Literacy with ICT

A Textbook for Class 6

Royal Education Council

Literacy with ICT A Textbook for Class 6

Guiding Principles

- Rationale for ICT Education
- Developmental Appropriateness
- Gross National Happiness Values
- Effective Pedagogy
- 21st Century Skills
- Life long learning

KNOWLEDGE SOCIETY

- Technology Operations and Concepts
- Communication and Collaboration
- Computational Thinking
- Digital Citizenship

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Literacy with ICT

A Textbook for Class VI

Royal Education Council
Paro

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A Textbook for Class VI

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Royal Education Council
Paro : Bhutan

28 September 2016

Foreword

Over the years, Information and Communication Technology (ICT) has greatly impacted all aspects of our lives. With the emerging new technologies, the world has become more connected and information more digital, greatly influencing the way people learn, live, work and communicate. Learning in and for the 21st century requires today's students to be discriminating users of information, creative problem solvers, skilled creators of knowledge, and effective communicators. Literacy with ICT is increasingly becoming an essential skill to participate productively in the 21st century knowledge society, in addition to the conventional literacy of reading, writing, and numeracy.

The existing ICT curriculum in schools was introduced in 2002 to equip students with knowledge and skills relevant for the world of work then. The needs have, however, changed over the years but the curriculum has not been able to maintain pace with the change, especially in the area of emergent and immersive technologies such as social media.

The development of new ICT curriculum has been in progress since 2014 to address the curricular gaps mentioned above. Drawing ideas and inspiration from various international educational technology standards and best practices, the ICT Curriculum Framework for Classes IV to XII was developed in 2014. Based on the framework, the writing of textbooks from classes IV to XII was initiated from 2015.

The approach adopted in the new textbooks is a departure from procedure-oriented teaching and learning. The textbooks are designed with emphasis on "competencies" – being able to "do" than "know", thinking critically, being analytical, solving problems and creating knowledge by sharing and communicating with each other.

I am hopeful that the new curriculum will pave the way forward in our continuous strive to understanding the risks of the digital world as well as its opportunities to achieving the promises of technology to transform learning and living.

(Kinga Dakpa)
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INTRODUCTION

The present society is characterised by its focus on information its creation, dissemination and utilization. It lays emphasis on knowledge to drive economy by fostering innovation and entrepreneurship. Information and Communications Technology (ICT) plays an important role in making the needed information and knowledge easily accessible. ICT has become an important enabling tool to create and share information in this 21st century society.

Increasingly, children will be exposed to ICT in their daily lives. Education also must move forward to bring essential ICT skills to classrooms so that children can participate effectively in knowledge society.

ICT education has moved from ICT literacy to literacy with ICT, from "demonstrating ICT skills to choosing, using and sharing ICT, responsibly and ethically, to support critical and creative thinking about information and about communication across the curriculum" (Literacy with ICT Across the Curriculum, 2006). This shift does not belittle the importance of ICT literacy. It still is an integral foundation of literacy with ICT.

Literacy with ICT provides our children with the skills and knowledge they need to take part in inquiry in knowledge society. Children learn to discern information critically, produce knowledge creatively, and collaborate with others. Being able to produce information is not enough. Using ICT responsibly and safely is a vital attribute of a good 'digital citizen' in the 21st century.

Although literacy with ICT will be taught as a separate subject, the emphasis is on applying the skills across the curriculum. Where possible, attempts have been made to integrate topics from other subjects to provide authentic learning to children.

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USING THE TEXTBOOK

Each chapter starts with learning objectives to inform both students and teachers of content they are going to deal with. Student activities are interspersed in the chapter for students to link prior knowledge and skills with new content, or to practise new skills after teacher demonstrations. Activities are of two types: **Try This on Machine**, which requires use of computer, and simply **Try This**, which generally involves individual or group work without the use of computers.

The main learning points covered in the chapter are summed up in **Now You Know**. The **Check Your Progress** at the end of chapter checks for the student's general understanding of knowledge and skills covered. Activities are mostly straight forward. There are another type of student exercises listed under **Explore Further** towards the end of the chapter. These exercises are designed to extend the knowledge and skills beyond what students learned in the chapter. Often the exercises are set in context of the content from other subjects to promote authentic, interdisciplinary learning. The idea is to use ICT as an enabling tool to explore learning across the curriculum.

Some secondary information related to the topic are shown in boxes as **Do You Know?**, **Caution** and **Tips** boxes are used to inform students of risks, and words of advice or useful information. Where there is a need to inform the teacher of preparation required, a **Teacher's Note** callout is provided in each chapter. There is also a section of web links given at the end of each chapter for teachers to check out on the chapter topics.

Finally, there is the **End of Year Activity** which is similar to Explore Further exercise except that it requires children to apply the key skills they acquired over the year. Teachers may choose to create their own activity, modelled on the sample activity included in the book.

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The book is so designed that it can be covered in one year, with one class per week.

The table given below is an overview of the concepts, skills and values covered in each chapter.

Chapter	Knowledge	Skills	Values	Weeks
1. Hardware and File Management	- Internal hardware of computer - File and folder management	- Organizing files using folders and sub-folders - Navigating in computer, and managing files and folders	- Systematic organization of files and folders	3
2. Advanced MS Word	- Cell, row, column and table - Header and footer - Objects (clip art, WordArt, shape, picture) and special characters - Text wrap - Document protection	- Organizing and formatting information in a table - Creating and editing header and footer - Inserting and formatting text - Flowing text around objects - Setting password to a document	- Visual organization and presentation of information - Security of a document	5
3. Connect and Collaborate	- Network and its usefulness - Internet - Structure of web address - Online collaboration	- Using Google Classroom	- Collaborating on a project using Google Classroom	4
4. Communicate with Email	- Email - Compose, reply, forward and delete email - Email etiquette	- Using Gmail to communicate and manage emails	- Following correct etiquette while drafting an email	4

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Chapter	Knowledge	Skills	Values	Weeks
5. Computer and Health	- Pain and strain resulting from poor computer ergonomics - Correct postures	- Practising correct postures and good habits	- Following correct postures - Following good habits and practices	2
6. Searching on the Internet	- Types of search (keyword, phrase, Boolean) - Online citation	- Using different search strategies - Citing online source of information	- Acknowledging other people's ideas and works	3
7. Interaction in Scratch	- Control blocks - Events blocks - Coordinates - Operator blocks - Sensing blocks - Algorithm	- Using Events blocks to communicate between Sprites - Using Sensing blocks to interact with the user - Using coordinates to move Sprites precisely - Using Operator blocks to perform mathematical calculations - Writing a good algorithm	- Using algorithm to solve a complex problem and to make program efficient	6

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TABLE OF CONTENT

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1 HARDWARE AND FILE MANAGEMENT

In this Chapter

Learning Objectives

1. Identify internal hardware components of the computer.
2. Describe the functions of internal hardware components.
3. Use folders to organize files in computer.

1.1 Internal Hardware

In class five, we have learned about the external computer components such as monitor, mouse, keyboard, printer, scanner, and projector. We have also learned that the CPU is a component located inside the System Unit. In addition to the CPU, there are many other components inside the System Unit. These components found inside the System Unit are called **internal hardware** or **internal components**. We will look at some of the internal components of a computer (Figure 1.1).

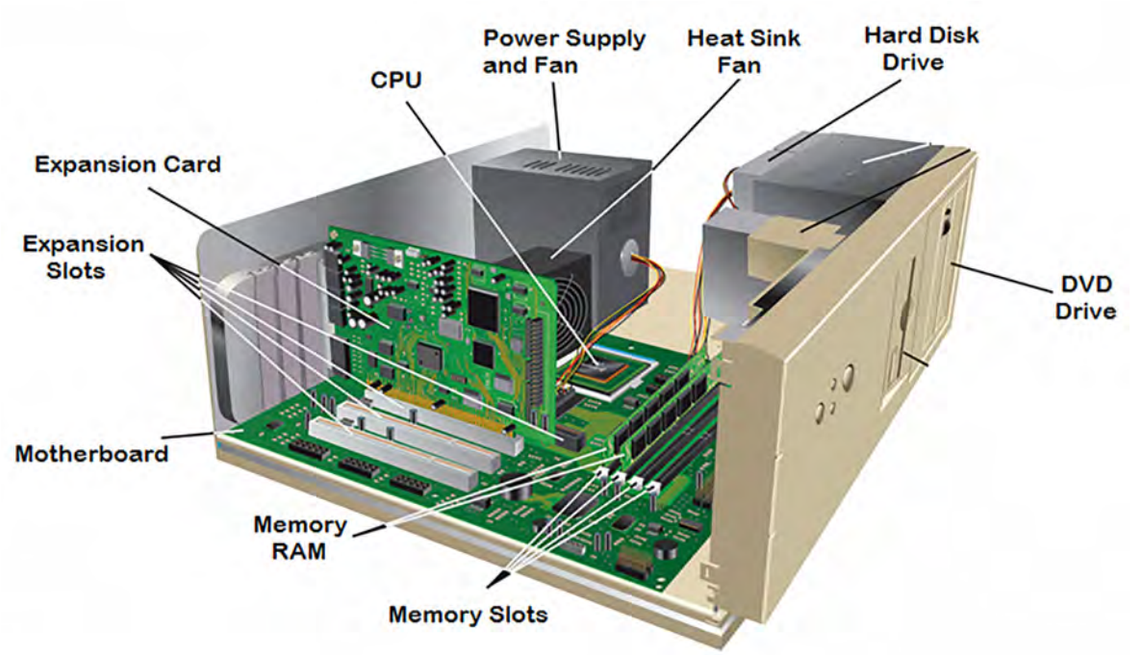


Figure 1.1. Internal hardware components

Motherboard

Motherboard is the main circuit board to which all other components are connected. It allows all the parts of the computer to communicate with each other. CPU, hard disk, heat sink, power supply, and memory are connected to the motherboard as shown in Figure 1.2.

