs to 0.10 cm.

- To precisely adjust the spacing above and below paragraphs, enter the desired values in the **Above Paragraph Spacing** and **Below Paragraph Spacing** boxes.
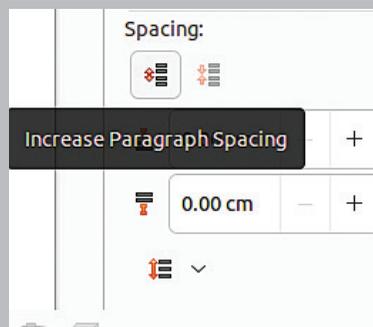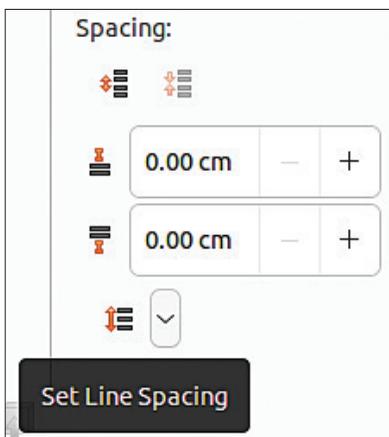

Fig. 2.3 Paragraph Spacing

Fig. 2.4 Line Spacing

Line Spacing

Now we have adjusted the spacing between paragraphs. How would you adjust the spacing between lines within a paragraph? To do this, click on Set Line Spacing in the Spacing section of the same window (Figure 2.4). Set the spacing to 1.15 and observe the changes in the document.

Paragraph Indenting

To improve the formatting of the document's content, the margin spacing should be adjusted appropriately

Similarly, to distinguish the beginning of paragraphs, the spacing between the first line and the margin should be set

differently from the other lines. This process is generally known as indenting. Try using the Before Text Indent, After Text Indent, and First Line Indent options in the Paragraph tab to make these adjustments.

To Adjust the Distance from the Margin

- Select the paragraphs that need spacing adjustments.

- In the **Paragraph** panel, under **Indent**, adjust the **Before Text Indent**, **After Text Indent**, and **First Line Indent** as needed. In the example shown (Figure 2.5), **Before Text Indent** is set to **0.40 cm**, and **First Line Indent** is set to **1.30 cm**.
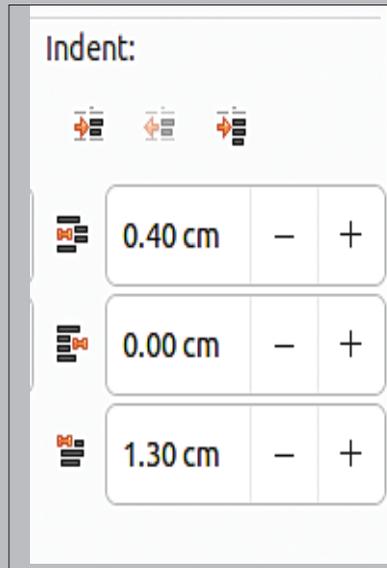
Indent:

0.40 cm − +

0.00 cm − +

1.30 cm − +

Fig. 2.5 Paragraph Indenting

Content with More Clarity

Some information in the document you are preparing will need to be presented in a different way from others. This can be highlighted using bullets, background colour, and borders.

If the names of the major caves in Ellora and their specialities are presented within a border with a background colour, readers can easily find the relevant details. What if this information is also listed using bullets? Wouldn't that help readers clearly understand the key features of the major caves?

In the document provided to you, give a background colour and border to the paragraph that explains the main caves of Ellora and their features. For this, you can use the **Paragraph** option in the **Format** menu.

After completing the activity, you should also note down the sequence of activities in your notebook.

Bullets can be used to list important things.

Adding Background Colour and Border to Paragraphs

- Select the paragraph.

- Then select Format →Paragraph.

- In the window that opens, open Borders (Figure 2.6).

- Set Line Arrangement, Line Style, Colour and Width as required.

- Set the values in Padding to adjust the distance between the text and the border.

- To get different spacing from all four sides, simply uncheck Synchronize.

- Use the Color option in the Area tab to add a background colour to the paragraph.
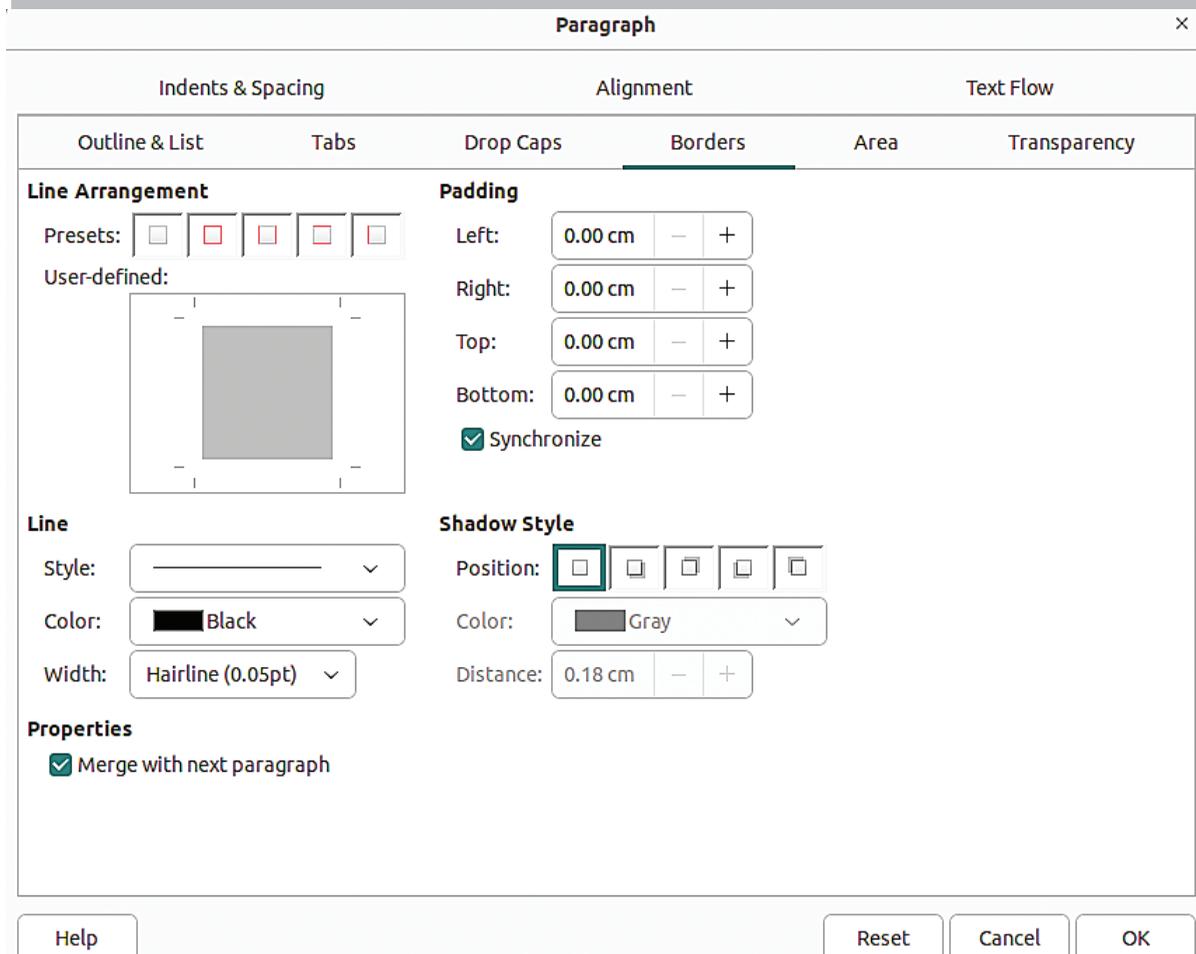
Fig. 2.6 Paragraph Formatting Window

Now, check the toolbar to identify the tool needed to format this paragraph as a bulleted list. Then, arrange the content as shown in Figure 2.8.

Displaying Content as a Bulleted List

- After selecting the content that needs to be formatted as a bulleted list, click on **Toggle Unordered List**.
  - Clicking the Arrow next to Toggle Unordered List will display more bullet styles (Figure 2.7).
- Clicking More Bullets will open the Bullets and Numbering window, where you can select the appropriate bullets.

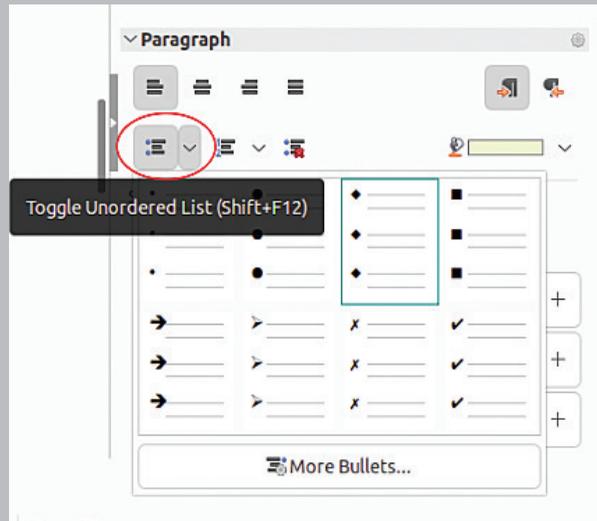To remove the bullets, select the text and click the same tool again.

Fig. 2.7 Bullet Styles

Major caves of Ellora with their names and brief features:

♦ Cave 10 (Vishvakarma) – A large stupa of Buddha is seen here.

♦ Cave 11 (Do Thal) – A monastery (vihara) with two levels.

♦ Cave 12 (Teen Thal) – A three-level vihara with multiple Buddha images

♦ Cave 15 (Dashavatara) – A vihara with sculptural depictions of Vishnu's and Shiva

♦ Cave 16 (Kailasa Temple) – A monolithic rock-cut temple dedicated to Shiva,

♦ Cave 21 (Rameshvara) – A cave famed for beautiful and intricate carvings

♦ Cave 29 (Dhumar Lena) – A cave situated near the waterfall Elephanta.

♦ Cave 30 (Chhota Kailasa) – A smaller version of the Kailasa Temple

♦ Cave 32 (Indra Sabha) – A Jain cave with stunning carvings

♦ Cave 33 (Jagannatha Sabha) – Another Jain cave, known for its intricate sculptures

Fig. 2.8 When the Content is Arranged in Bullets

Presenting Data in Table Format

In the document being prepared, some information may need to be presented in table format. Now, use the Insert Table option to create a table in the document, including details such as the different travel routes to Ajanta and Ellora Caves and other relevant information.

To Insert a Table into Writer

- Place the cursor where you want to insert the table, and then click Table → Insert Table.

- In the window that opens, enter the number of rows and columns, and then click Insert. (Figure 2.9)

If the table Tool box is not visible, go to

View → Toolbar →Table and check it.

Insert Table	×
General	
Name: Table1	
Columns: 2 − +	Rows: 2 − +
Options	
☐ Heading	
☑ Repeat heading rows on new pages	
Heading rows: 1 − +	
☐ Don't split table over pages	
Styles	

Styles		Jan	Feb	Mar	Sum
None					
Default Table Style	North	6	7	8	21
Academic	Mid	11	12	13	36
Box List Blue	South	16	17	18	51
Box List Green	Sum	33	36	39	108
Box List Red					
Box List Yellow					
Elegant					

| Help | Cancel | Insert |

Fig. 2.9: Window for Inserting a Table

Make the Table Attractive

There are several options to make the table attractive, such as adjusting the size of cells, background colour, row, column, border colour, and text alignment.

The size of rows and columns in a table can be adjusted using the mouse. When the mouse is moved to the intersection of two columns, the pointer changes to a double-headed arrow.

Clicking and dragging allows the column width to be adjusted as needed. Similarly, the row height can also be adjusted in the

Tools	Usage
Rows Above	
Columns After	
Merge Cells	
Center Vertically	
Border	
Border Color	
Table Cell Background Color	

Table 2.2 Table Formatting Tools

Hasn't you made the list attractive using the tools? Don't forget to save the file.

Name on Every Page

Should the document pages have a common structure, even if they are different? For example, in a textbook, have you noticed that the page number, book title, unit name, and class appear repeatedly at the top and bottom of every page? Items that need to be repeated on every page are added using Header and Footer techniques.

Most tasks performed using word processor software can now be done online. Documents created this way can be printed and saved in various formats. Online platforms for this include Google Docs, Microsoft Office 365, Dropbox Paper, and Zoho Writer.

If you type using A Text Boxes you can place them anywhere on the page (even above the pictures).

To include Header and Footer on the Page

▪ Clicking at the beginning of the document page displays the message Header (Default Page Style) on a blue background. (Figure 2.10)

▪ Click on it and include the name of the travelogue as the header. [The header can also be inserted by clicking

[Insert → Header and Footer → Header → Default Page Style].

Fig. 2.10 Include the Header

▪ In this way, click at the end of the page and insert the page number as a footer..
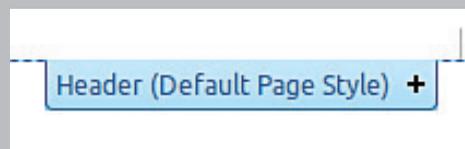
Online Documents

Most tasks performed using word processor software can now be done online. Documents created this way can be printed and saved in various formats. Online platforms for this include Google Docs, Microsoft Office 365, Dropbox Paper, and Zoho Writer.

Wasn't the travelogue title and page number added to every page? What if different headers/footers are needed for the left and right pages?

When you click on Header (Default Page Style) and select Format Header, in the window that opens, just uncheck the box next to Same content on Left and Right Pages under Header in the Header tab.

The included header and footer can be made more beautiful using formatting techniques.

Using Only the Keyboard

Some tasks can be performed using only the keyboard. Check the lists in the menu bar to find the keyboard shortcuts for these actions and complete Table 2.3.

Activity	Shortcut	Activity	Shortcur
To Copy	Ctrl+C	To Select All	Ctrl+A
To Cut		To Save	
To Paste		To Undo	

Table 2.3 Keyboard Shortcuts

Convert Document to PDF

The travelogue has been formatted and made attractive. Now, what if it needs to be printed? To ensure that the layout remains unchanged and fonts are displayed correctly when opening or printing the document on another computer, it should be exported to PDF format and saved.

How can our travelogue be converted to PDF?

To Export as a PDF Format

- Click, File → Export As → Export As PDF.