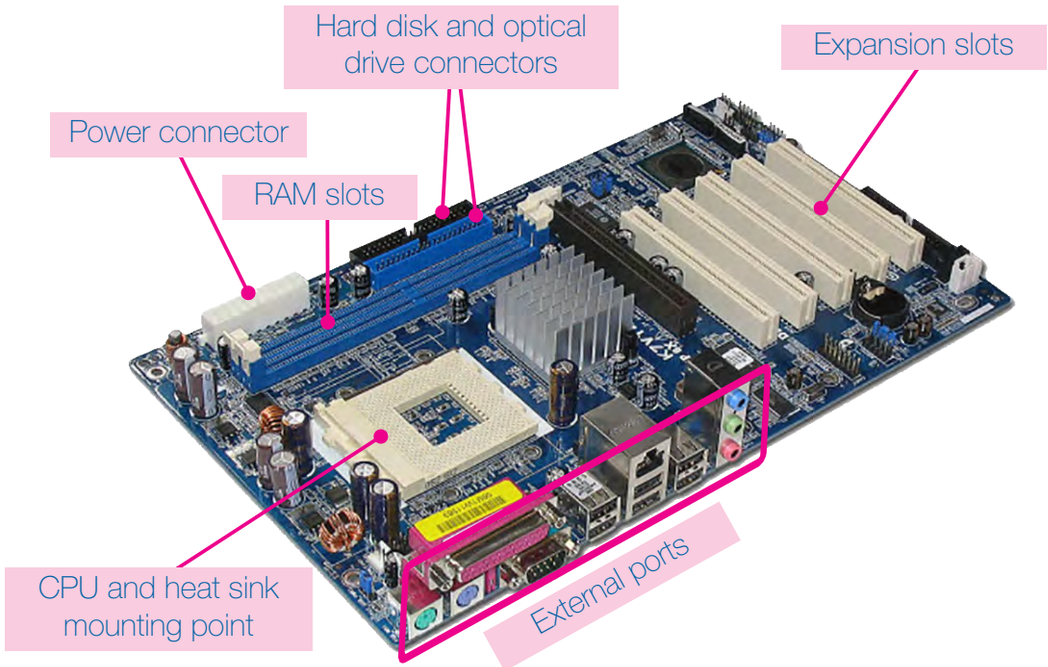


Figure 1.2. Motherboard

CPU (Central Processing Unit)

CPU, also called processor, is a piece of hardware in a computer which performs calculations or carries out all instructions. Therefore, it is considered as the brain of the computer. The faster the CPU completes the calculations or instructions, the better it is. CPU has three main parts: Arithmetic Logic Unit (ALU), Memory Unit and Control Unit as shown in Figure 1.3.

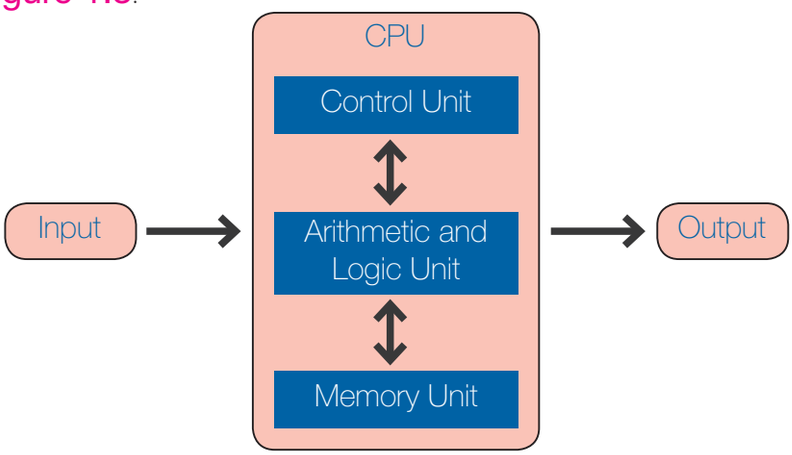


Figure 1.3. Parts of CPU

Some common CPUs are Intel Core i3, Intel Core i5, Intel Core i7, AMD Athlon and AMD Opteron.

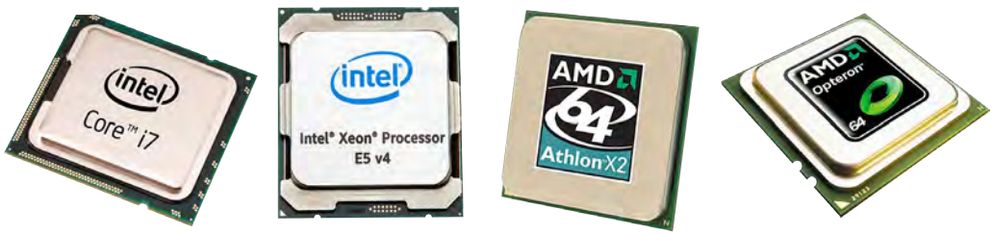


Figure 1.4. Central Processing Unit

Heat Sink

The heat sink (Figure 1.5) is a cooling device that prevents the CPU from getting too hot. Overheating damages the processor. A fan is also commonly attached to the heat sink to remove the heat fast.

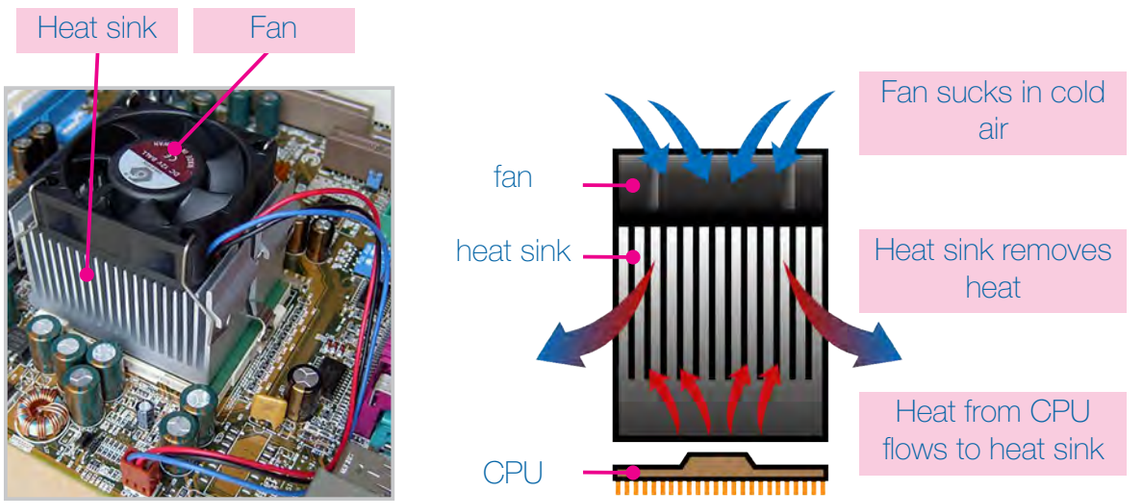


Figure 1.5. Heat sink

SMPS

Switched Mode Power Supply (SMPS) shown in Figure 1.6 is the power supply unit for a computer. It converts and distributes required power to various parts of a computer. It has fans that remove the heat produced by SMPS.

Figure 1.6. SMPS

Memory

Memory (Figure 1.7) stores data and instructions on which computer is currently working. It has limited capacity and data is lost when power is switched off. It is also called primary memory, main memory, system memory or Random Access Memory (RAM).

Figure 1.7. RAM

Hard Disk Drive (HDD)

Hard disk drive (Figure 1.8) is the main storage device of the computer. In short, it is also referred to as hard drive or hard disk. The computer operating system, software and files are all stored in it. It stores information even when its power source is turned off. Computers can have one or more hard disk drives.

(Top view) (Bottom view)

Figure 1.8. Hard disk drive

Optical Disk Drive (ODD)

An optical disk drive or optical disk (Figure 1.9) is any storage device that uses light to read and write information. Common optical disk drives are CD, DVD, and Blu-ray drives.

Figure 1.9. Optical disk drive

Expansion Slots

Expansion slot (Figure 1.10) is a connection point on the motherboard where additional components like sound card, video card, network card and modem can be added to increase the usefulness of the computer. Nowadays, these components are built in the motherboard.

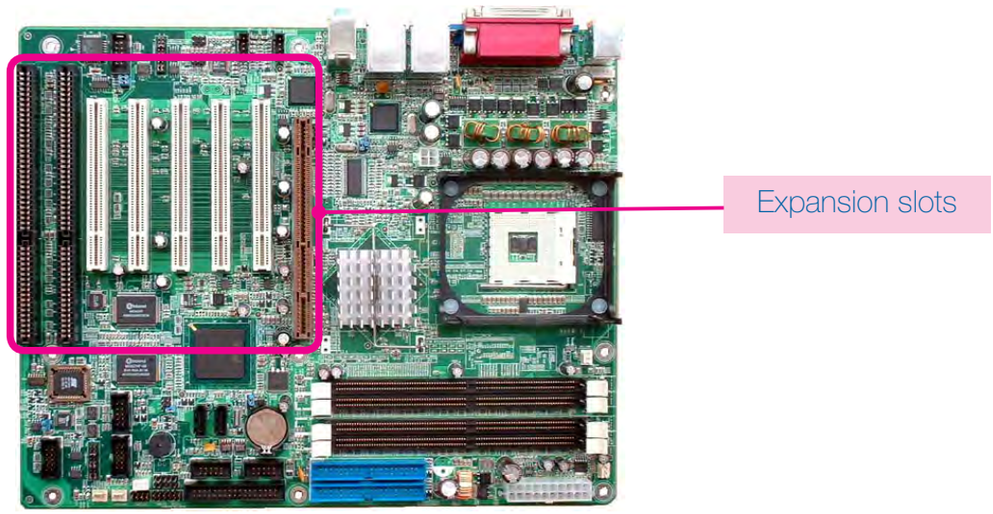


Figure 1.10. Types of expansion slots

Try This

1. Name the device for each of the functions given below:
   (a) All internal and external components are connected to it.
   (b) It performs all types of processing.
   (c) It prevents the processor from getting overheated.
   (d) It controls and distributes current to different parts of computer.
   (e) It holds data and program on which we are currently working on.
   (f) It allows adding more components to the motherboard.

1.2 File Management

We know computer can store many files. It is important for us to organize files in the computer so that we can easily find them. Organizing files involves naming and arranging files and folders. This is called as **file management**. In a computer, files and folders are organized in the form of a tree diagram similar to one shown in Figure 1.11.

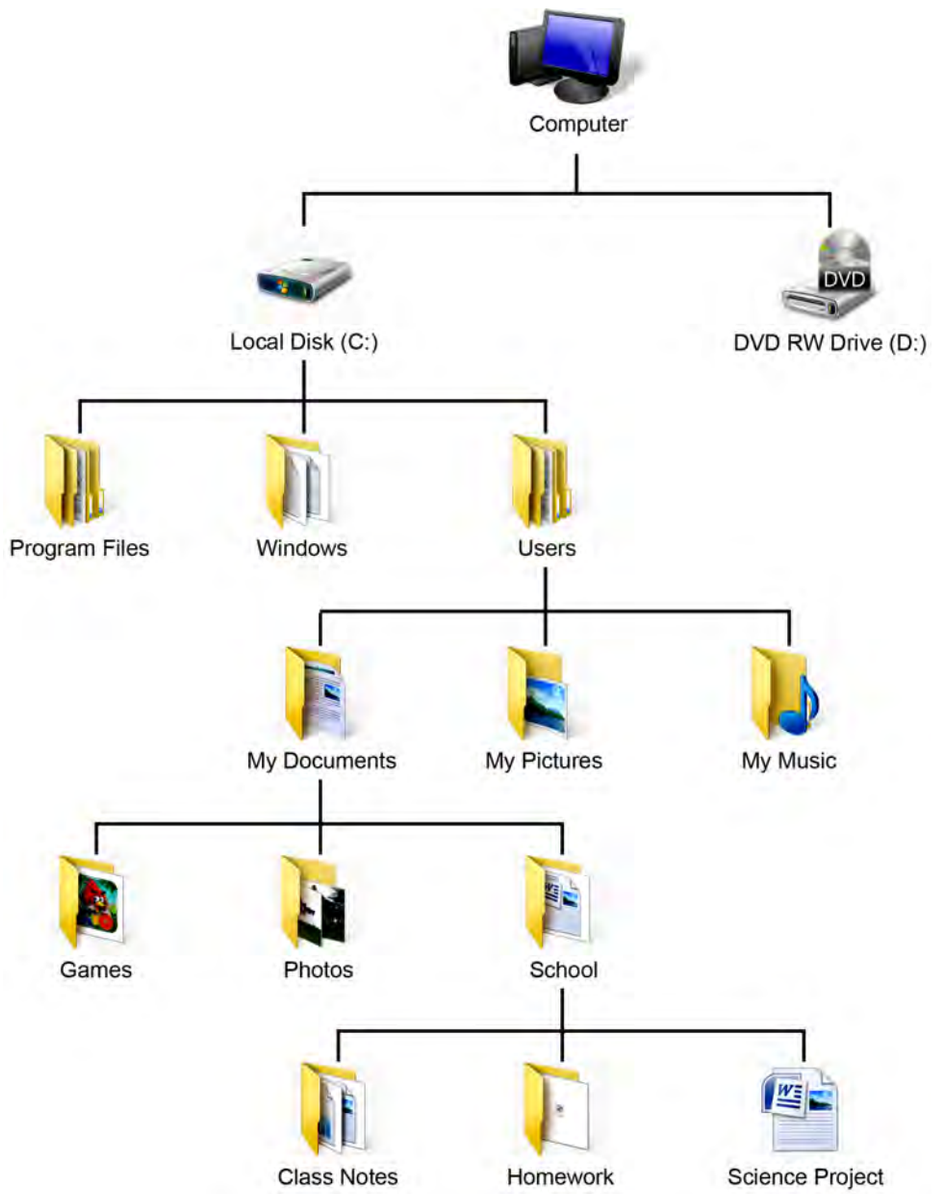


Figure 1.11. Tree diagram of files and folder organization

So how do we organize our files? Given below are some ways to do it.

1. Use subfolders

Create necessary subfolders to organize files. Example of a good use of subfolders would be having Notes and Question Paper folders in Schools folder as shown in Figure 1.12.

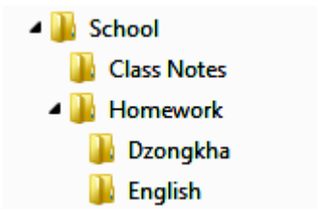


Figure 1.12. Folders and subfolders

However, it is a good practice to avoid creating many subfolders because it can be tiring to open folder after folder to locate your file.

2. Organize files and folders by category

It is a good practice to keep related files in appropriately named folders such as an example shown in Figure 1.12.

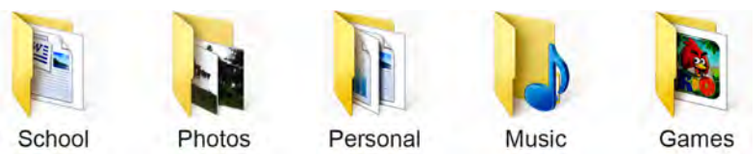


Figure 1.13. Organizing folders by category

3. Use meaningful names for files and folders

Names of the files and folders should be brief and appropriate so that it is clear what it contains.

4. Remove unwanted files and folders

Files and folders that are not required should be deleted to free hard disk space.

1.3 Windows Explorer

Windows Explorer is a tool that helps you to navigate in computer and manage files and folders easily. We can open Windows Explorer using any one of the following ways:

- Start > All Programs > Accessories > Windows Explorer
- Right click on Start button and choose Open Windows Explorer
- Use keyboard shortcut Windows key + E

A. Parts of Windows Explorer

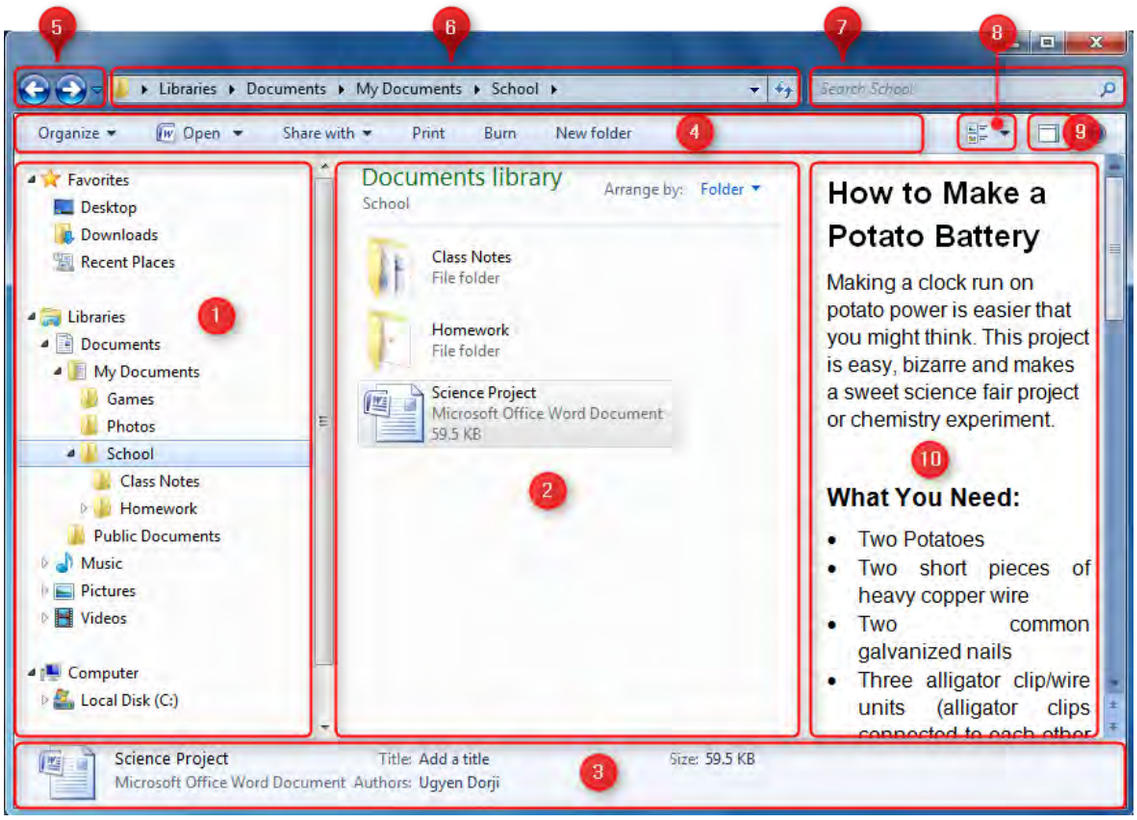


Figure 1.14. Windows Explorer

❶ Navigation Pane

Used to access folders, libraries, hard disks and different location on computer.

❷ Content Pane

Display files and folders within the location selected from Navigation pane.

❸ Details Pane

Shows number of folders in selected location and to see the most common properties of the selected file. Properties include file name, creation date, and size of file.

❹ Toolbar/Command Bar

Used to perform a variety of tasks related to managing and organizing the files on your computer. For example, you can use the toolbar to cut, copy and paste files.

❺ Back and Forward Button

Navigate to other folders or libraries you've already opened without closing the current window.

❻ Address Bar

Displays your current location as a series of links separated by arrows.

❼ Search Pane

Used to search files and folders on computer.

❽ View Options

Options to change the view settings for the files and folders, and how folder contents are displayed.

❾ Preview Button

Used to either show or hide the Preview pane.

❿ Preview Pane

Displays the content of the file selected from the Content pane.

B. Navigating within Windows Explorer

1. To View a Folder

Click on the folder in the Navigation pane. All the files and folders inside the selected folder will appear in the Content pane.

You can also view the contents of a folder in Navigation pane by clicking on the wedge. Click on the white wedge ▷ before a folder to expand the view and see all the subfolders as shown in Figure 1.15. The contents are displayed in the Navigation pane itself.

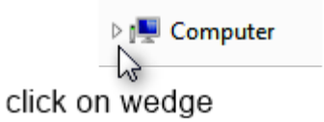


Figure 1.15. Expanding a folder in Navigation pane

Once expanded, the wedge will turn black. Click on it to collapse the view and hide all the subfolders.

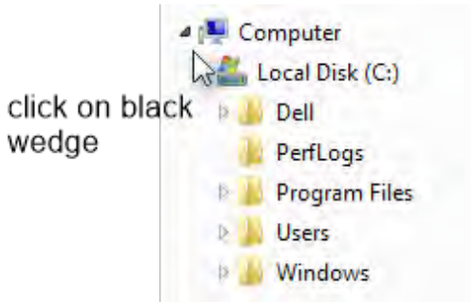


Figure 1.16. Collapsing a folder in Navigation pane.

2. To Find a File or a Folder

1. Open the Windows Explorer.
2. Click on Documents
   Look for the required files and folders from the Content pane.
   OR
   Type the name of a file or folder in the search box
   

   and press the Enter key.

3. To Create a Folder

1. Open the Windows Explorer.
2. Select the folder from the Navigation pane.
3. Click New Folder on the toolbar

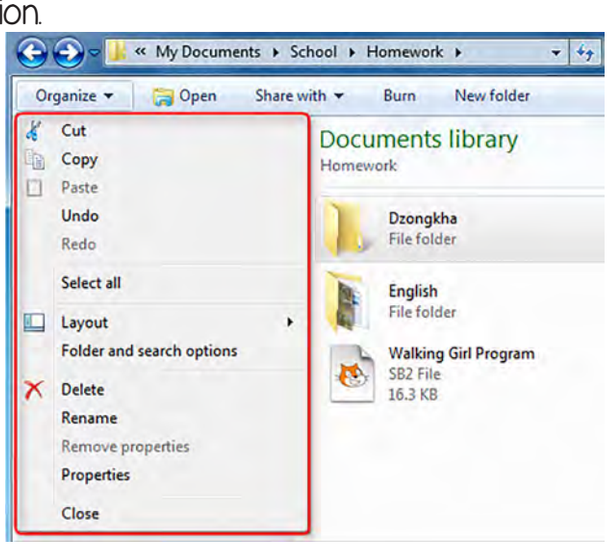
4. To Copy and Paste a File or Folder, or Move a File or Folder

1. Open Windows Explorer.
2. Select files or folders you want to copy or move.

Tips

- Click the first file, press and hold SHIFT key, and click the last file. All the files in between will be automatically selected.
- Click the first file, press and hold CTRL key, and click another file to randomly select the files.

Click on Organize on the toolbar (Figure 1.17) and choose the required option.



Keyboard Shortcuts

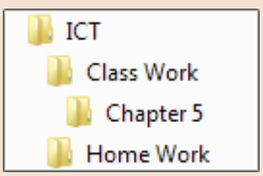
Use Ctrl + C to copy and Ctrl + V to paste the selected files and folders.