- In the window that appears, choose the suitable Range option.

- Click the Export button.

- Select the location where you want to save the file, enter a filename, and then click Save.

Using all the familiar techniques learned, create a travelogue about a journey you have taken. Enhance it by adding images and beautifully formatting the pages. Open the PDF file on a computer with a printer, print it, and submit it to the teacher.

Let's Print

Before printing a document, we can preview how the printed output will look in the writer. For this, simply click on Print Preview in the File menu. To close the preview, click on Close Preview. To print, go to File → Print , select the Printer from the window that appears, and click Print.

Text Input in Other Languages

What if you want to type in other Indian languages as well as English and Malayalam on your computer? The keyboard layout indicator on the top panel of your desktop currently has English and Malayalam keyboard layouts. To include another language on your keyboard, you need to do a few more settings. For that,

Fig. **2.11** The Window for Adding a Keyboard

- Open Settings →Keyboard. (Figure 2.11)

- Click the Add (+) ign below the current keyboard layouts in Input Source.

- From the Add an Input Source window that appears, select the required language.

- Click More here to select Hindi (Figure 2.12).

- Click Other at the end of the list of languages. (Figure 2.13)
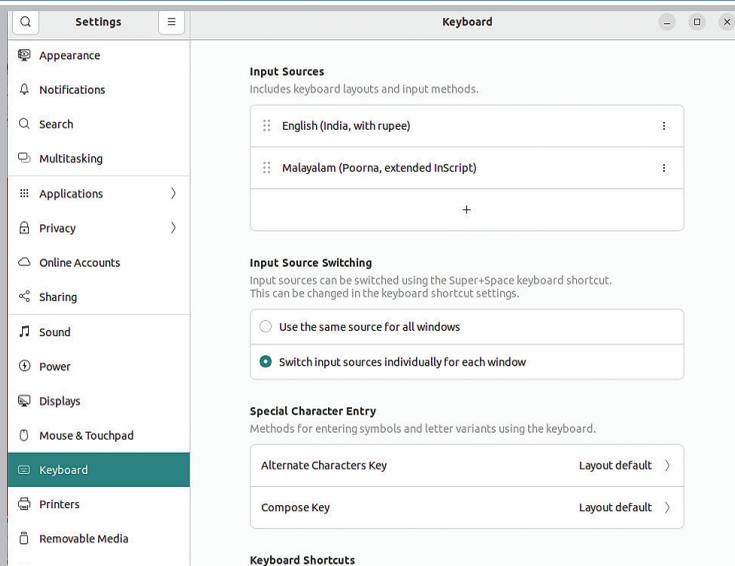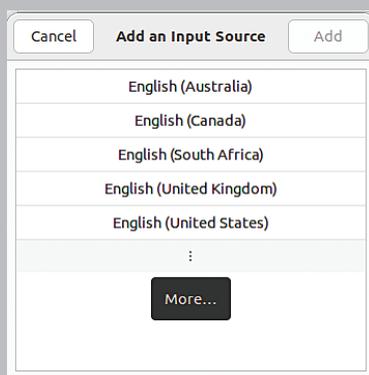
- Select Indian and click Add.

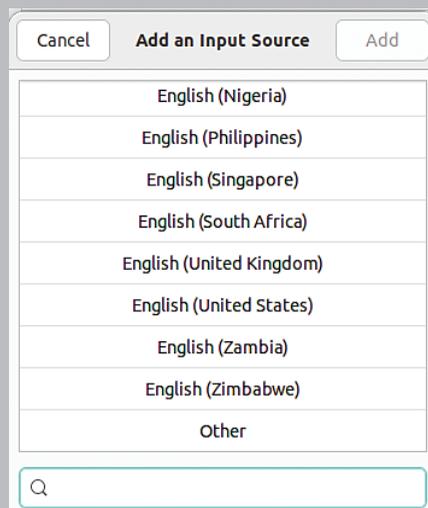

Fig. 2.12 Add an Input Source

Fig. 2.13 Language Search Window

Let's Assess

♦ What method should be used in the writer to give space from the left margin for the second paragraph of the essay prepared by Raheem?

a) Footer   b) Insert Page Number

c) Header   d) Indent

♦ In the magazine prepared in a word processor, the name should appear at the top of every page. Which of the following methods is most suitable for this?

a) Header   b) Footer

c) Before Text Indent   d) First Line Indent

♦ How to give a yellow background colour to the header of a table prepared in LibreOffice Writer?

a) Select Table Cell Background Color on the Table toolbar.

b) Select Borders on the Table toolbar.

c) Select Background Color in the Paragraph tab.

d) Select Character Highlighting Color in the Character tab.

Extended Activities

1. Prepare an essay on atmospheric pollution in LibreOffice Writer for a seminar to be presented at school on World Ozone Day. Format the paragraphs, include a header and footer, and print the essay.

2. Prepare a list of various Costumes (Veshangal) in Kathakali, their characteristics and features, in LibreOffice Writer and make it attractive.

❖ ❖ ❖

Chapter 3

Digital Music

" Where words fail, music speaks ."

- Hans Christian Anderson

One factor that makes movies and plays attractive is the background music. This gives more power to the performances of the characters.

Early films were silent films. With the development of technology, cinema has become an art form that constantly amazes us through the combination of art and technology.

How is background music created for movies and animations?

One method is to create background music by playing and recording musical instruments. With the advent of digital technology, computers and related software began to be used for this purpose..

You have used audio editing software in previous classes to record and edit audio on a computer. But have you heard about a system that helps to create music using a computer?

If we have such a system, we can create music ourselves for any of our needs. Isn't it?Such software that helps create music on a computer is called a Digital Audio Workstation (DAW).

DIGITAL AUDIO WORK STATION

Fig. 3.1 DWA Application Window

Digital Audio Workstation (DAW) is an application software used for recording audio, editing, and creating music.

DAWs are also used for activities such as preparing sound tracks for radio and television programs, and adding sound effects to podcasts.

Cubase, FL Studio. Logic Pro, LMMS, Studio One, Pro Tools are examples for DAW applications.

Watch the video named Animation.mp4 included in the School_ Resources/Class_8 folder on your computer.

This animation was prepared without adding background music,wasn't it?

LMMS (Linux Multimedia Studio), a digital audio workstation software available under a free license, is available on our computer. How about creating background music for this animation video using it?

Let's Get Acquainted with LMMS.

Open the LMMS software on your computer and examine all the techniques arranged in the window for creating music.

When you open the LMMS application, the sub-windows Song-Editor, FX-Mixer, and Controller Rack can be seen along with the toolboxes (Figure 3.2).
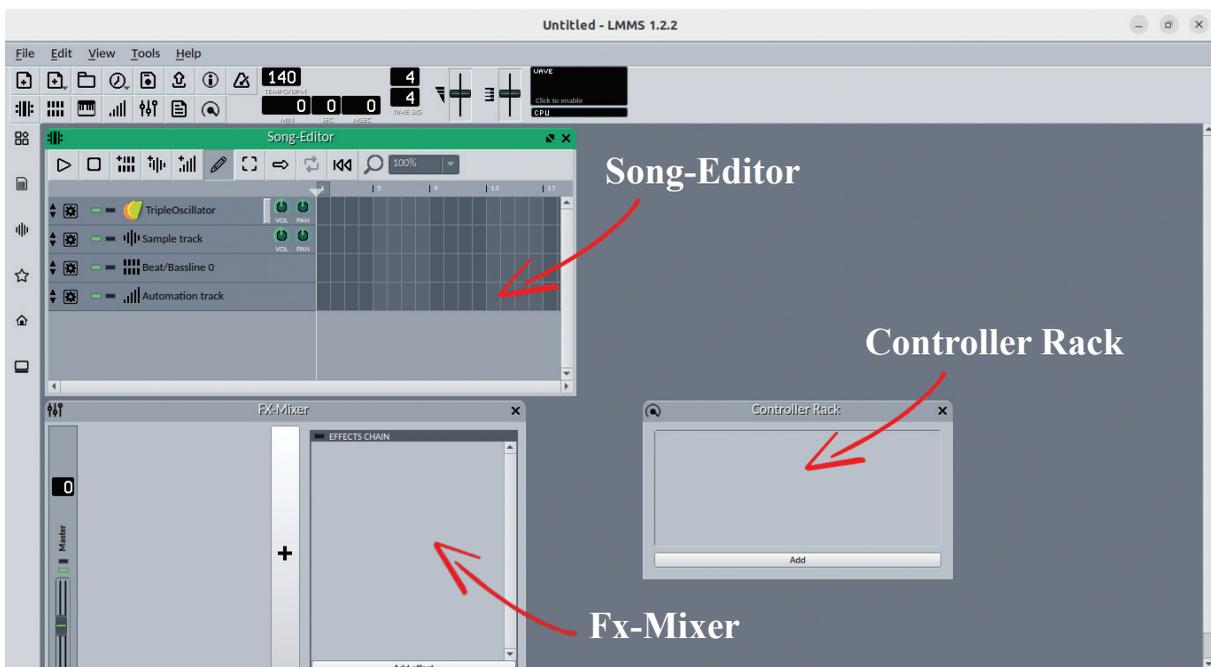

Fig. 3.2 LMMS Application Window

Since the FX-Mixer and Controller Rack in the window are not needed now, you can close them.

The Song-Editor, which is the main sub-window of the LMMS software, is shown in Figure 3.3. Four tracks like TripleOscillator and Sample track are available in it. These tracks can be removed by clicking on the Action button. If new tracks are needed, they can also be added from the Sidebar.

Fig. 3.3 Song- Editor Window

Like the Song-Editor, other tools we need are arranged in some other sub-windows. To make these sub-windows visible, you can use the tools in the Window Controls tool bar (second row) shown in Figure 3.4. Click on the tools and observe the new windows appearing. If you want to remove the appeared windows, just click on the same tool again.
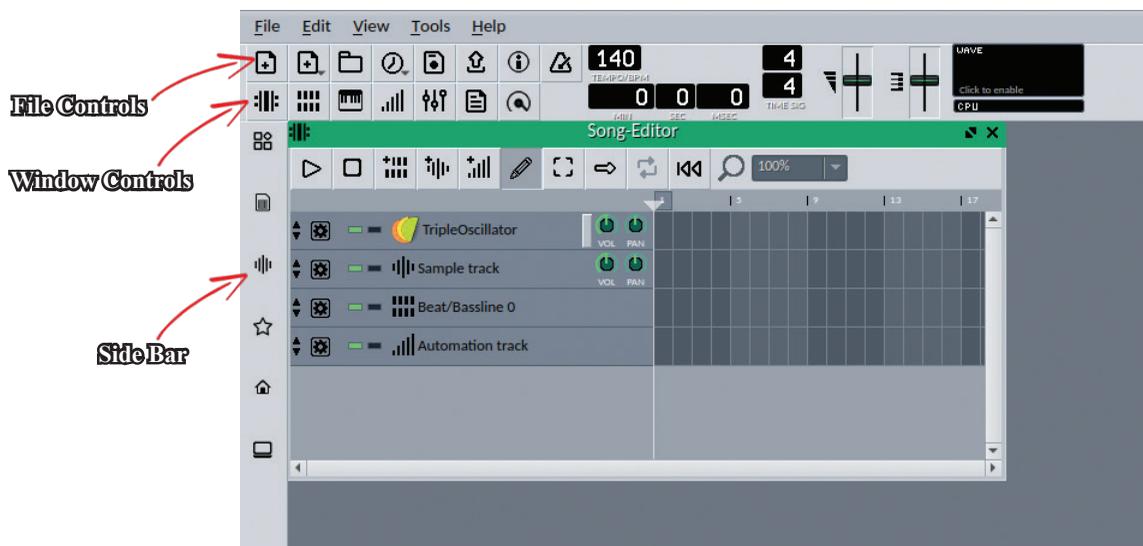

Fig. 3.4 Menu Bar in LMMS Window

Let's Create Rhythm

You know that background music includes melody and rhythm. Usually, instruments like tabla, maddalam, chenda, etc. are used for rhythm and instruments like veena, violin, etc. are used for melodies. Using LMMS software, you can create melodies and rhythms similar to those produced by these instruments.

Shall we check it?

Let's see how to create a rhythm for the background music of the animation video we saw.

For that, open the School_Resources folder and watch the Animation.mp4 video once again. Discuss with your friends and decide on a rhythmic pattern for the background music.

Let us examine how this rhythmic pattern would be using the LMMS software. You can also edit it if it is not correct.

To add rhythm, the Beat+Bassline track in the Song-Editor window is to be used.

The rhythm we found should be arranged in this track. Try arranging a rhythm in the Beat+Bassline track as shown in Figure 3.5.

How to Arrange Rhythm

- Open the Beat+Bassline Editor sub-window by double-clicking on the Beat+Bassline track in the Song-Editor window or by using the toolbar.

- In this window, a track for one instrument is available. Create the rhythm by clicking on the blocks in this track according to the desired rhythmic pattern.

- Use the Play button in the same window to play the created rhythm.

Fig. 3.5 Beat+Bassline Editor

Didn't you create a short rhythm on the computer? Now Listen to the rhythm you created using the Play button in the Beat+Bassline Editor window.

In the TEMPO/BPM [120 TEMPO/BPM] section at the top of the main window, the speed (Tempo) of the rhythm we created should also be set to 120.

You can check this by hovering the mouse pointer over this tool and scrolling the mouse.

Right now, we created the rhythm using only one percussion instrument. What if we need to create a rhythm with more percussion instruments together? For this, new percussion instruments need to be added to the Beat+Bassline Editor.

You will get more percussion instruments by clicking on the My Samples tool in the Sidebar (Figure 3.6).