Figure 1.17. Copying or moving folder from Windows Explorer

Try This On Machine

1. With Dzongkhag as main folder, group and organize the following into folders and subfolders.
   Education, Health, Forestry, Agriculture, Mushroom Centre, Aids, Books, Tuberculosis, Firewood , Cancer, Teachers, Dairy Farm, Tree

2. Using Windows Explorer, create a folder called ICT and create two subfolders Class Work and Home Work in it. Add a subfolder called Chapter 5 in the Class Work folder.



   (a) Create a blank text file My Funny Story in Class Work folder. Copy the file to Home Work folder.

   (b) Rename the copied file to My School. Open and type this text:

   My school name is Zangtherpo PS. It is in Bumthang Dzongkhag. I love my school because it is beautiful and near Kurje Lhakhang. Save and close the file.

   (c) Using search box, find all your files or folders whose names start with letter m.

   (d) Delete the file My Funny Story.

   (e) Search for all files and folders whose names contain the word school.

   (f) From the Recycle Bin, try and restore the file My Funny Story to its original folder.

Now You Know

1. CPU, motherboard, hard disk, memory, and SMPS are the internal hardware components.
2. Motherboard connects all the hardware in a computer system.
3. CPU consists of Arithmetic Logic Unit (ALU), Memory Unit and Control Unit.
4. RAM is a temporary memory.
5. Data processing in the computer is done by the CPU.
6. Heat sink cools the processor and SMPS fan cools the SMPS.
7. Organizing files and folders helps to find files easily.
8. Windows Explorer helps us navigate through the content, and work with files and folders in an easy manner.
9. Files can be organized by categorizing them into appropriate folders and subfolders.
10. Name of the files and folders should be brief and meaningful.

Check Your Progress

1. State True or False for the following:

   (a) We should not use folders to manage files.

   (b) SMPS removes the heat generated by the CPU.

   (c) Your deleted files go to Recycle Bin before permanently deleting from your computer.

   (d) A folder can contain another folder in it.

   (e) Keeping related files in one folder is the correct way to organize them.

   (f) Hard disk is the primary memory of the computer.

2. What are the main parts of CPU?
3. There is a component inside the system unit that connects all other components of the computer. What is it called?
4. Which part processes commands given to the computer?
5. Why does a computer need memory?
6. Explain the importance of heat sink.
7. Solve the crossword puzzle using the clues given below.

ACROSS

3 All other components are connected to it.

5 Temporary space to store files.

7 It supplies power to all components inside the computer.

8 It is used to remove heat from CPU (2 words).

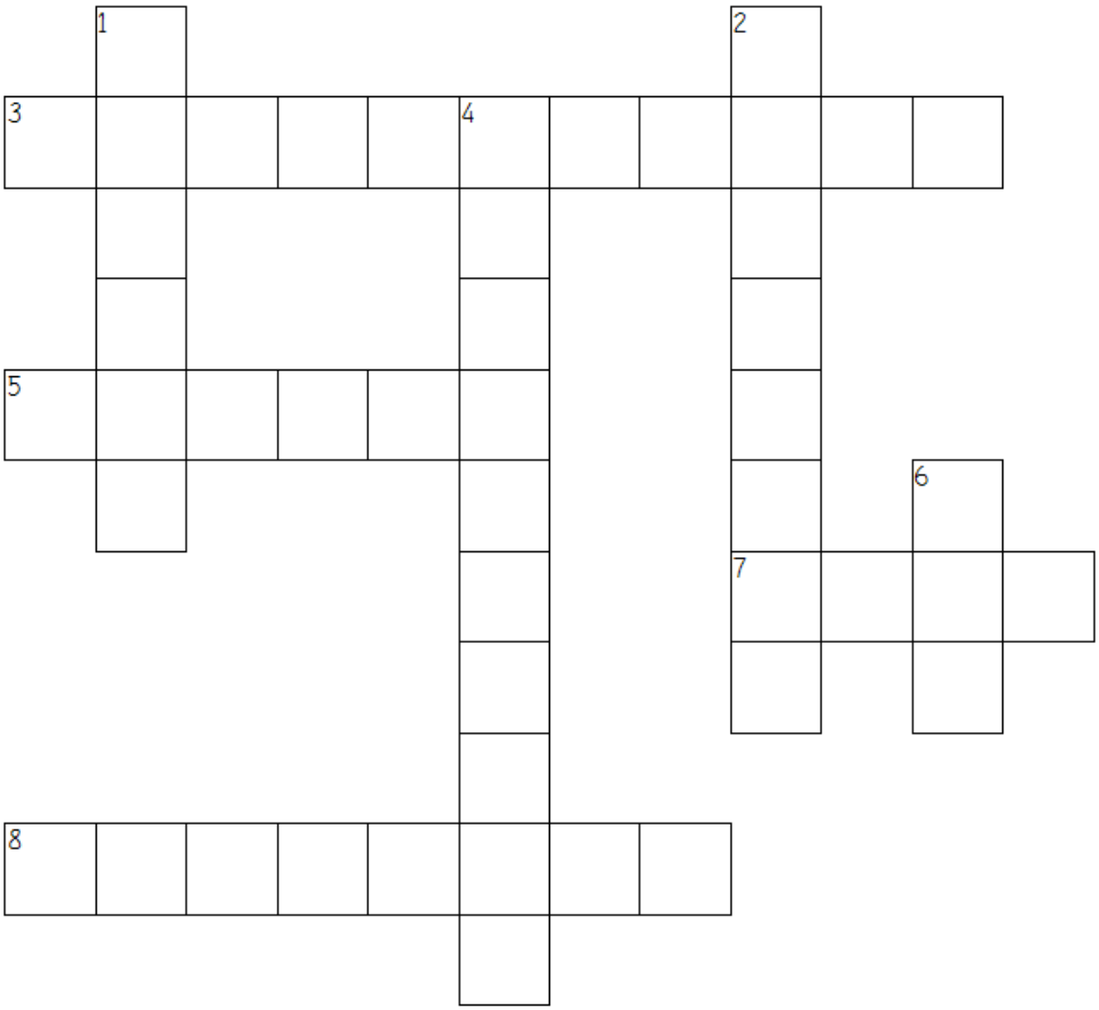
DOWN

1 A group of related files are placed in here.

2 Data stays here even when power is turned off (2 words).

4 Deleted files are go there (2 words).

6 The brain of the computer.



Explore Further

Request your teacher/parents to open the system unit of a computer. Identify the components that have been discussed in this chapter. There are many other components which you would like to find out. Find out and write down the names and functions of various other parts.

Caution

- Do not open the system unit on your own. There is danger of electric shock. Always switch off and disconnect the power supply to the computer.
- Do not touch the internal components. They may get damaged from static electricity.

Web Links

1. **Motherboard**
   - http://www.learning-about-computers.com/tutorials/motherboards.shtml
2. **System unit and its components**
   - http://www.slideshare.net/adpafit/system-unit-its-components-15286379?next_slideshow=1
3. **Primary memory**
   - http://www.computerhope.com/issues/ch001361.htm
4. **Components of system unit**
   - http://www.slideshare.net/chrisgreeny/system-unit-components-6610171?next_slideshow=3
5. **Hardware and file management**
   - http://www.helsinki.fi/tvt-ajokortti/ICT-Driving-Licence_UH_EN_2014-09-30.pdf

2 ADVANCED MS WORD

In this Chapter

Learning Objectives

1. Use tables in a document.
2. Format objects in a document.
3. Insert header and footer.
4. Protect document with a password.

2.1 Inserting Objects

You have learned to type and format text in MS Word in class five. But you can do more in Word. We can also add objects like Tables, Pictures, WordArt, Clip Art, Shapes and Symbols in the document. Let us learn to add and format these objects. All of these objects can be found under Insert tab in Word as shown in Figure 2.1.

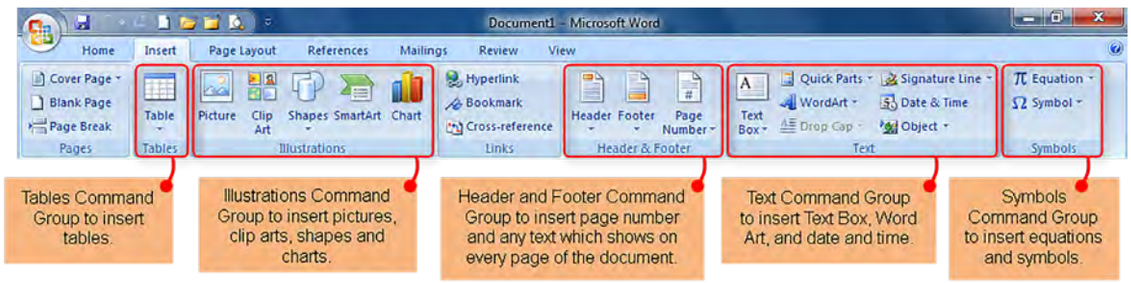


Figure 2.1. Insert Ribbon

2.2 Tables

A table consists of rows and columns. It is used to organize and present text, numbers and graphics in an easy to read manner. Each box is called a cell where we enter the information. The table shown in Figure 2.2 consists of 4 rows and 3 columns.

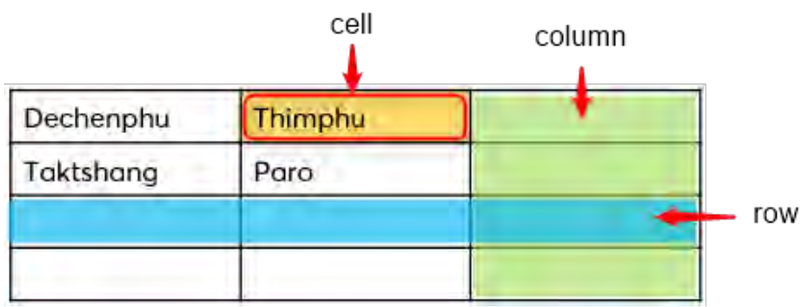


Figure 2.2. An empty table

A. Inserting Table

1. Position the cursor in the document where you want to insert a table.

2. Go to Insert tab > Table > Insert Table (Figure 2.3).

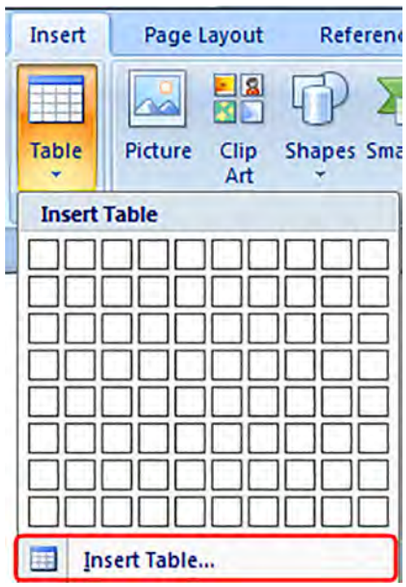


Figure 2.3. Inserting table

3. Under Table size, enter the number of columns and rows required as shown in Figure 2.4.

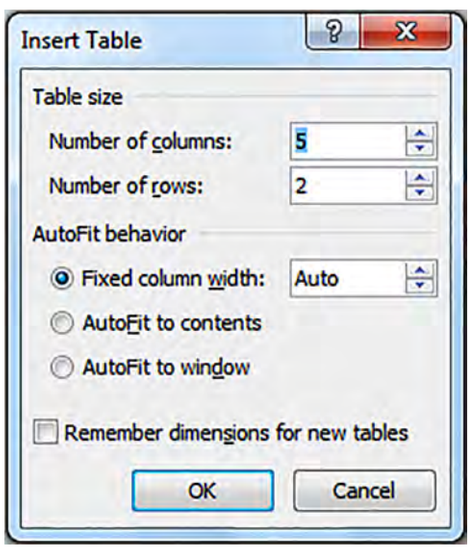


Figure 2.4. Setting number of columns and rows for a table

4. Click OK.

B. Adding a Row or a Column

You can add a row or a column anywhere in the table.

1. Position your cursor in the table.
2. Go to Layout tab
3. Add a row or a column from the options as shown in Figure 2.5.

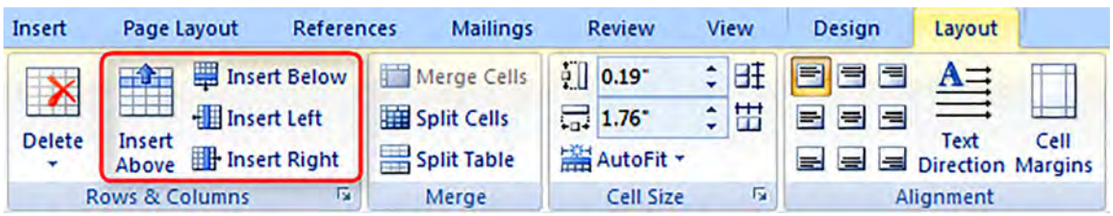


Figure 2.5. Adding rows and columns

Tips

- You can also add a row by clicking outside the last cell of any row and pressing the ENTER key.
- Right click on the cell > Insert > Insert Rows Above or Insert Rows Below
- Right click on the cell > Insert > Insert Columns to the Right or Insert Columns to the Left

C. Deleting a Cell, a Row or a Column

1. Position your cursor in a cell
2. Click on Layout tab
3. Click Delete and pick your option to delete cell, column or row as shown Figure 2.6.

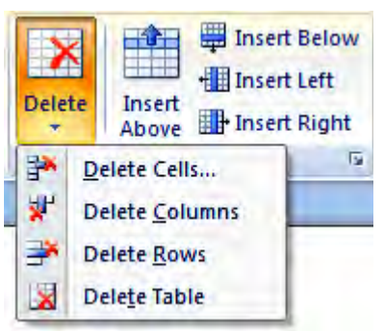


Figure 2.6. Deleting cell, row or column

D. Merging Cells

Merging cells refers to joining two or more cells in a table into one cell. This is usually done to create common heading to rows or columns.

1. Select all the cells that you want to merge.
2. Go to Layout tab > Merge Cells.

E. Splitting a Cell

Splitting cell refers to converting a single cell into two or more cells.

1. Click in a cell or select multiple cells that you want to split
2. Click Layout tab > Split cells.
3. Specify the number of columns or rows you want in the Split Cells dialog box (Figure 2.7).

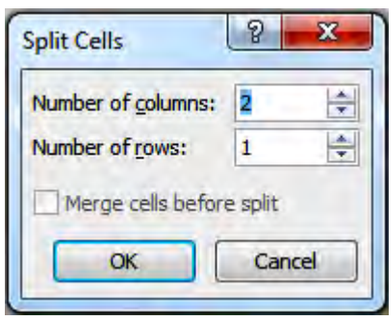


Figure 2.7. Splitting cells

4. Click OK.

F. Text Alignment and Direction

There are different ways to align text within a cell. You can align text horizontally towards left, centre or right of the cell. You can align it vertically towards top, centre or bottom of the cell. You can also change text direction within the selected cell.

1. Select the cell where you want to change text alignment or direction.
2. Click on Layout tab
3. Click on one of the options in text alignment to align text as required, or click on Text Direction button change the direction of text as shown in Figure 2.8.

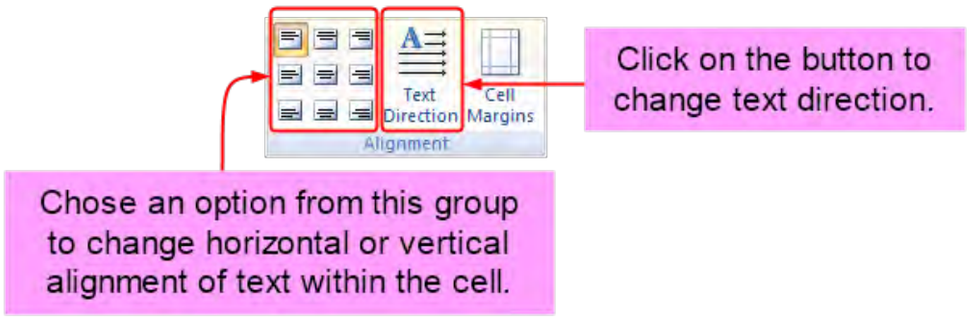


Figure 2.8. Text alignment

G. Applying Table Styles

Table Styles contain a set of tables which are already formatted with different colours, shadings, and borders.

1. Click anywhere within the table.
2. Click on Design tab.
3. Choose one of the styles from the list as shown in Figure 2.9.

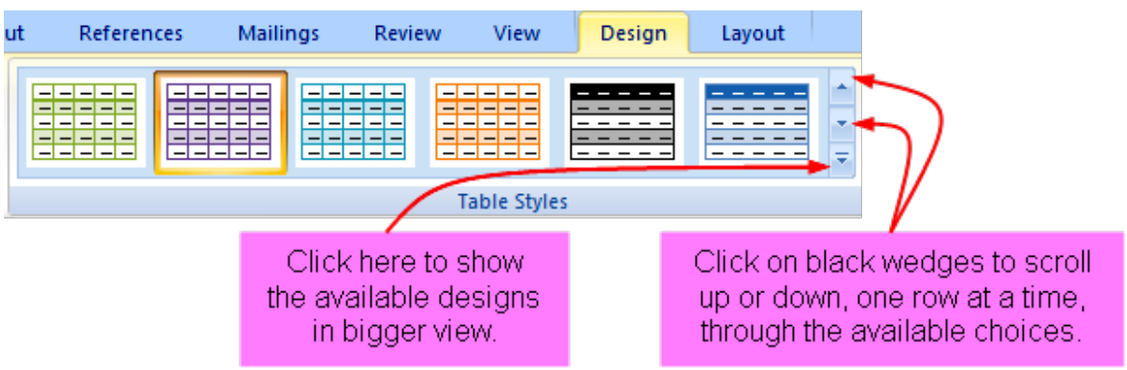
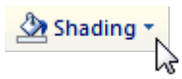


Figure 2.9. Table styles

H. Table Shading

1. Select the cells where you want to apply shading.
2. Click Design tab
3. Click on the black wedge ▼ of 

button
4. Pick a fill colour of your choice.

I. Applying Border

1. Select the cells where you want to apply border.
2. Click on Design tab.
3. Click on the black wedge ▼ of 

button and choose Borders and Shading from the list.
4. Choose the required options as shown in Figure 2.10.

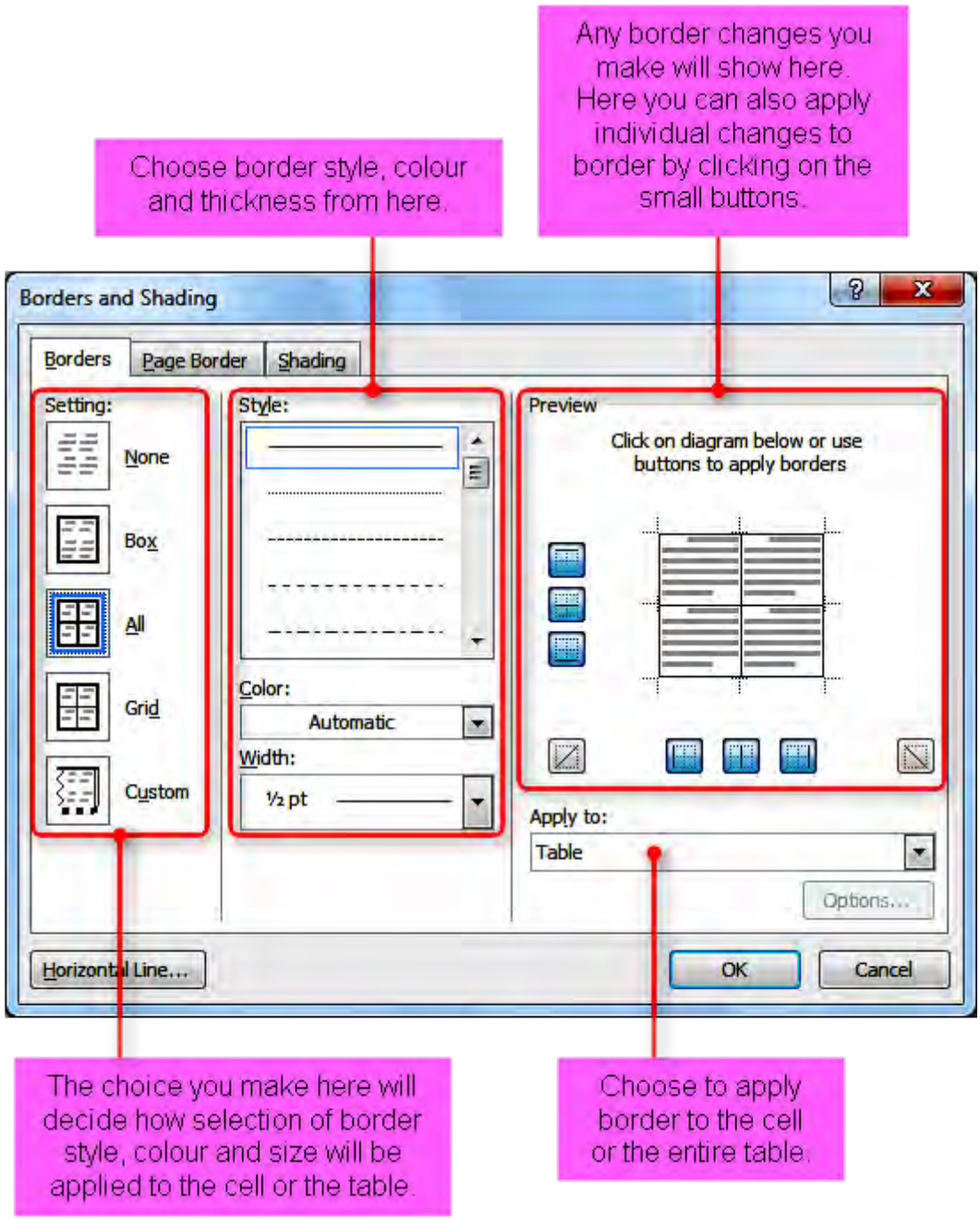


Figure 2.10. Applying Borders and Shading

Try This On Machine

Create and format a table similar to the one given below. Note the border colours, text alignment, and shading applied to the table. Save the it as ClassTimetable.