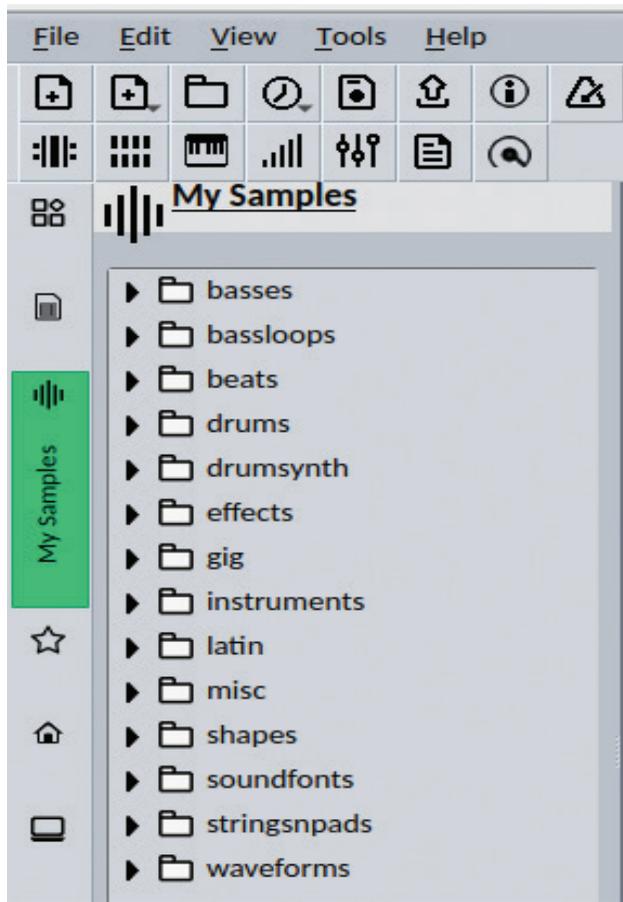In the Beat+Bassline Editor, you can remove blocks by clicking on them again.

When Creating an LMMS Project

When creating a project in LMMS, the speed (Tempo) and rhythm process (like 4/4, 3/4, 6/8, 7/8...) need to be adjusted accordingly.
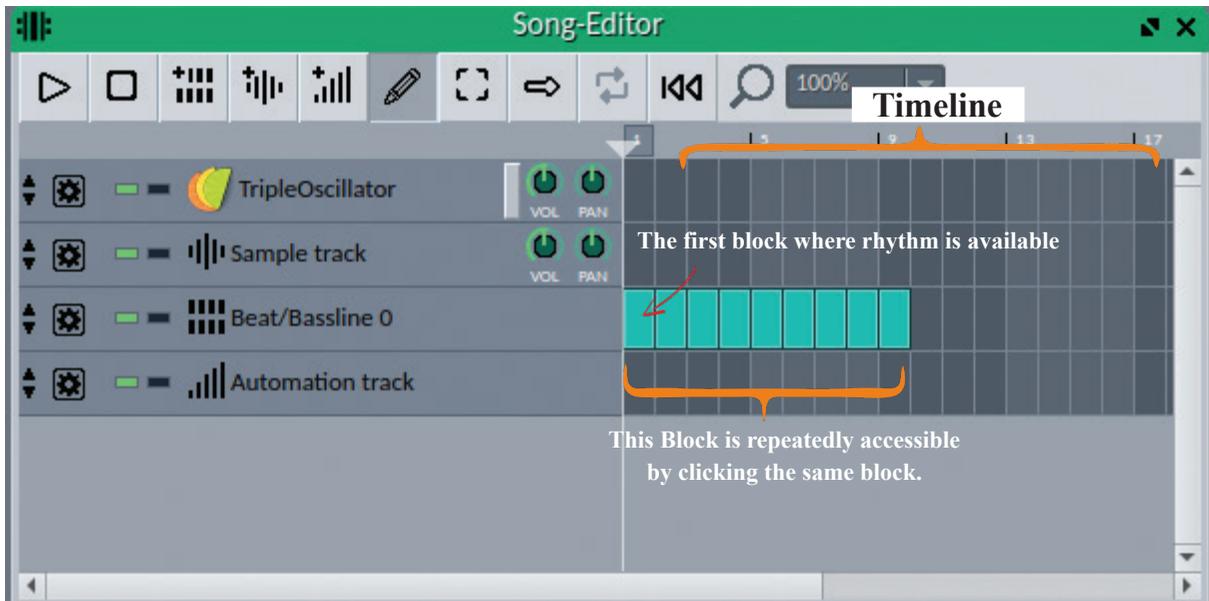

Fig. 3.6 My Samples in the Sidebar

Open My Samples → drums and from the list within it, try adding the instrument named 'kick01' to the Beat+Bassline Editor window as shown below:

How to Add a New Instrument in the Editor

▪ Click on the My Samples tool in the Sidebar.

▪ From the options that appear, select the folder of the required instrument.

▪ From the listed instruments, double-click on the instrument you want to add.

▪ With this, a track for the new instrument will be added in the Beat+Bassline Editor window.

Didn't you add kick01? Now, the rhythm for this instrument should be created by clicking on the boxes in the track. Then, listen to the new rhythm.

Now, by adding more instruments, try creating and playing a rhythm in the Beat+Bassline Editor following the model shown in Figure 3.7. You can find the names of the instruments to use by looking at the picture, right?

Fig. 3.7 Rhythm Arranged in Beat+ Bassline Editor

As soon as you close the window where you created the rhythm in this way, this rhythm will be arranged in the first block of the Beat+Bassline track in the Song-Editor window.

With this, you can create the necessary blocks of this rhythm by clicking on the timeline to the right of the track.

Now, create the rhythm by clicking on the blocks according to the instructions given in Figure 3.8.

Fig. 3.8 Rhythm Organised in Song Editor

Didn't you create the rhythm? You can save your work so far using **File → Save**.

Let's Compose Melody

The rhythm needed for the background music is ready. Now let's create the melody to go with it.

This should be prepared keeping in mind the rhythm that matches the transitions in the animation video and its timing.

To create the rhythm, the first thing to do is to determine the musical instruments that will work in the background.

For this, find the tone named 'dong03' from 'misc' in My Samples and drag it to the Song-Editor window (Figure 3.9).

Fig. 3.9 When New Tone was Added to the Song- Editor

Now, to add the rhythm we decided on to this, open the Piano-Roll window by double-clicking on the first block of this track in the timeline (Figure 3.10).

Using the mouse, you can add the melody in this window either by playing the keyboard on the piano or by clicking on the timeline.
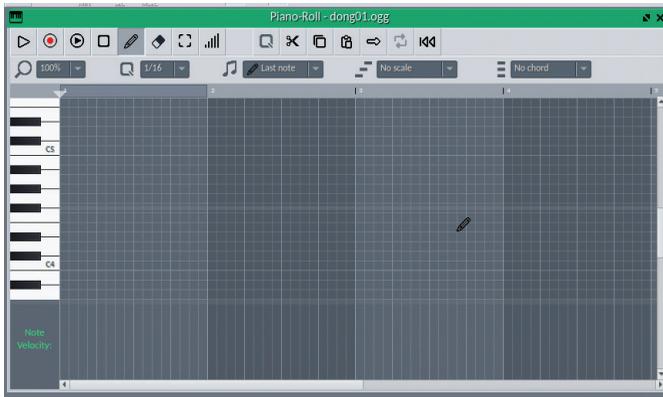
Fig. 3.10 Piano- Roll Window

If using a keyboard, the record button in the Piano-Roll window is to be pressed.

To Delete from Song+Editoryou can use Right Click → Delete.
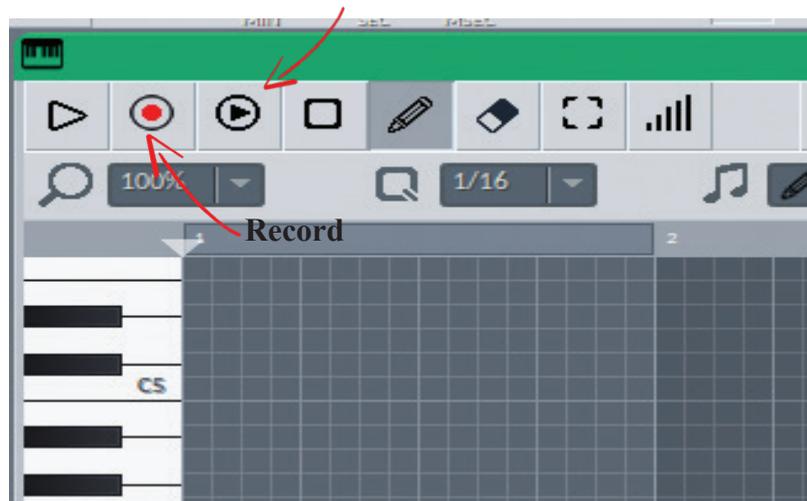
To record while listening to other tracks

Record

Fig. 3.11 Record Buttons in Piano- Roll Window

By playing the animation video, can you record the tune until it's perfect? You can use right click to delete mistakes.

Haven't you created your own tune for the animation movie ?

The tune prepared by the student Ayona is given in Image 3.12. Try creating this tune in the Piano-Roll according to the instructions in the image.
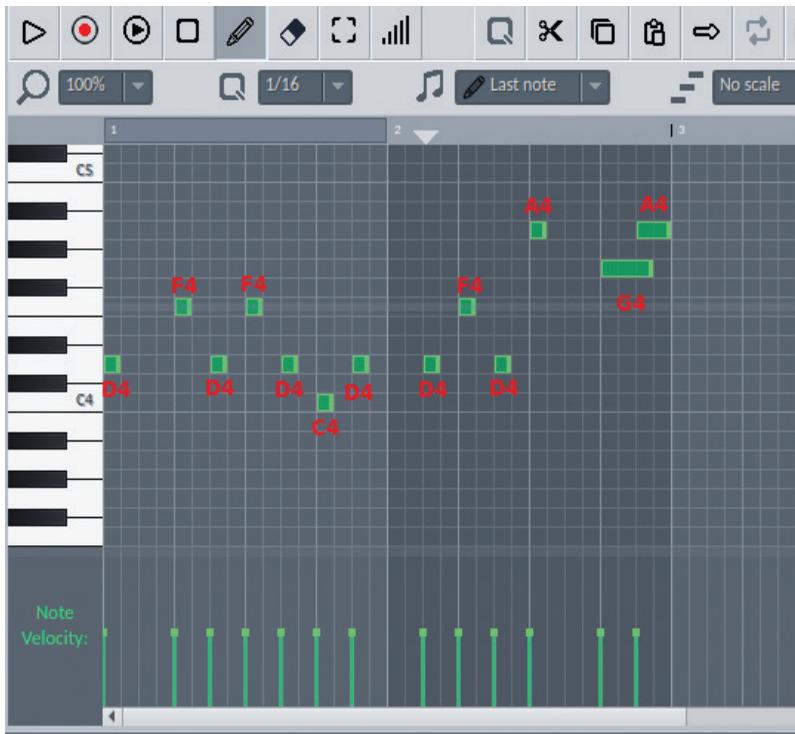
Fig 3.12 The Melody Created in the Piano-Roll with Indications

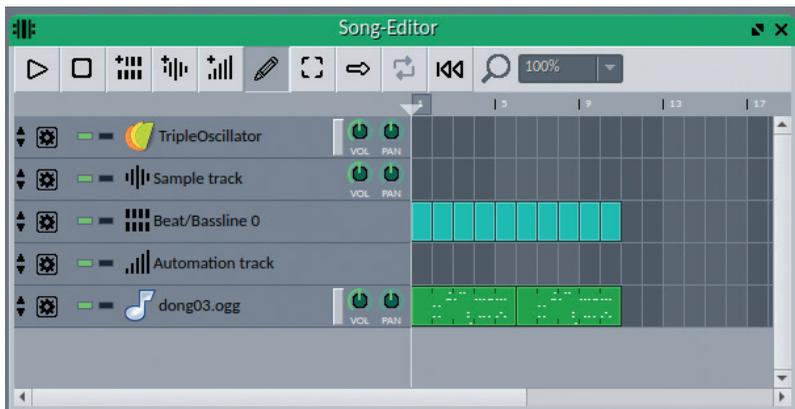In the Song-Editor window, click and add this music for as long as it is needed.(Fig 3.13)

Fig. 3.13 After Adding Music in Song- Editor Window

Have you listened to the background music you created? You can add more instruments and make the music more melodious.

After completing all the work, you can export it to any audio file format using File → Export.

☑️ Let's Assess

1. How do you delete blocks created in the Song-Editor window of LMMS software?

      a) Right Click   b) Left Click

      c) Scroll Wheel Click   d) Double Click

2. Right Click b) Left Click c) Scroll Wheel Click d) Double Click

      a) Right Click   b) Left Click

      c) Scroll Wheel Click   d) Double Click

3. How do you delete music notes created in the Piano-Roll window of LMMS software?

      a) You can create independent music with it.

      b) You can add music to video with it.

      c) You can add music to animation with it.

      d) You can read text files with it.

4. What action should be taken to increase the tempo of music notes created in LMMS software?

      a) Increase BPM   .   b) Decrease BPM.

      c) Increase Time signature   d) Create more blocks in Beat Editor

5. Which Tool in LMMS software helps to select Music Tones (Musical Sounds)?

      a) My Samples   b) My Projects

      c) My home   d) song editor

📝 Extended Activities

1. Open the file named "Music1.mmpz" from the "School_Resources" folder in LMMS, create a rhythm for the music you get, and export it.

2. Using LMMS, create a login music that you will hear when you log in to your computer.

❖ ❖ ❖
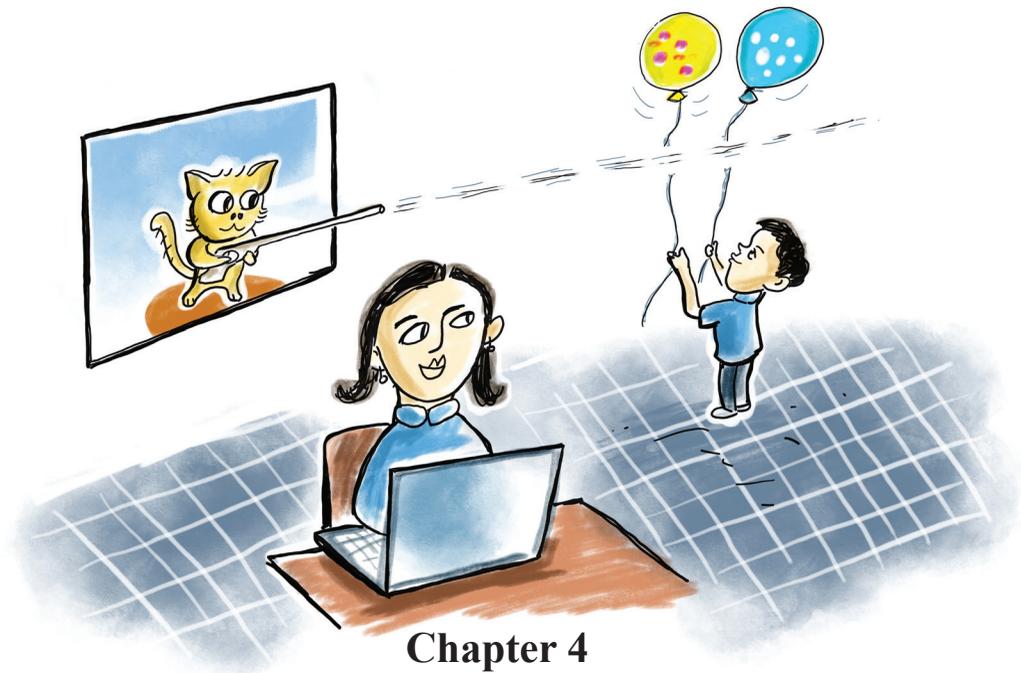
Chapter 4

Computer Games

Do you know who is in the picture?