Class VI Timetable								
DAYS	**PERIODS**							
	I	**II**	**III**		**IV**	**V**	**VI**	**VII**
Monday				INTERVAL		LUNCH		
Tuesday								
Wednesday								
Thursday								
Friday								
Saturday								

2.3 Header and Footer

Header is the area in the top margin of each page in a document, and footer is the area in the bottom margin of each page in a document.

Any content placed in header or footer will show up in all the pages. For example, you can add school logo and school name in the header, and page number, time and date, file name, or author's name in the footer. You can also change the contents placed in the header or the footer of a document..

A. Insert Header or Footer

Follow steps below to insert a header or footer in your document.

1. Click on the Insert tab
2. Click the Header to insert a header or click on Footer to insert footer.
3. Choose one of the design styles from the options (Figure 2.11).

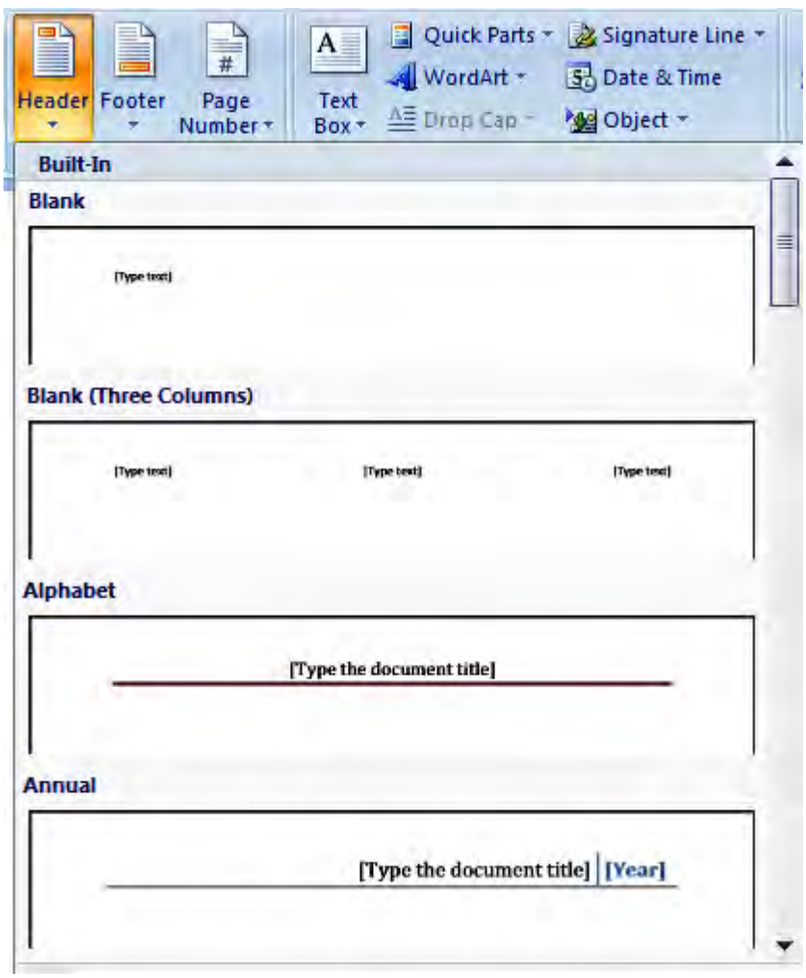


Figure 2.11. Inserting Header and Footer

4. Add required text or images in the header or the footer.

B. Edit Header and Footer Contents

The contents of the header and the footer can be edited at any time by following the steps below:

1. Go to Insert tab > Header > Edit Header to edit header content.
   Go to Insert tab > Footer > Edit Footer to edit footer content.
2. Start editing the contents when you see the cursor in the header or the footer as shown in Figure 2.12.

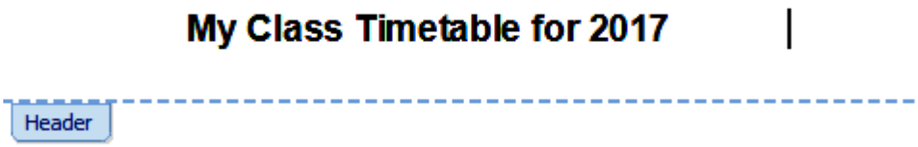
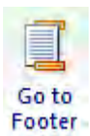
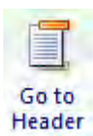


Figure 2.12. Editing Header and Footer

While editing, you can easily switch between header and footer by going to Design tab > Go to Footer 

or Go to Header 

option.

Click 

to go back to the main document after editing the header and footer contents.

Tips

- Double click on the header or footer area to insert or edit header and footer.
- Double click on the main document to exit header or footer.

C. Remove Header or Footer contents

Header and footer contents can be removed at any time by going to Insert tab > Header or Footer > Remove Header or Remove Footer.

D. Insert Page Number

1. Click on Insert tab.
2. Click Page Number under Header & Footer group (Figure 2.13).

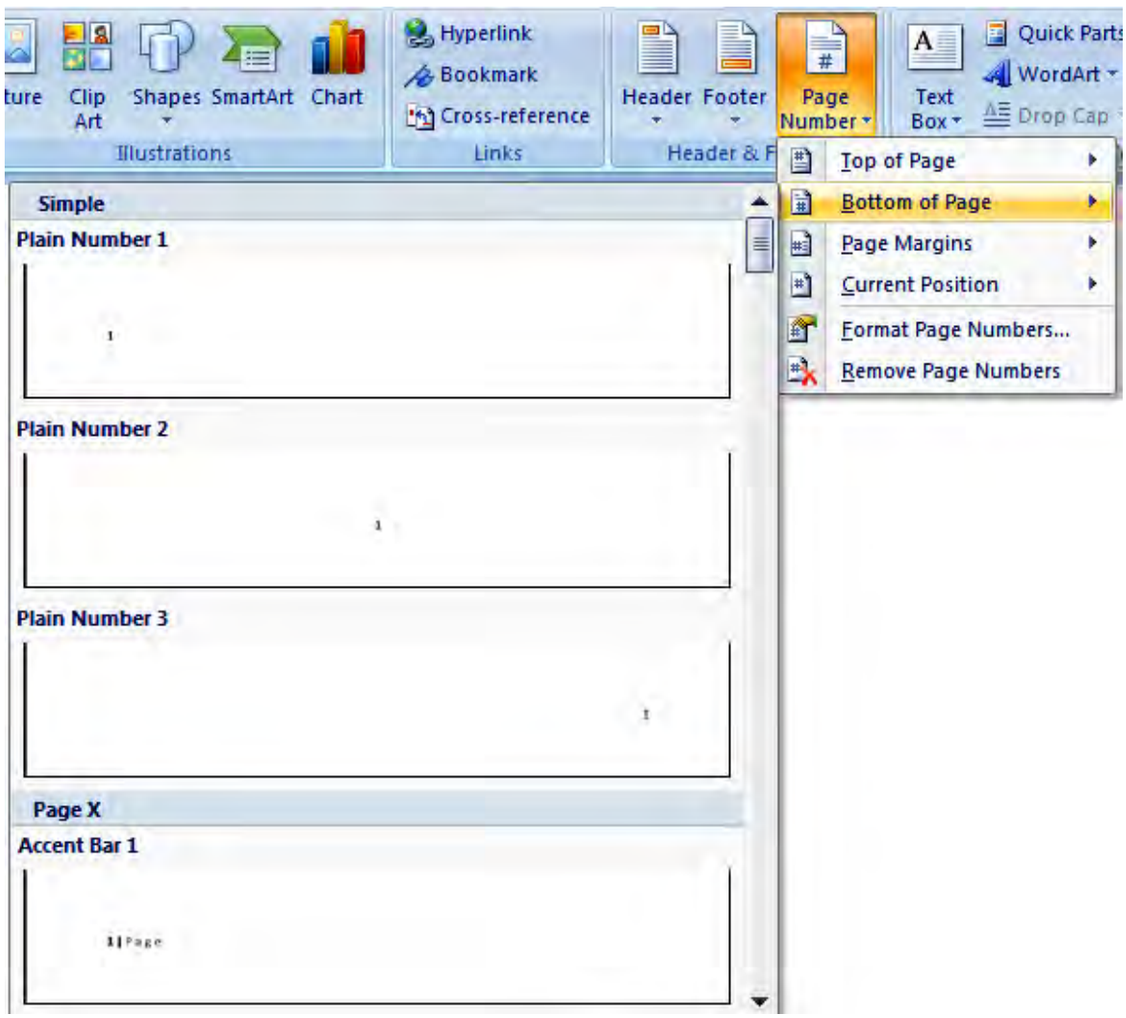


Figure 2.13. Inserting page number

3. Choose an option on how you want to place the page number in the document.
4. Choose a design from the available gallery of designs. Page number appears in the document.
5. Exit from Header or Footer.

Try This on Machine

Open ClassTimetable that you have saved earlier in this chapter. Add your name in the header of the document. Right align the text in the header. Select a built-in footer design with a page number.

2.4 Inserting Pictures

Picture generates interest among readers and can help make information clearer. You can easily add picture from your computer or your thumb drive to your document as shown below:

1. Click on Insert tab > Picture
2. Locate your picture from the Windows Explorer (Figure 2.14)
3. Click on Insert button