He is the first Indian to win an individual gold medal in the Olympics.

In 2008, at the Beijing Olympics, he achieved this feat in shooting.

This is a picture of Abhinav Bindra, whom our country has honoured with awards like the Padma Bhushan and the Arjuna Award.

Have you watched shooting competitions?"

There are various types of shooting events, including rifle, pistol, shotgun, etc.

Fig. 4.1 An Indian Sportsman

The double trap competition in the shotgun category involves shooting at two targets that are launched into the air and scoring the maximum possible points (Figure 4.2).

India has also won a medal in this event at the Olympics. You should find out who won it.

Fig. 4.2 Double Trap Shooting

A digital version of the 'Double Trap Shooting' competition is available as a game on your computer.

Open the file named 'double_trap.html' in the School_Resources folder at home, click on the green flag, and try playing the game (Figure 4.3).

Didn't you like the game?

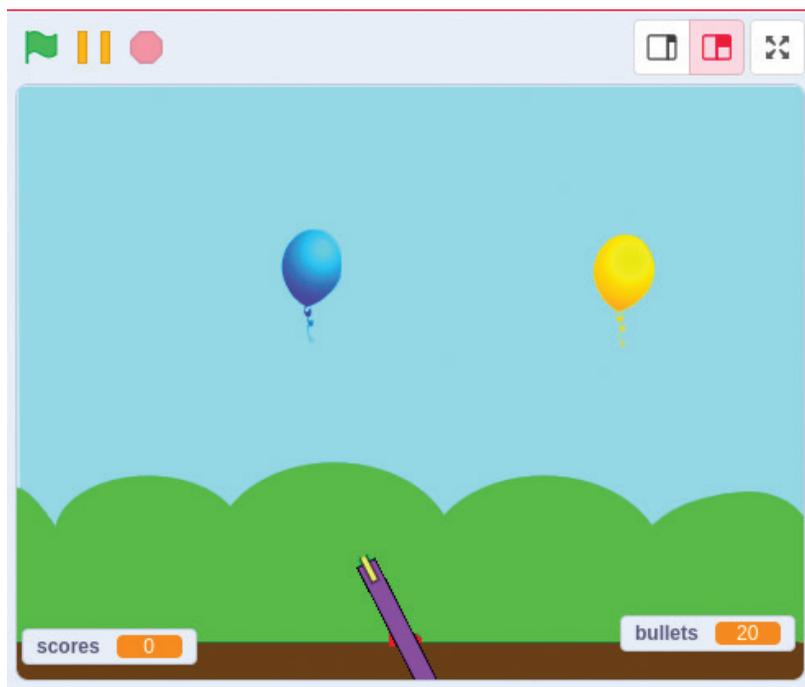The game is about hitting the target as many times as possible

Fig. 4.3 Double Trap Shooting – Game Window

with the 20 bullets provided.

Let's see how the game works.

- After clicking the Green flag, the gun turns towards the mouse pointer as you move the mouse.

- The balloons (targets) rise from the bottom to the top. They rise from different places in different directions.

- When the game starts, twenty bullets are available. The score is zero.

- When you click on the game screen (Stage), the bullets travel towards the mouse pointer. Along with this, the number of bullets in your stock decreases.

- When a bullet hits a balloon, it bursts. The score increases.

- The game ends when all twenty bullets are used up.

So, you've understood how the game works. This game was created using Scratch, a block programming technique you learned in previous classes.

Shall we try creating a similar game using Scratch?

Let's see what all game assets are needed for this.

Game Assets
All the resources used to create and enhance the visual, auditory, and functional aspects of a game, including images, animations, sound effects, music, 3D models, and scripts, are considered game assets.

- Background for the shooting range (backdrop).
- Sprites like the gun, balloon, and bullet.
- Instructions/Coding for the sprites to function correctly.

Now, let's start making the game.

Stage and Sprite
In Scratch, when creating games or animations, the characters or objects that need to be included are called sprites. Through instructions, sprites can be given movement, appearance, and sound, making them functional.
The stage is the background for the game to run. By including various backdrops on the stage, the game layout can be made attractive.

What all needs to be done for this?

- Backdrop and sprites should be arranged in the game window.

  - Set up the necessary costumes for the sprites.

- Prepare the code blocks needed for each sprite to function.

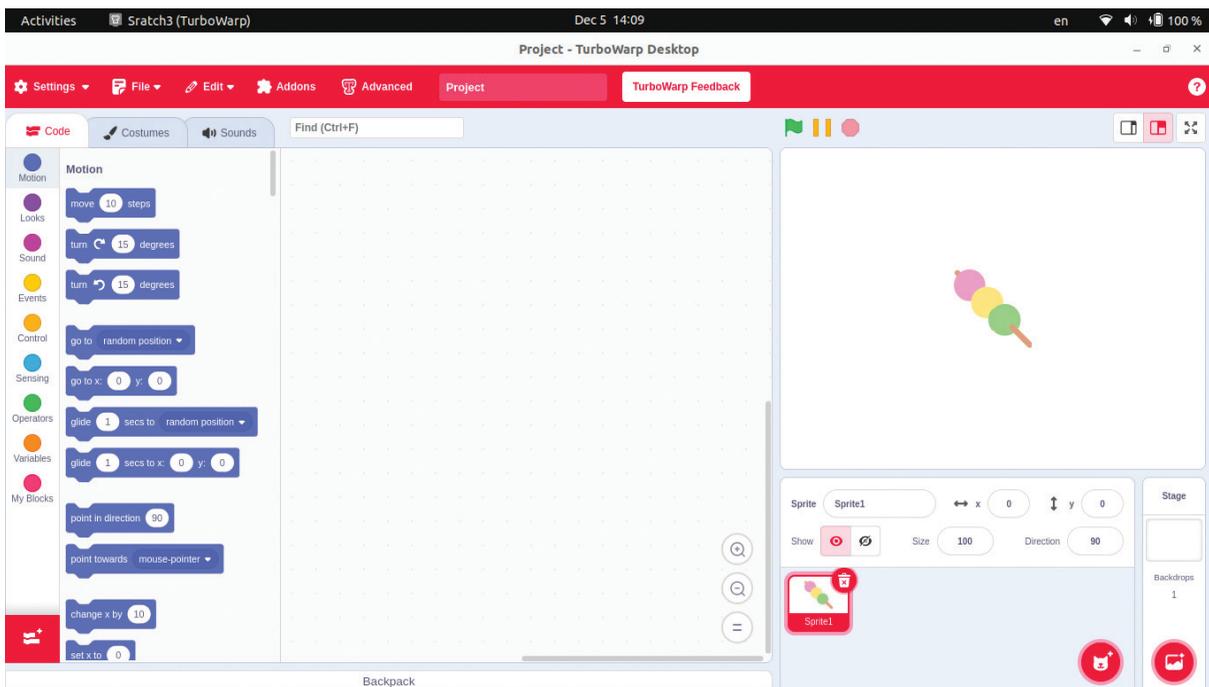Scratch is familiar to everyone, isn't it? (Figure 4.4)

Fig. 4.4 Scratch Window

The image shows Dango, the current sprite in Scratch 4.5. Since this character is not needed in our game, open the Scratch window and delete it.

Let's make the background

To make background (Backdrop) needed for the game, click on the Choose a Backdrop option in Stage (Figure 4.6) and select the backdrop named Blue Sky <image> from the Scratch library.

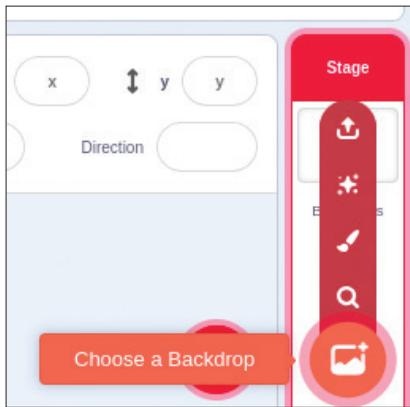With this, the background for the shooting range is now ready (Figure 4.7).

Fig. 4.5 Dango Sprite

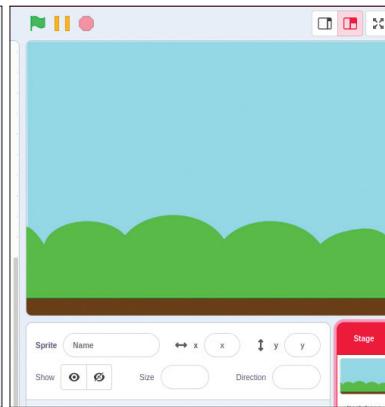**Fig. 4.6**
The Window for Adding a Backdrop

Figure 4.7 When a New Backdrop is
Added in Scratch

Let's Draw and Add a Gun

The next thing to do is to include the image (Sprite) of the gun for the competition. Shall we draw and add the gun ourselves?

You can draw a picture in the window that opens when you click the Paint option (Figure 4.8).

In the Paint window, use the Rectangle tool to draw a gun as shown in the picture. After that, give this sprite the name "gun" and set its size to 50 (Figure 4.9).
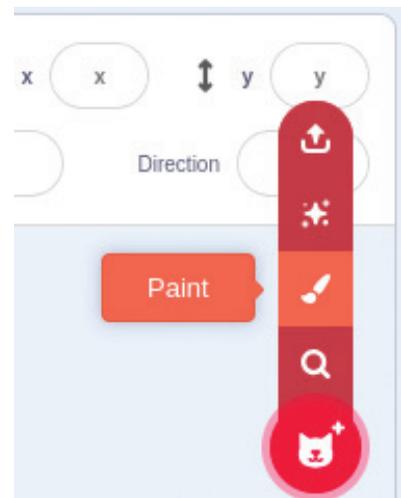

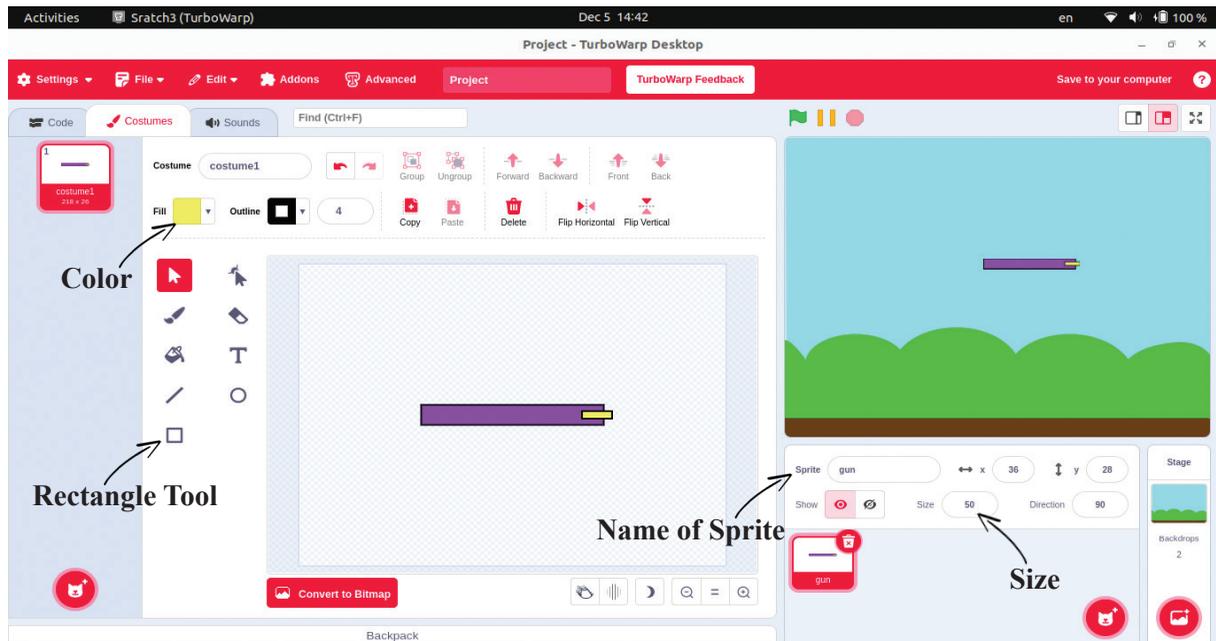**Fig. 4.8. Paint Option in Scratch**

Fig. 4.9 When a New Sprite is Drawn

You've drawn and added the sprite. Now, arrange the position of this sprite as shown in the picture. (Figure 4.10)
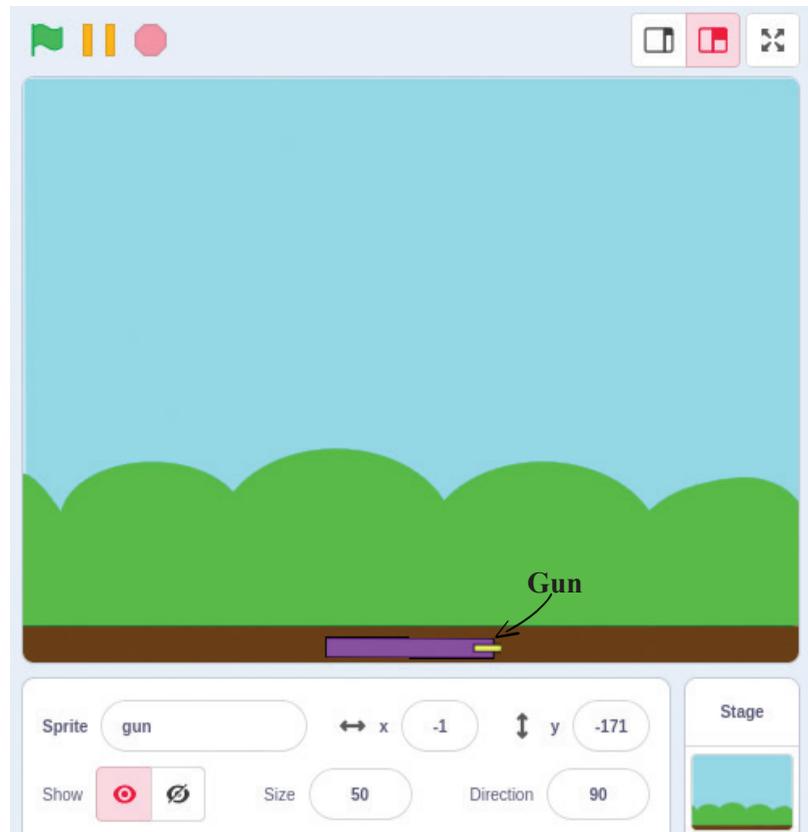
Fig. 4.10 Position of the Gun Sprite

Let's Give Movement to the Gun

How should the gun work?

- After clicking the green flag, the gun should turn towards the mouse pointer as the mouse is moved.

To make the gun turn towards the mouse pointer, you can use the `point towards mouse-pointer ▼` block from the Motion section.
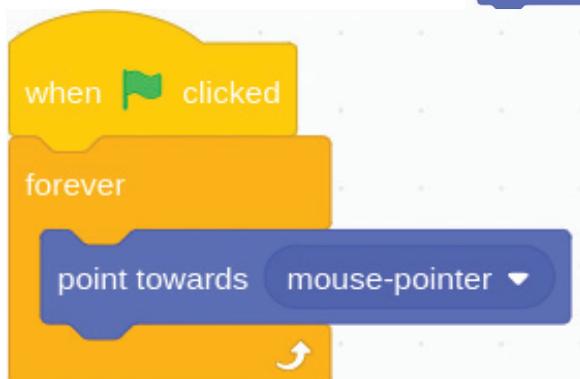

Fig. 4.11 The Instructions for the Gun to Follow the Mouse Pointer

This activity is to be done continuously. We know that we can use the "forever" block for this. Therefore, let's give the gun sprite the codes as shown in the picture (Figure 4.11).

Now click the green flag and try moving the mouse.

The sprites we need next are the balloon and the bullet.

The sprite we need for the bullet isn't available, so let's draw it ourselves. Using the Rectangle and Reshape tools, draw a bullet as shown in Figure 4.12
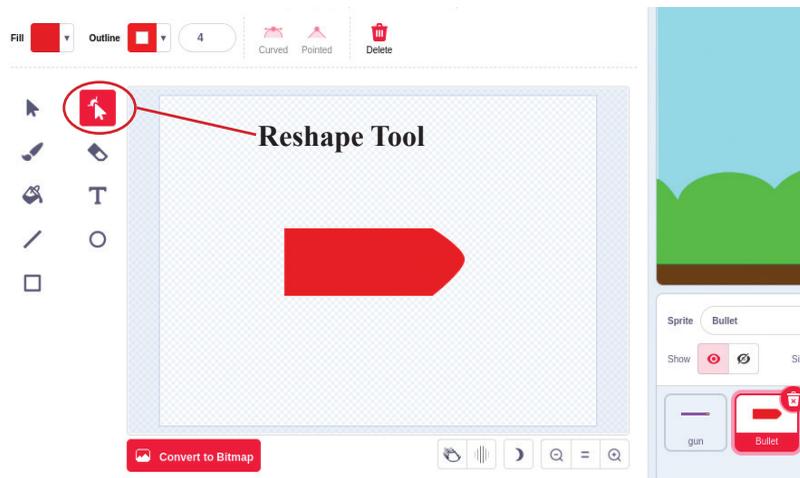
Fig. 4.12 When Bullet is Drawn

After setting the bullet's size to 10, place it in the middle of the gun's barrel. (Figure 4.13)
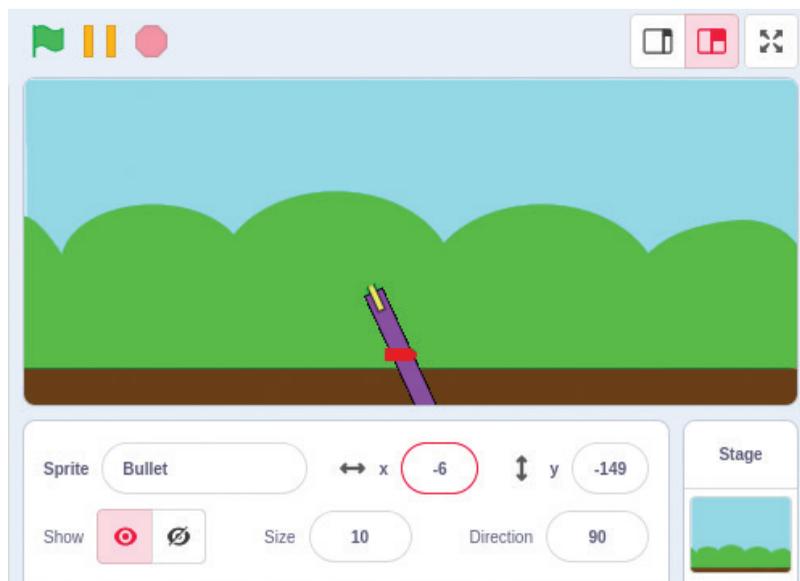

Fig. 4.13 Position of Bullet

The bullet we have drawn will now be on top of the gun. You can click on the gun sprite once and move the bullet behind it.

Instead of this, can we move the bullet behind using code blocks? Try it out
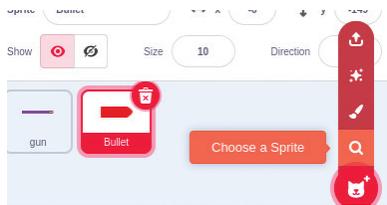
Fig 4.14 Choose a Sprite Option

To Add Balloons

The "Balloon1" sprite is available in the Scratch library itself.

Using the "Choose a Sprite" option (Figure 4.14), try adding two balloons to the window. (Figures 4.15 and 4.16).

Fig. 4.15 Balloon 1 Sprite in Scratch Library
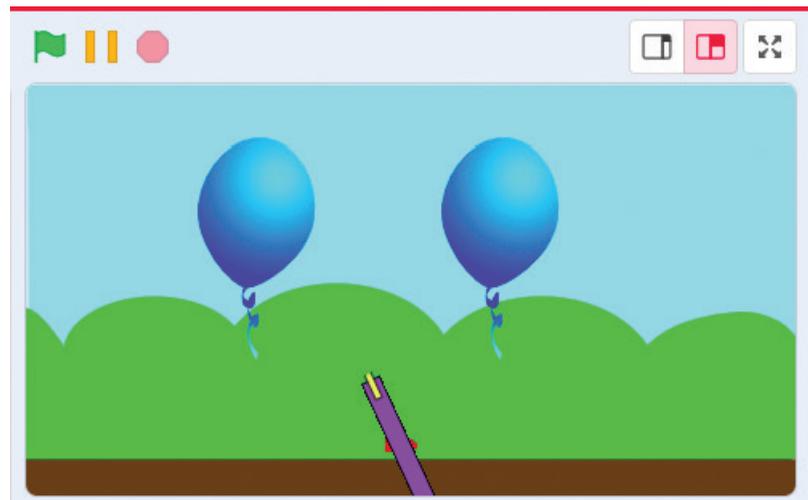
Fig. 4.16 When Two Balloons are Added

We've added the balloons.

Which colours of balloons do we need?

▪ Blue and yellow.

Right now, you have two blue balloons.

To make the second balloon (Balloon2) yellow, go to the Costume section, keep the yellow balloon costume, and delete the rest. Then, adjust the size of both balloons to 50.

The balloon needs to change its appearance when it's hit by a bullet, right?

Let's see how to do that.

To change the look of sprites, we usually change the Costume.

Here, since we don't have a suitable costume for a bursting balloon in the Scratch library or readily available, let's draw one ourselves.

To do this, right-click on the existing balloon sprite's image in the Costume section and select "duplicate" (Figure 4.17).
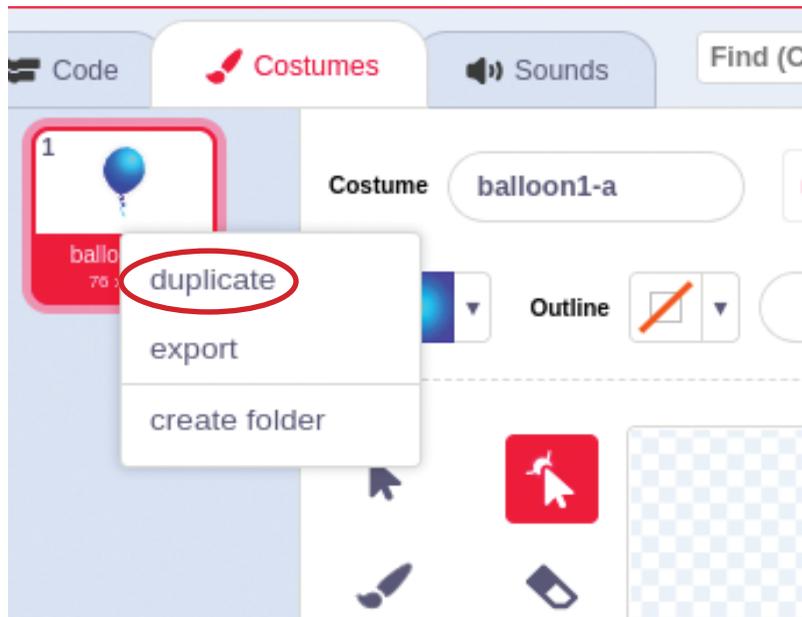
Fig. 4.17 Duplicate Costume

Then, using the Reshape tool (A), change this into a bursting balloon (Figure 4.18).
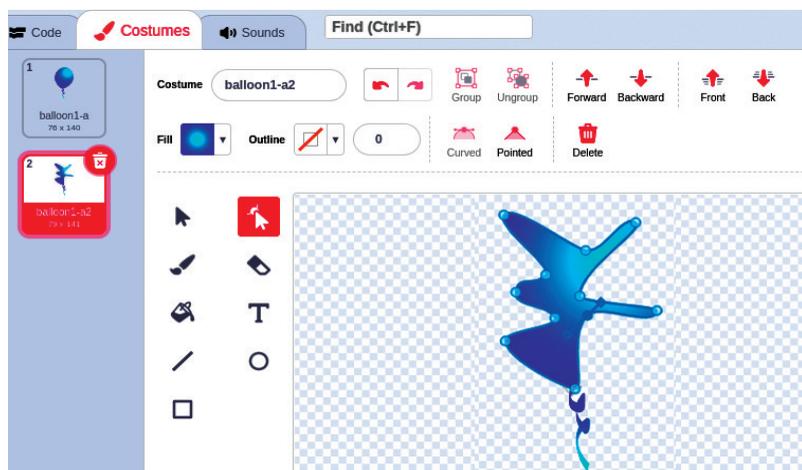
Fig. 4.18 When the Shape of the Sprite is Changed

To give animation effects to sprites, just change their costumes.

In the same way, a costume is to be added for the yellow balloon as well.

With this, the sprites needed for our game are ready.

Now, let's prepare the instructions needed to make them work.

Have you tried running the game (double_trap.html) in the School _Resources folder?

In this game,

- Firing happens when the mouse is clicked on the stage.

- Initially, 20 bullets are available.

- The bullet travels in the direction of the mouse click.

- Each time you fire, one bullet decreases.

- When the bullet hits the balloon, the score increases.

To implement these,

- Let's create variables named 'bullets' and 'score'.

Create these variables in your project using the 'Make a Variable' option in the variables section (Figure 4.19).

Variables

Variables are techniques used to temporarily store numbers, texts, etc.,

which are needed for a program to run and whose values can be changed.
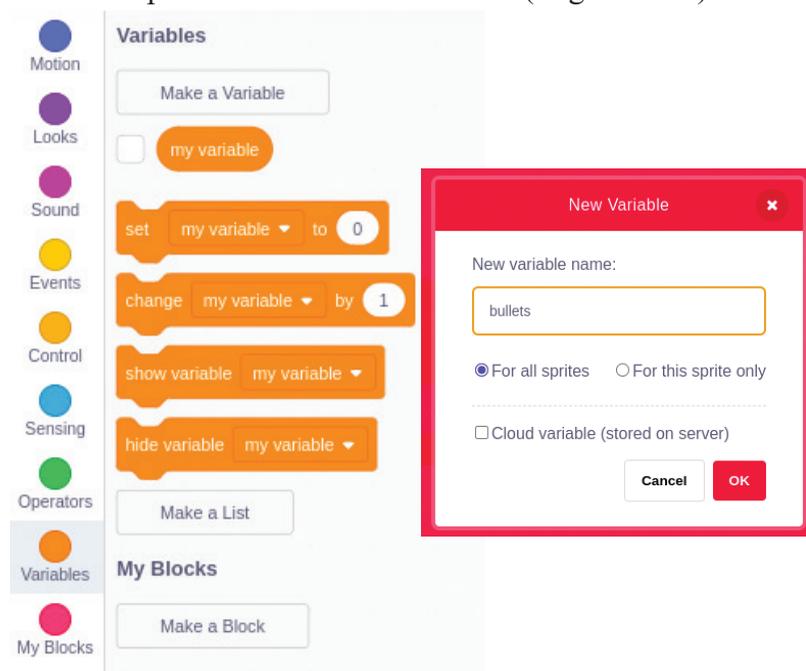
Fig. 4.19 Window for Creating Variables

You have created variables named bullets and score, haven't you?

To set the number of bullets to 20 and the number of hits (score) to zero when the game starts, prepare the gun sprite's code as shown in the picture (Figure 4.20).

Let's Fire

Firing should happen when the stage is clicked, right?

That is, when the bullet sprite receives the message that the stage has been clicked, it should quickly move to the clicked location.

In Scratch, to exchange information between one sprite and another, you can use the broadcast message block.

Let's create a message named "Clicked" and broadcast it.

Create a broadcast message by selecting "New message" in the broadcast block (Figure 4.21).