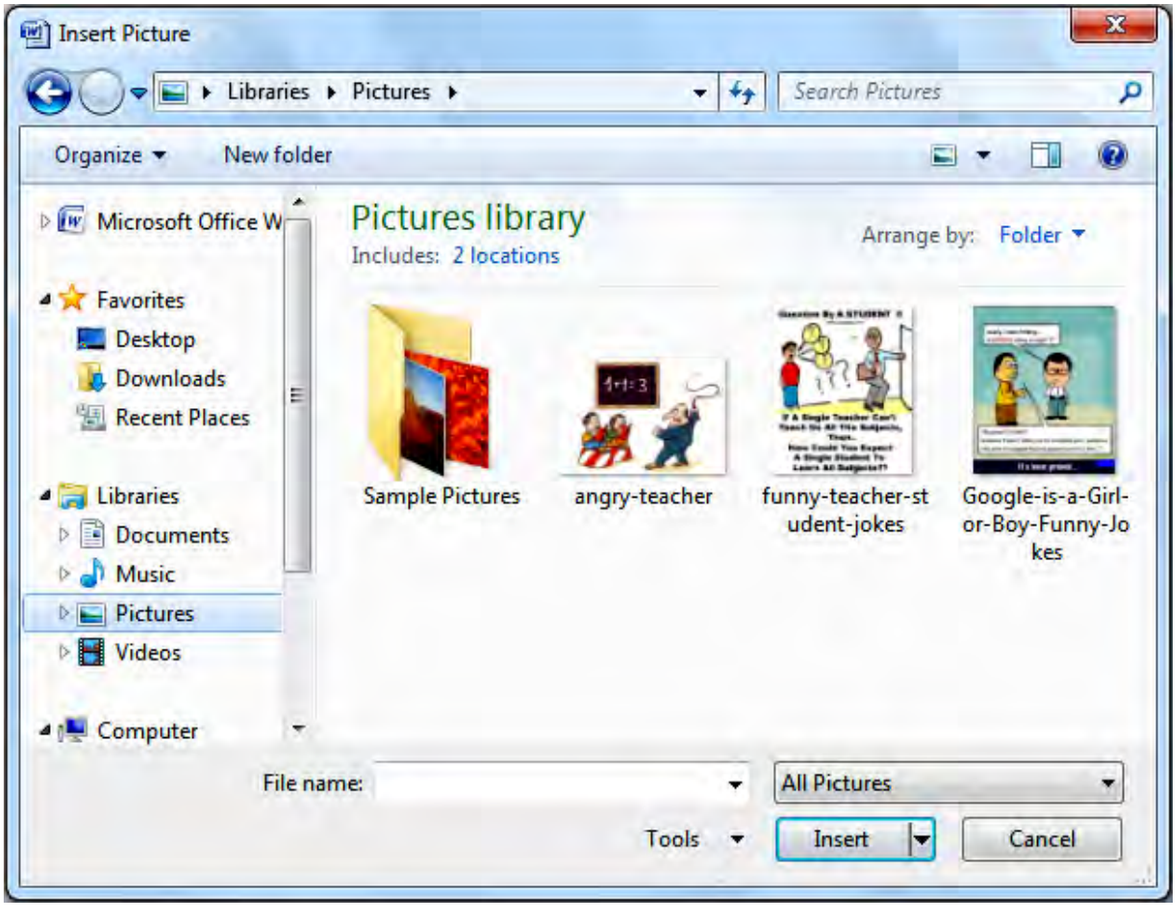


Figure 2.14. Inserting Picture

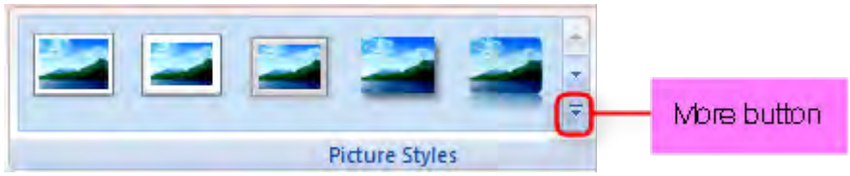
E. Formatting Picture

Now you know how to add picture, let us look at how to format it. Formatting picture in Word includes applying visual effects, cropping, arranging and resizing.

1. Applying Style

❶ Select the picture

2. Click on Format tab > More button from Picture Styles group



3. Select the style that you want to apply from the list (Figure 2.15).

Figure 2.15 Applying Picture Styles

2. Applying Border

Follow the steps below to add border to a picture, change border colour and thickness.

1. Select the picture.
2. Click on Format tab > 

3. Select colour, thickness and style of border that you want to apply to your picture.

3. Cropping a Picture

Cropping is used to trim or cut the sides of a picture. This is useful when we want to use only a portion of the picture.

1. Select a picture
2. Click on Format tab > Crop 

button
3. Use the cropping handles as shown in Figure 2.16 to adjust the picture.

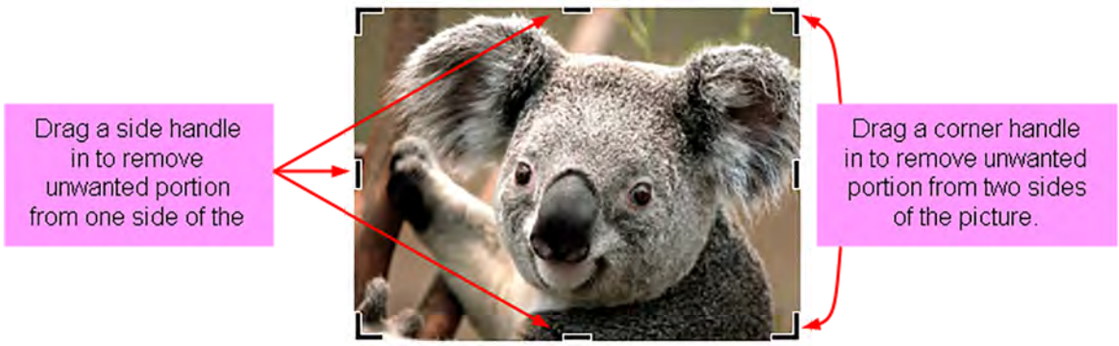
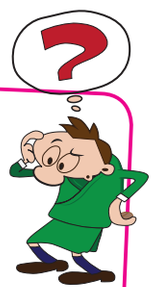


Figure 2.16. Cropping picture

Do You Know?

Cropping does not permanently remove the cropped part of the picture. They are only hidden. The hidden part can be viewed again by dragging the cropping handles outward from the picture.



4. Resizing and Rotating a Picture

1. Select the image. Rotating and sizing handles appear as shown in Figure 2.17.

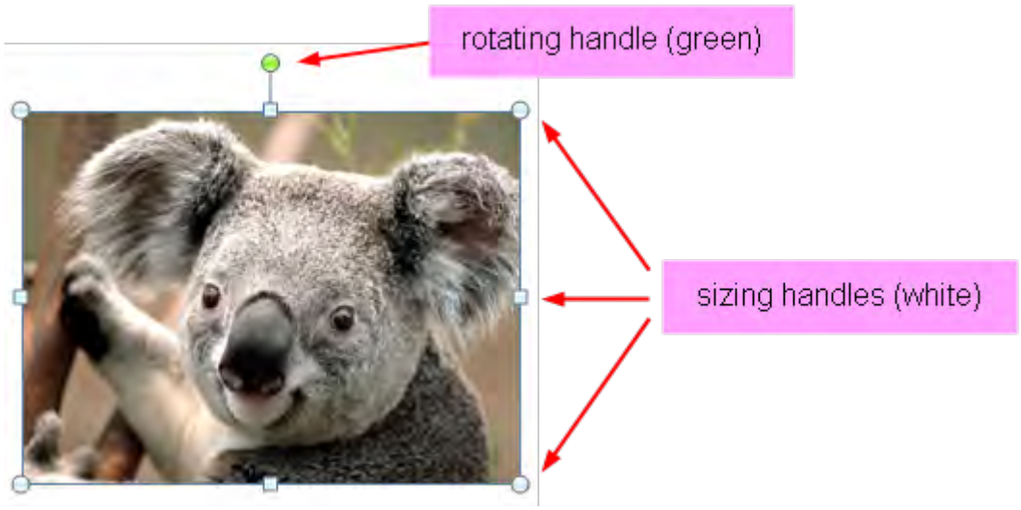


Figure 2.17. Resizing a picture

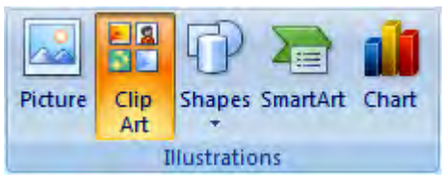
2. Hover the mouse pointer over any sizing handle. When the mouse pointer changes to double-sided arrow, click and drag the handle inward or outward to resize.
   Grab the rotating handle and turn clockwise or anticlockwise to rotate the picture.

Try This on Machine

1. Insert a picture.
2. Change the style to Beveled Oval Black.
3. Apply yellow border to the picture with its width 3 pt.
4. Crop the picture.
5. Change its height to 3.5".
6. Add a relevant header and footer.
7. Save your file as Picture.

2.5 Inserting Clip Art

Clip art is a ready-made art or image you can be used in the content.



1. Click on Insert tab > Clip Art button Clip Art options appear in the task pane on the right of the document and follow the steps given in Figure 2.18.

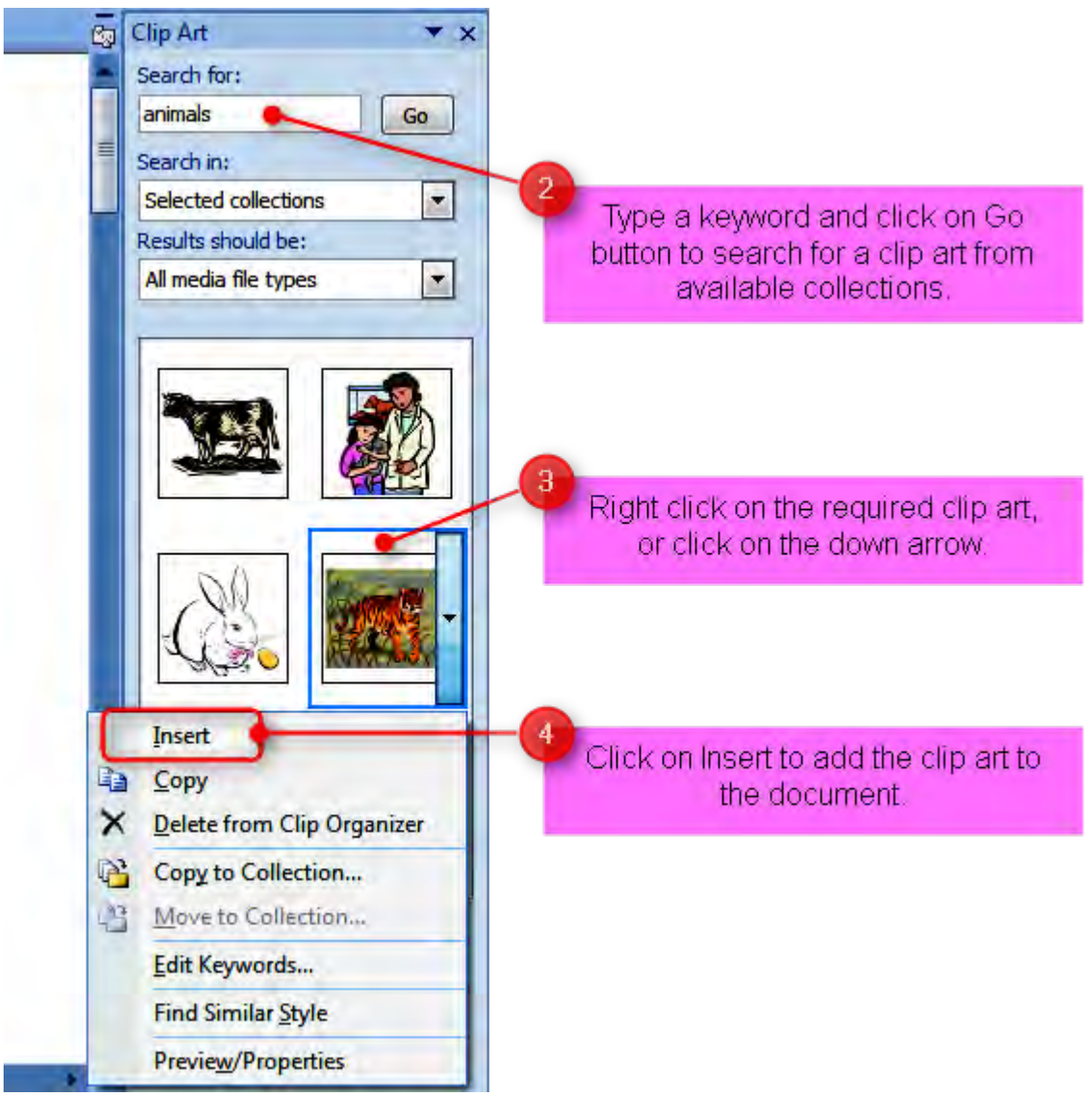


Figure 2.18. Clip Art options

2.6 Inserting WordArt

WordArt is a decorative text that can be added to a document.