Fig. 4.20 Codes to Set Bullets and Score at the Start of the Game.
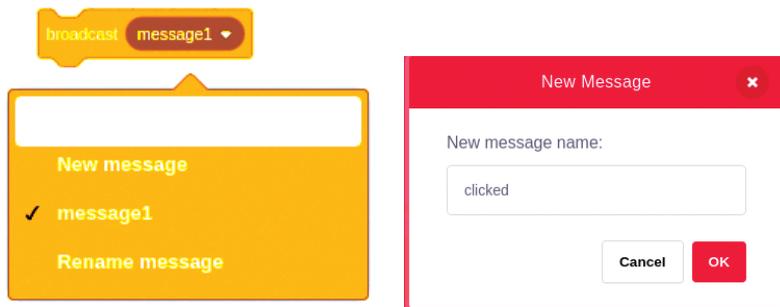
Fig. 4.21 The Steps to Broadcast Message

You know that this should only happen if the gun has bullets.

For this, let's give the stage the code as shown below (Image 4.22).
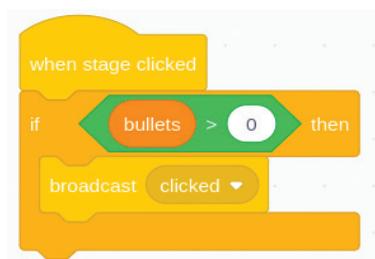
Fig. 4.22 Program Codes to Broadcast Message

The whistle is blown. Let's start the game

A message broadcast by one sprite can be received by more than one sprite at the same time.

Clones

Using the "make a clone" block, you can create clones of the same sprite.

The operational codes for the created clone sprite should be included in the "when I start as clone" block.

This is very useful for creating sprites with the same characteristics.

What should happen when the "broadcast message" (the message that says "clicked on stage") is received by the Bullet sprite?

- The Bullet should move towards the clicked location.

At the same time, new bullets should appear every time the stage is clicked, right?

But here, only one bullet is added. Then how can we fire multiple bullets?

For this, we can use the "clone" feature. "Clone" is a feature in Scratch that is used to create multiple sprites with the same characteristics and behaviour as one sprite.

That means here,

- When the message "clicked on stage" is received, the bullet should reach the barrel of the gun and a clone of it should be created.
- The cloned bullet should move towards the clicked location.
- The bullet should move until it hits the edge of the stage.
- The number of bullets should decrease by one as soon as it is fired.
- Along with this, there should be a sound when the bullet is fired.

To add a sound to the bullet:

- Select the bullet sprite, open the Sound window, and from the Scratch audio library, add the sound "Rip" using the "Choose a Sound" option (Image 4.23). (Image 4.24)
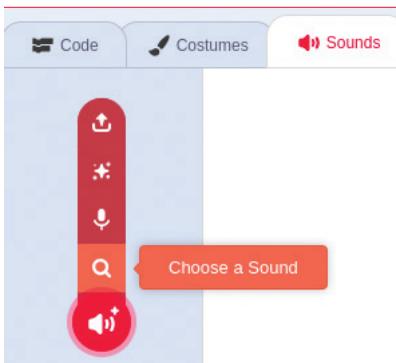
Fig. 4.23 Choose a Sound Window
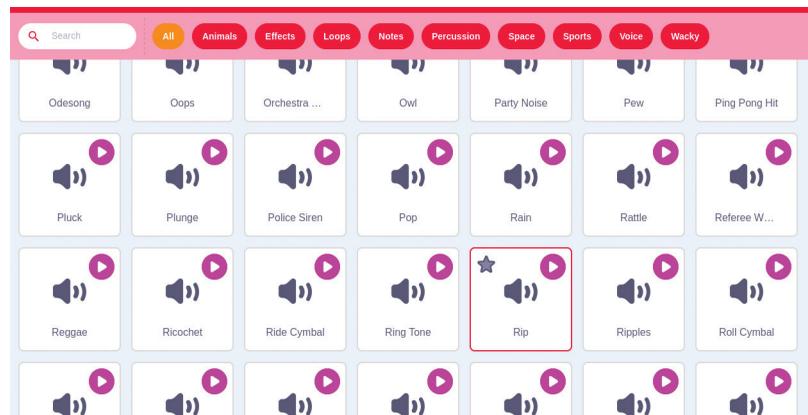
Fig. 4.24 Scratch Audio Library Window

Give Codes to the bullet sprite as shown below and try running it. (Figure 4.25)

Fig. 4.25 Codes for the Bullet

When you click, the bullet should move with a sound to where you clicked on the stage, right?

Now, analyse the code blocks provided in Table 5.1, determine the purpose of each block, and record it in the table.

Don't forget to delete the clones once their function is over.

	To decrease the value of the 'Bullets' variable by one

Table 4.1 Function of thCodes Used in the Program

What else is needed to finish the game?

- When the green flag is clicked, the balloons should rise from the bottom to the top.
  - They (the balloons) should start from different positions.

- As the bullet hits the balloon,
  - The balloon should crash.
  - A sound should play.
  - The bullet should disappear.
  - The score should increase by one.

Raising the Balloon

The position of a sprite is determined by its x and y values.

That is, if the *x* value is gradually increased, the sprite will move from left to right. As the *y* value increases, it will move from bottom to top.

To make the balloon rise from different places, it is enough to change its *x* value to a random number between -230 and 230. For that, you can use the block

Since it has to rise from below, the y value can be given as -107.

To make the balloon rise upwards, we can add the glide block as well. (Figure 4.26)

> ### Random Numbers
>
> In Scratch, the pick random block can be used to get any value between two given values randomly. Each time the pick random function runs, it will return different values within the specified range
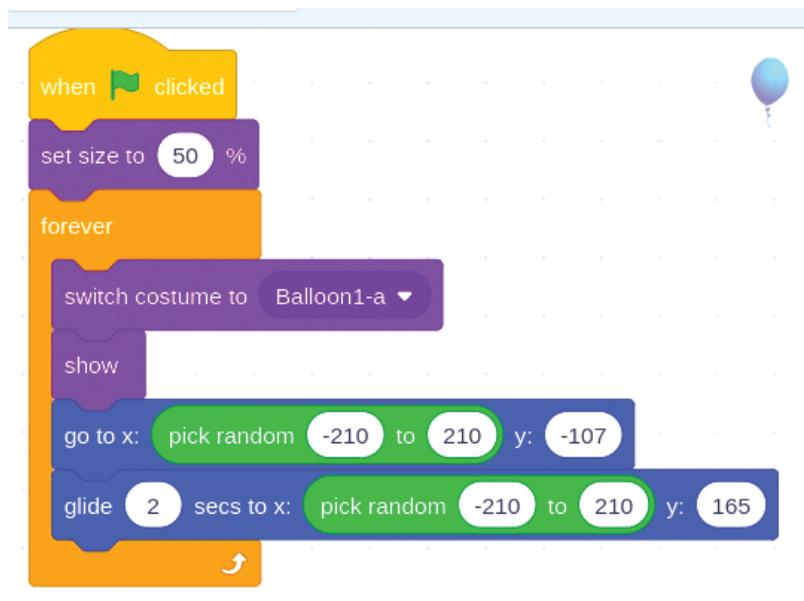
Fig. 4.26 Code for the Balloon to Rise Randomly from Different Places

Now, find out why the y value is given as 165 in the glide block.

Let's Complete the Coding

Let's also include the code for the balloon to change costume and disappear when it touches the bullet, and to make a popping sound.

- The popped balloon costume can only be seen if we wait for a while.

- After the wait, the unpopped balloon should reappear.

  - No separate sound needs to be added for the balloon. The sound 'Pop' is already included as the default sound for the balloon sprite.

The necessary codes for this are given below (Figure 4.27).

What is to be done to get more than 1 score if the balloon bursts?
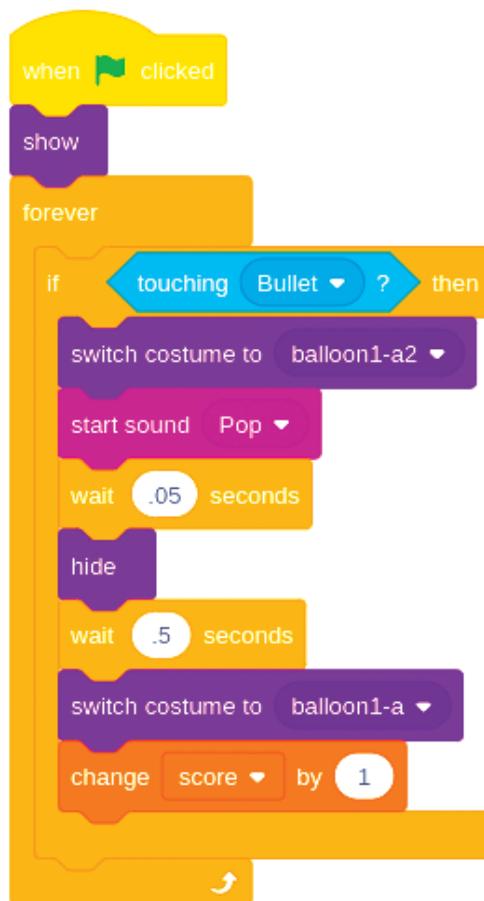
Fig. 4.27 When the Bullet Hits, the Balloon Bursts, Causing a New Balloon to Appear

Try running the game by adding these codes.

Currently, only one balloon is working. You can complete the game by giving the same code to the second balloon.

To give the code block given to one sprite to another , simply drag the code to the second sprite.

When dragging and dropping like this, don't forget to change the Costume names of the second balloon in the code.

Let's Assess

1. Which block is used in Scratch to exchange information between two sprites?

    a) Broadcast Message   b) Create clone

    c) Repeat until   d) Forever

2. What is the technique that can be used in Scratch to create more than one sprite with the characteristics of one sprite?

    a) broadcast   b) clone

    c) repeat unitl   d) point towards

Extended Activities

1. Modify the created game so that it displays that the game is over when the number of bullets becomes zero.

❖ ❖ ❖

Chapter 5

Internet : A Boundless Realm of Knowledge

Have you heard the story of keyboard cat?

Fatspo is an orange coloured tabby cat. The video of this cat playing the keyboard was recorded by its owner, Charlie Schmidt, in 1984. 20 years later, when YouTube became popular, Charlie Schmidt uploaded it with the name Keyboard Cat. The video went viral, became a meme, and also an Internet sensation.

But Fatspo was not lucky enough to know any of this fame !

The cat passed away three years after the video was recorded.
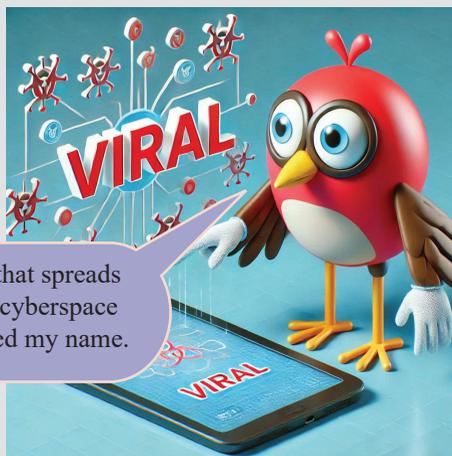
Anything that spreads rapidly in cyberspace can be called my name.
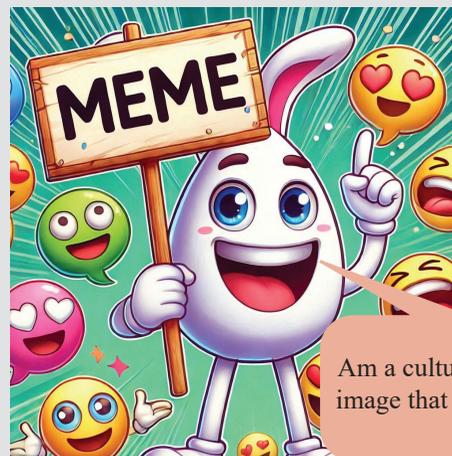
Am a cultural idea or image that goes viral.

The viral success of Keyboard Cat later helped shape YouTube as a platform for sharing creative and entertaining videos.

Such is the story of Moo Deng, a hippo who is now part of a popular video game theme collection.

The reason for even small, ordinary moments become big news that is discussed worldwide is the Internet.

Open any web browser on your computer and search the Internet for Moo Deng. (Keyword – Moo Deng)

What did you get when you searched ?

▪ Images

▪ News

▪ ....

While searching on the Internet

Check how many websites had the details about Moo Deng among the results obtained when you searched.

You will see that these websites contain not only text but also images, videos and animations.

Click on any of the images that you find when you search. This takes you to the web page that contains the image. This is one of the many ways to surf the internet. As information technology advances, the facilities on the internet are also increasing.

Imagine a huge network that connects billions of computers around the world. In simple words, this is the internet! It is like a large digital repository, where we can access the information available there anytime, anywhere. Moreover, it is also a huge computer network that provides an environment for people around the world to communicate and share information.

It is a gigantic web of crores of devices ranging from smart phones to super computers
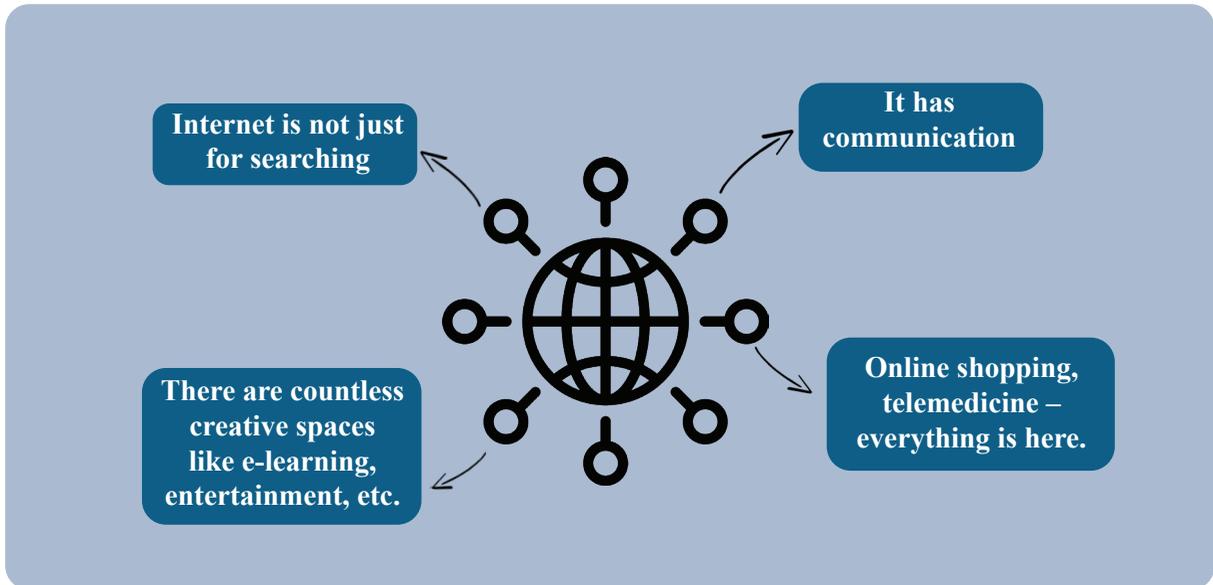
The History of Internet

'Haven't you heard that 'necessity is the mother of invention'? The origin of the Internet has such a history. You know that the competition that developed between the United States and Russia after World War II is known as the Cold War. During the Cold War, countries were afraid of nuclear attacks on each other.

They knew that a nuclear attack would destroy their communication systems and also the defence and infrastructure of the country. Therefore, countries turned to efforts for creating a strong communication network. Thus, the American defence agency created a computer network ARPANET (Advanced Research Projects Agency Network). This is considered the first public network. The evolution of the Internet continued with the development of the World Wide Web in the late 1980s. Information could be accessed and shared much more easily through hyperlinks.

Let's examine the major milestones in the history of the Internet via the infographics given in Figure 5.1.

Web
Web is acronym of World Wide Web (WWW). It is a proper arranged repository of inter connected web pages and web sites available through the internet.

Internet – Milestones of Growth

1969: ARPANET came into existence

1970: Vint Cerf and Bob Kahn developed TCP/IP

1971: Ray Tomlinson developed email

1986: email was introduced in India

1989 : Tim Berners-Lee's idea of www (a vast network for sharing information via the Internet)

1991 : World's first webiste

1993 : The first web browser Mosaic was launched.

1995 : Internet becomes public in India. Amazon, eBay in vogue.

1997 : The first standard Wi-Fi was introduced.

1998 : The search engine Backup became Google.

2000 : IT Act came into existence in India. Social media, eCommerce etc., in vogue.

2002 : Akshaya project launched in Kerala.

2016 : A system for making payments using smart phones launched by the Government of India - Unified Payment interface came into existence

2021 : Kerala Government's plan to ensure internet for all - K Phone

Crypto currency, IoT, Cloud computing

AI techniques became famous

Efforts to use satellite systems to bring internet to every corner of the world

Metaverse, 5G, 6G

1969   **1990**   **2000**   **2020**

Fig. 5.1 Major Milestones in the Growth of Internet

So now it is clear that many of the Internet systems we use today have reached their current state after continuous research and evolution. It can be seen that our Kerala has also contributed to these changes made in information technology at the global and national levels.

Complete Table 5.1 below based on the information given in the infographics in Figure 5.1. If necessary, use the Internet for more information.

Description	Name / Year
Name of the systems such as Google and Bind that are used to find information on the Internet	Search Engine
The year in which India became a part of the global Internet network	
The first Indian state to declare 'Internet – Citizen's right'	
The year in which Indian IT Act came into force	
The technology based on which the tools like ChatGPT, Gemini, Deepseek etc., revolutionized the Internet.	

Table 5.1 Some Basic Information Related to Internet

Computer Networks

Computer networks are systems that connect two or more computing devices to perform tasks such as communication, sharing resources, and exchanging information. In this, virtual devices such as computers, smartphones, smartwatches, ATMs, and printers can be connected as links. Each device that is a link is called a Node.

Special rules and technologies are used to communicate between nodes and share files and resources. This is called a Network Protocol.

There are many ways to use the internet, like browsers, apps, software, IoT, and gaming consoles.

Terms related to Internet
As the Internet has become a part of our daily lives, we have started using many terms related to it in our speech and writing. Can you prepare a list of technical terms related to the Internet such as webpage, smart TV, HTML etc.,? Write down their usage.

While diving into the flood of information

You know that the Taj Mahal built by Mughal Emperor Shah Jahan in Agra has been the inspiration for the creations of many writers. Rabindranath Tagore described the Taj Mahal as 'a teardrop on the cheek of time'.

When a student Kanchana searched for the phrase 'Famous quotes about Taj Mahal' on her computer using the Google search engine, the results obtained were as given in Figure 5.22.
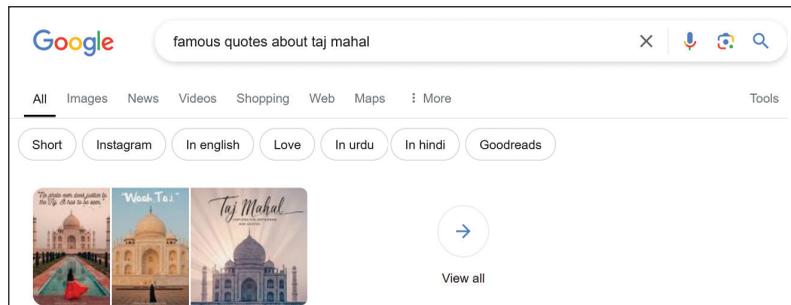
Fig. 5.2 A Google Search Result Page

There are some sections that appeared when the said phrase was searched. For example:- Gooreads, instagram etc. However, if

There are many popular social websites for writing about books and sharing your enjoyment. Examples include Goodreads, StoryGraph, Book Riot, and Open Library. They offer a variety of features, including author profiles, lists of books read, and book recommendations.

we search only for the name Taj Mahal, many of these may not appear, and instead some others may be displayed. The search engine understands the intention of our search terms (Search Queries) by examining them (Intent Recognition), and the search engine provides the search results accordingly.

The results of two different search engines for the same search terms are given in Figures 5.3(a) and 5.3(b). Observe the figures and complete Table 5.2.

	Figure 5.3(a)	**Figure 5.3(b)**
Search term	How astronauts stuck in space station?	
Search engine	Google	
Specially features sections		Copilot, Videos, Images,...
Image, news, video, map എന്നീ വിഭാഗങ്ങളുടെ ലക്ഷ്യം		
Other observations		

Table 5.2 Results from Different Search Engines
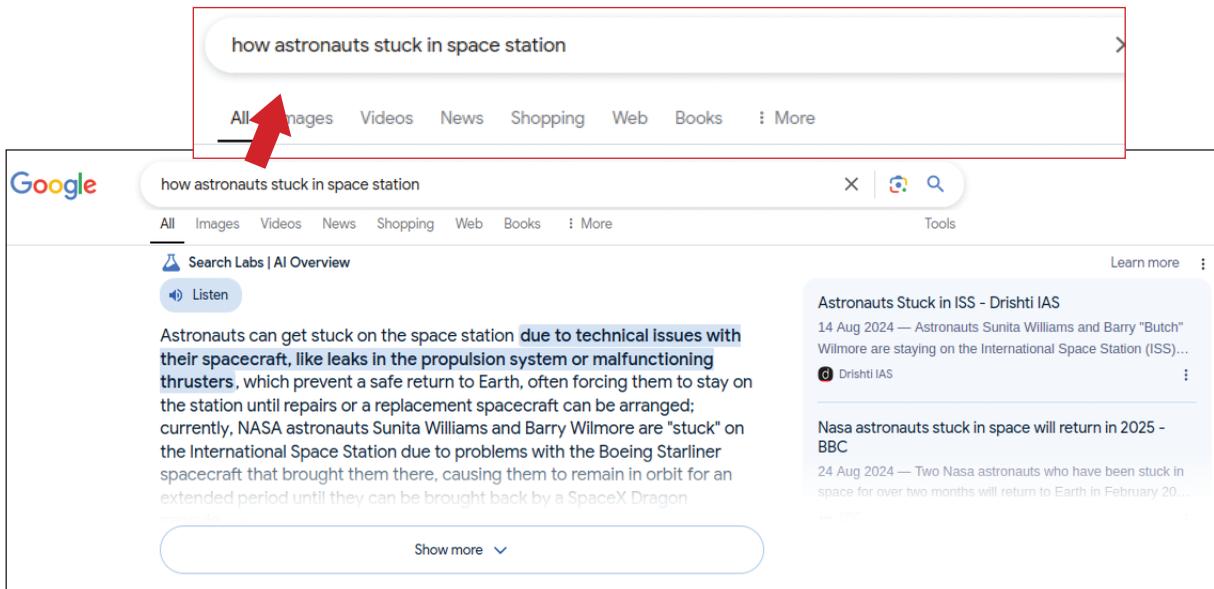
Fig. 5.3(a) Google Search Results
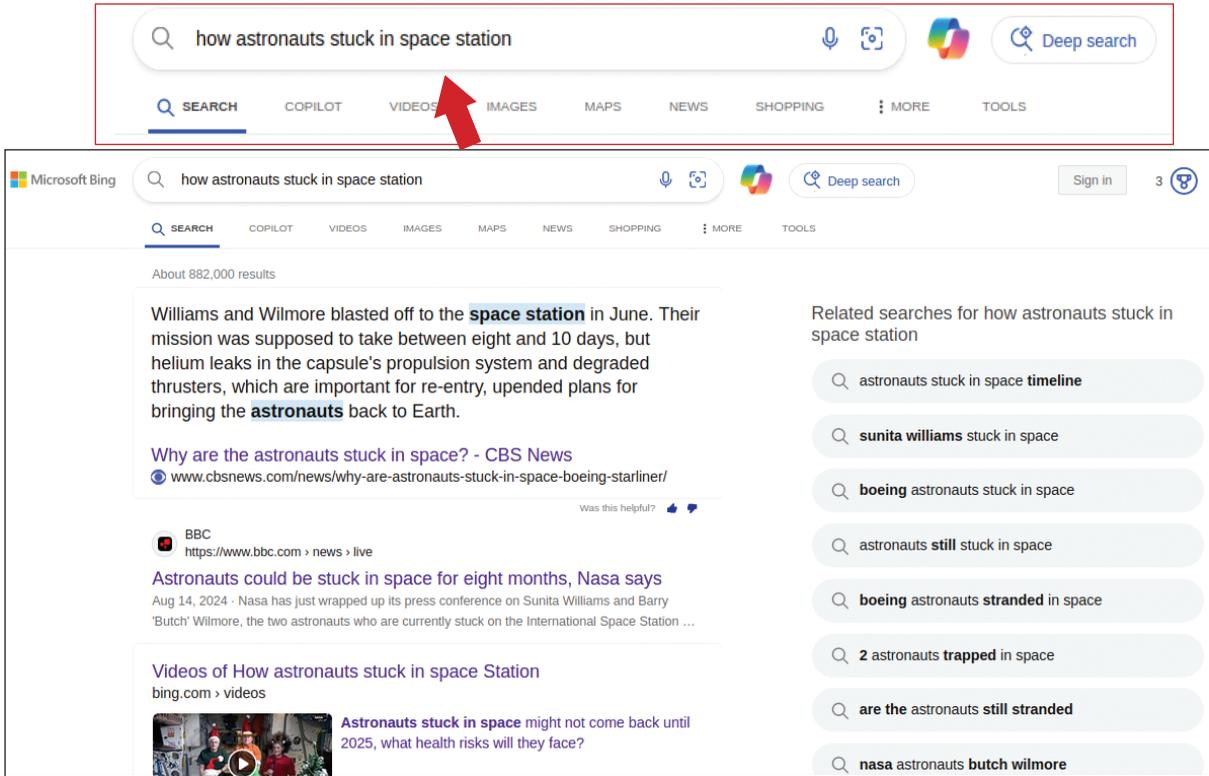
Fig. 5.3(b) Bing Search Results

Is the table complete ? Different search engines use different techniques to provide the answers we need. Examples of this are the results that appear first as part of the search, and content that is combined from data collected from different websites according to a search term. These are called search snippets. Such content is created using artificial intelligence.

Search engines consider many things when providing search results. The relevance and quality of the content, the location of the search, the interests of the searcher, and many more. While it is important to deliver content to us with greater accuracy, there are also various business and political reasons for prioritizing private websites. We saw different websites enlisted by different search engines for the same search term. This difference becomes more apparent if a more vague search term is given.

After searching for a tour, the ads and news on the phone are all related to trips.

Collect Only What is Needed

There is a lot of information about each fact on the Internet. In order to select only the information we need from this flood of information, it is important to provide a more specific search phrase. There are some other ways too. Let's examine some of these given in Table 5.3.

Search methods	Example for search phrase	How it works
Use words like AND, OR, NOT etc.	Climate change AND renewable energy NOT fossil fuels	Includes pages in which climate change and renewable energy are mentioned and excludes those that mention fossil fuels.
Enter search phrases in quotation marks (" ")	"water cycle process"	Only pages that contain the phrase will be included in the search results.
Use a '-' symbol before specific words	Internet as a fundamental right -Kerala	Search generally on the topic but excludes those that mention Kerala.
Enter a period	The Diary of a Wimpy Kid Reviews 2024	Results will be limited to a specified time period.

Table 5.3 Different Ways for Effective Search

Usage Rights

Search and Find

Using the information given in Table 5.3, find the details about the Nobel Prize in Physics and Chemistry for the previous year only.

Have you understood that all information published in digital spaces cannot be used by everyone? Many of them have legal and ethical restrictions. For example, some information on the official websites of the Department of Public Education may be available only to the Headmasters. Websites and mobile apps may also have security features such as User ID, Password, OTP, etc. to share information only with selected users.

Given below is a list of information published publicly on the Internet and information restricted to specific users. Discuss with your friends and complete it (Table 5.4).

Category	General Information	Restricted information
Finance	Price details, financial packages, company's annual reports	Personal account information, credit card number, PIN, ...
Health	Information about epidemics, use of medicines, ...	Patient's medical information, ...
Education		Some official documents, personal information, ...
Social Media		

Table 5.4 General Information and Restricted Information on the Internet

See Figure 5.4. Have you seen this kind of news ?

Fig. 5.4 An Online News

The above news is about a crime under the copyright law.

However, is making a pirated version of a movie the only type of crime in such cases? Certainly not. Viewing and sharing such resources are also crime.

The usage rights of images, videos, songs, software etc., have been defined as an intellectual property rights. These rights determine who owns the content, how it can be used, and what limitations there are.

When using content from the Internet, it is essential to consider such rights. Otherwise, it may lead to legal consequences. Check if the websites you visited in previous activities have provided a warning message like the one shown in Figure 5.5.

Fig. 5.5 Copyright Indication

This is a statement indicating that all exclusive rights granted under copyright law are reserved for the creator of the content. This means that others cannot use, reproduce, or modify such works without the express permission of the owner. Some of the most common usage rights are given below.

- **Copyright** : This is the legal protection to the original creators for their work. It guarantees the owner exclusive rights to distribute, reproduce, perform, and display his work. For example: A poet has full rights to his poem. No one else can use it without his permission.

- **Copyleft** : Copyleft is a licensing approach that ensures the freedom of users to use, modify, and distribute works freely. This is a key principle of the open source movement. For example, the Ubuntu operating system used on our school laptops is released under the GNU General Public License (GPL).

- **Creative Commons License** : A license that allows creators to distribute their work in a variety of ways. This includes allowing free use and distribution, requiring attribution, and prohibiting commercial use. For example, content published on Wikipedia.

- **Fair Use** : Allows limited use of copyrighted material for educational, critical, and research purposes, subject to certain restrictions. Ex:- The practice of publishing short clips of the copyrighted movie in news related to its release.

AI Generated Image

Understanding Usage Rights

Any content found by searching on the Internet can be used only after checking its license. Major search engines provide special tools to check this.

Look at Figure 5.6. The window shown in the figure is the one that appears when you search for an image in the Google search engine and select Tools → Usage Rights.
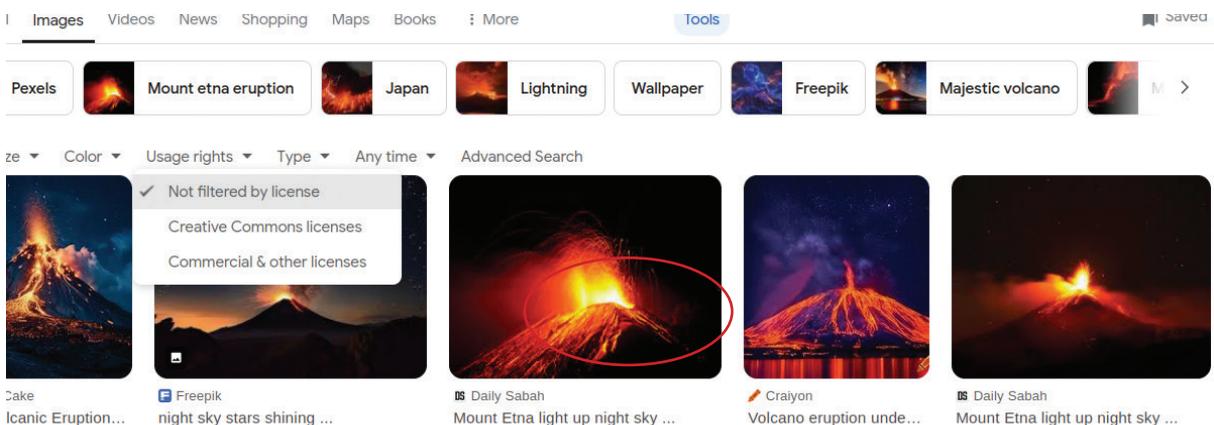

Fig. 5.6 Filtering Search Results in Google

This is the window to filter search results. Examine the difference in search results when selecting other licenses related to usage rights.

Now, search for images in different categories such as Creative Commons License Photograph, Clip art, Line drawing, etc. using search engines like DuckDuckGo, Bing, and Yahoo Search. You can use the search keywords given below.

- Satellite View of Earth
- World's Oldest Trees
- Architectural Marvels of India

Evolution of the Web

There have already been many changes in the Internet systems and the ways in which they are used. Based on this, the evolution of the Web can mainly be classified into different generations such as Web 1.0, 2.0, 3.0, and 4.0. This classification is based on technological advancements, user interaction capabilities, and the overall purpose of the Internet at each stage. Figure 5.7 shows the characteristics of each of the web evolutions.

Evolution of Web

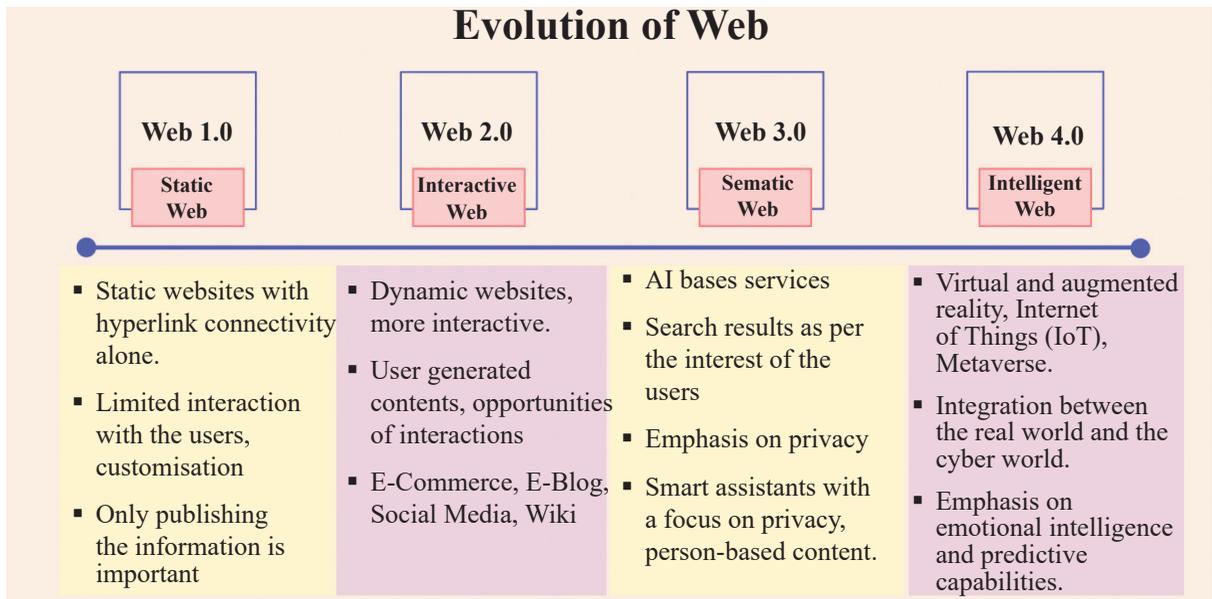| Web 1.0	Web 2.0	Web 3.0	Web 4.0
Static Web	Interactive Web	Sematic Web	Intelligent Web
- Static websites with hyperlink connectivity alone. - Limited interaction with the users, customisation - Only publishing the information is important	- Dynamic websites, more interactive. - User generated contents, opportunities of interactions - E-Commerce, E-Blog, Social Media, Wiki	- AI bases services - Search results as per the interest of the users - Emphasis on privacy - Smart assistants with a focus on privacy, person-based content.	- Virtual and augmented reality, Internet of Things (IoT), Metaverse. - Integration between the real world and the cyber world. - Emphasis on emotional intelligence and predictive capabilities.

Fig. 5.7 Evolution of Web

Mobile Network

We know that internet can be accessed using various gadgets without computers. The ability to connect to the internet using smartphones has brought about great changes in human life. Similarly, e-SIM system is now common in smart watches and laptops. The main reason for this is the growth of mobile networks. Let us examine the evolutions in the field of mobile communication given in Figure 5.8.

eSIM

eSIM is a digital SIM card built directly into a device. Unlike traditional SIM cards, it allows you to use a mobile plan from your service provider without the need for a real SIM card.
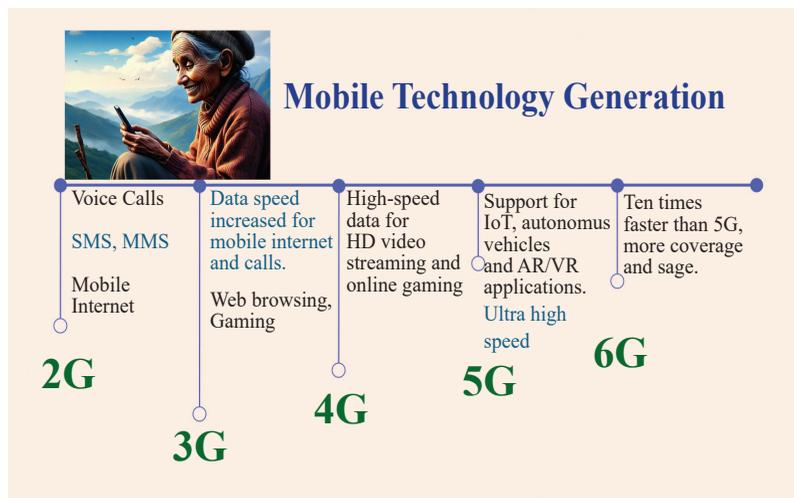

Mobile Technology Generation

Voice Calls

SMS, MMS

Mobile Internet

2G

Data speed increased for mobile internet and calls.

Web browsing, Gaming

3G

High-speed data for HD video streaming and online gaming

4G

Support for IoT, autonomus vehicles and AR/VR applications.

Ultra high speed

5G

Ten times faster than 5G, more coverage and sage.

6G

Fig. 5.8 Mobile Technology Generation

Smart Assistant

World-renowned physicist Stephen Hawking suffered from Amyotrophic Lateral Sclerosis, a disease that damages the brain and spinal cord. Due to this, he had great difficulty in walking, speaking and breathing. However, through the use of advanced technology, he could overcome them and make great contributions to physics. Search the Internet to find out about the device specially designed for him.

Information technology is being used effectively today to make life easier for people with disabilities and to showcase their abilities. Assistive tools are technological systems designed to help people, including those with disabilities, use computers, the Internet, and related devices. See Table 5.5 for some assistive tools and their uses.

Tools	Uses
Screen reader	Software that reads aloud the sentences on screen for the visually impaired. For Example – Orca, JAWS (Job Access With S[eech), NVDA (Non-Visual Desktop Access), VoiceOve (Mac)
Screen Magnifier	Software that enlarges text and images on the screen so that they can be seen more easily. Can be used by those with visual impairments. For example – Magnus, ZoomText, Windows Magnifier
Sub title tools	Systems which help hearing impaired persons. Provides captions for audio content. For example – Aegisub, YouTube Automatic Captioning, Descriptive Video Services (DVS)
Real-Time Translators and Transcribers	Translates speech or text in real time for communication. For example – Mozilla DeepSpeech, Google Translae, Otter.ai.

Table 5.5 Assistive Tools

Virtual Assistants

Smart assistants are software that works on artificial intelligence and can perform various tasks. Virtual assistants can do many things, such as set alarms, call specific numbers, run music libraries, translations, searches, provide weather information, news, etc., control home appliances according to pre-set settings. Amazon Alexa, Apple Siri, Samsung Bixby, and Google Assistant are some of the virtual assistants.

Safe Internet Use

Collect the cyber-related news from the newspapers during the last month and categorize them as given below.

- News related to new inventions in the IT sector.

- Incidents of financial loss due to careless use of the Internet.

- News about fake news on the Internet.

- News about computer viruses.

- News about the use of artificial intelligence.

- ....

Check which category of news you have collected has the most news.

Internet is a very useful system for us. However, if it is not used carefully, it can lead to great dangers. Below are some necessary precautions for the safe use of internet.

Stay Safe Online

- Use the internet only with the knowledge of parents.
- Monitor cyber news in the media.
- Use strong passwords on digital devices.
- Be careful not to overuse digital devices.
- Do not share passwords and OTPs with others.
- Do not blindly believe everything you see online.
- Use social media with utmost caution.

Discuss about more precautions to be taken for safe internet usage in class and record them in your notebook. Furthermore, organize an awareness class on the topic 'Safe Internet Usage' for parents at the school, incorporating the points you have discovered.

Let's Assess

- A licensing approach that ensures users are free to use, modify, and distribute works.

  a) Proprietary   b) Copyright
  c) Fair Use   d) Copyleft

- Which category of software does a 'screen reader' belong to?

  a) Virtual Assistant   b) Video Generation

  c) Assistive Tool   d) Web Browser

- How can you prevent someone from using a painting you created using Krita software (PNG File) as their own without permission?

  a) Provide a warning against the use.
  b) Use a licensing system
  c) Make only the project file available
  d) All of the above can be used.

Extended activities

1. Using any translator on the Internet, translate two paragraphs from this textbook into English.

2. The icons of some of the systems we use regularly in connection with the Internet are given in the table.   Complete the table with at least one use of them.

Icon	Name	Concept
@		• Part of email addresses • Used to mention the people in messengers
🔗	Hyperlink	
☁	Cloud Computing	The remote servers for collecting and processing Internet data
📶		
🙂		

❖ ❖ ❖

കുറിപ്പുകൾ

കുറിപ്പുകൾ

CONSTITUTION OF INDIA

Part IV A
FUNDAMENTAL DUTIES OF CITIZENS

ARTICLE 51 A
Fundamental Duties - It shall be the duty of every citizen of India

a) to abide by the Constitution and respect its ideals and institutions,the National Flag and the National Anthem;

(b) to cherish and follow the noble ideals which inspired our national struggle for freedom;

(c) to uphold and protect the sovereignty, unity and integrity of India;

(d) to defend the country and render national service when called upon to do so;

(e) to promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic and regional or sectional diversities; to renounce practices derogatory to the dignity of women;

(f) to value and preserve the rich heritage of our composite culture;

(g) to protect and improve the natural environment including forests, lakes, rivers, wild life and to have compassion for living creatures;

(h) to develop the scientific temper, humanism and the spirit of inquiry and reform;

(i) to safeguard public property and to abjure violence;

(j) to strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavour and achievements;

(k) who is a parent or guardian to provide opportunities for education to his child or, as the case may be, ward between age of six and fourteen years.

CHILDREN'S RIGHTS

Dear Children,

Wouldn't you like to know about your rights? Awareness about your rights will inspire and motivate you to ensure your protection and participation, thereby making social justice a reality. You may know that a commission for child rights is functioning in our state called the Kerala State Commission for Protection of Child Rights.

Let's see what your rights are:

- Right to freedom of speech and expression.

- Right to life and liberty.

- Right to maximum survival and development.

- Right to be respected and accepted regardless of caste, creed and colour.

- Right to protection and care against physical, mental and sexual abuse.

- Right to participation.

- Protection from child labour and hazardous work.

- Protection against child marriage.

- Right to know one's culture and live accordingly.

- Protection against neglect.

- Right to free and compulsory education.

- Right to learn, rest and leisure.

- Right to parental and societal care, and protection.

Major Responsibilities

- Protect school and public facilities.

- Observe punctuality in learning and activities of the school.

- Accept and respect school authorities, teachers, parents and fellow students.

- Readiness to accept and respect others regardless of caste, creed or colour.