❶ Click on Insert tab > WordArt button

Next, choose a WordArt design from the gallery that appears and insert it in the document as shown below (Figure 2.19).

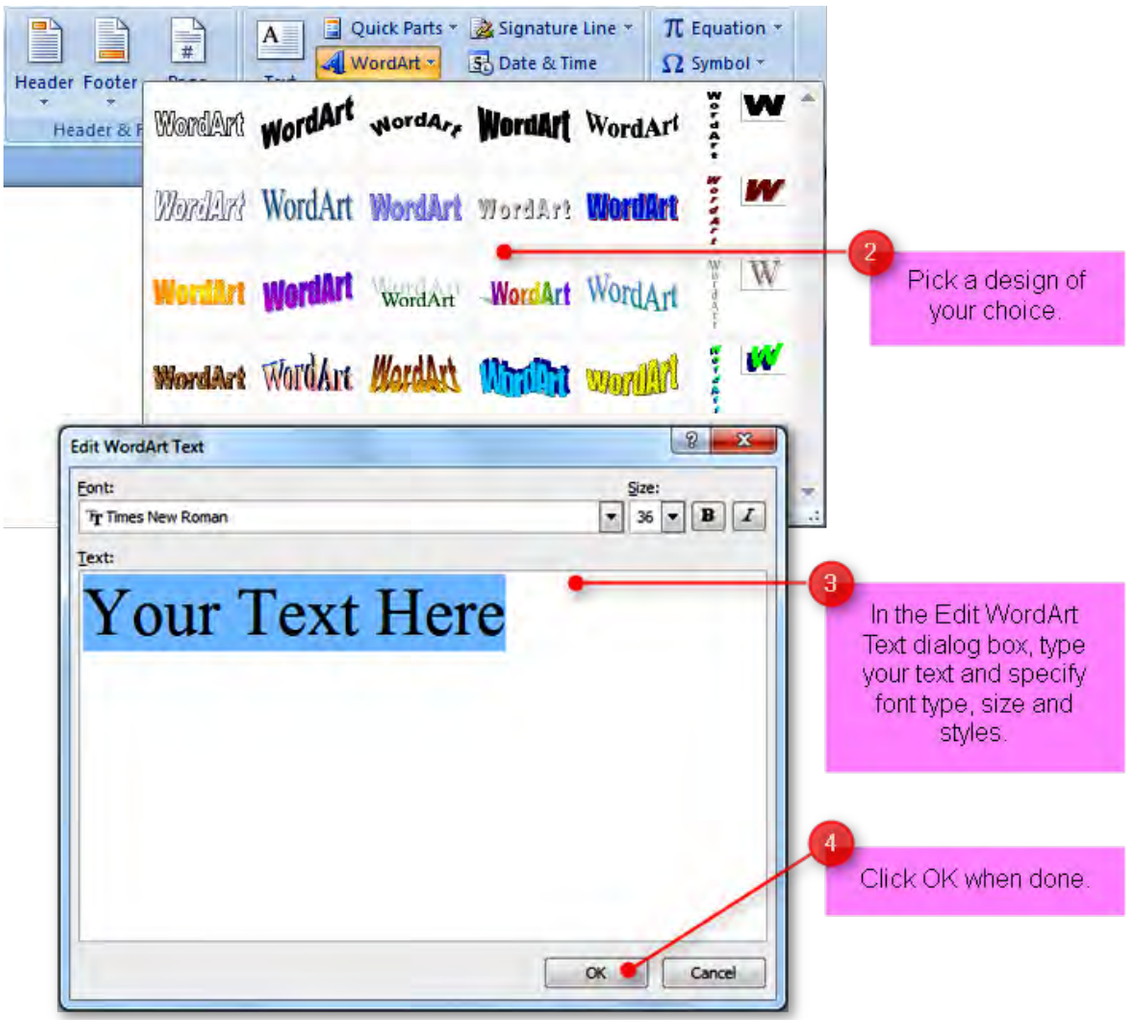


Figure 2.19. Inserting WordArt

A. Formatting WordArt

1. Changing Text

1. Select the WordArt you want to edit.
2. Click on Format tab > Edit Text button 

3. Make changes to the text.

2. Changing the Style

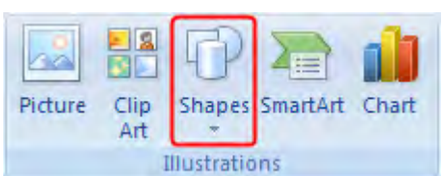
1. Select the WordArt.
2. Click on Format Tab > Click on More button

3. Select a style that you want to apply from the list.

2.7 Inserting Shapes

Word comes with a collection of shapes which can be used to draw lines, boxes, arrows, callouts, stars and other shapes.

1. Click on Insert tab > Shapes button to show a list of different shapes.



2. Select the required shape. The mouse pointer will now change to + shape.
3. Drag the pointer in the document to draw the selected shape.

A. Adding Text to Shapes

Sometimes, we may want to add text to the shapes. Follow the steps below to easily add text (Figure 2.20).

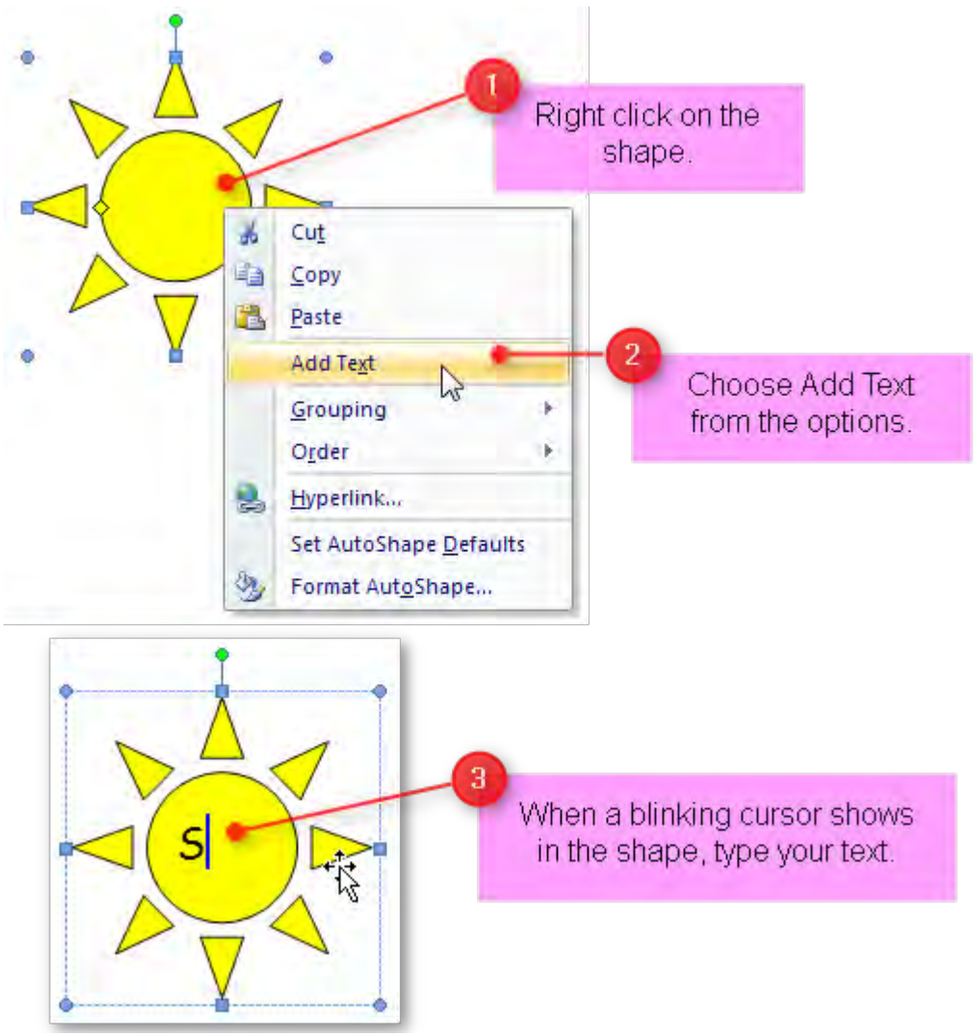
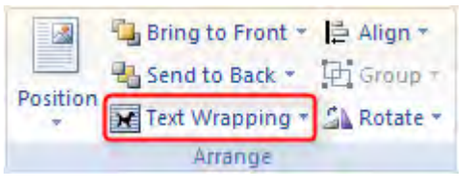


Figure 2. 20. Adding text to the shape

B. Text Wrapping

Text wrapping is a feature that enables surrounding text to move around a picture, a diagram or an object.

1. Select the picture or object.
2. Click on Format tab > Text Wrapping button



3. Select a wrapping option (Figure 2.21) that you want to apply from the list.

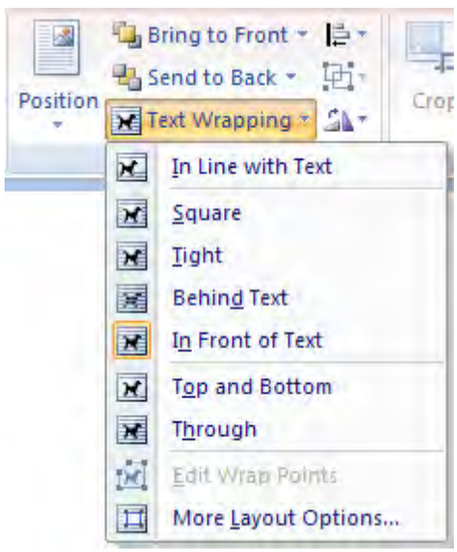


Figure 2.21. Text Wrapping options

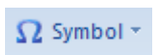
With In Line with Text option, the picture aligns with the surrounding text and moves along as you edit the text. With other text wrapping options, the picture floats freely from the surrounding text. The picture does not move along within the same paragraph.

Tips

The default wrapping option for picture, clip art, Word Art and chart is In Line With Text, and for shapes, it is In Front of Text.

2.8 Inserting Symbols

A sign, mark, letter or figure that is used to represent something. For example, % represents percentage, $ for dollar, © for copyright and ☺ for happy.

1. Click on Insert tab > Symbol button 

> More Symbols...

2. Next, pick a symbol from the Symbol dialog box that appears and insert it as shown below (Figure 2.22).

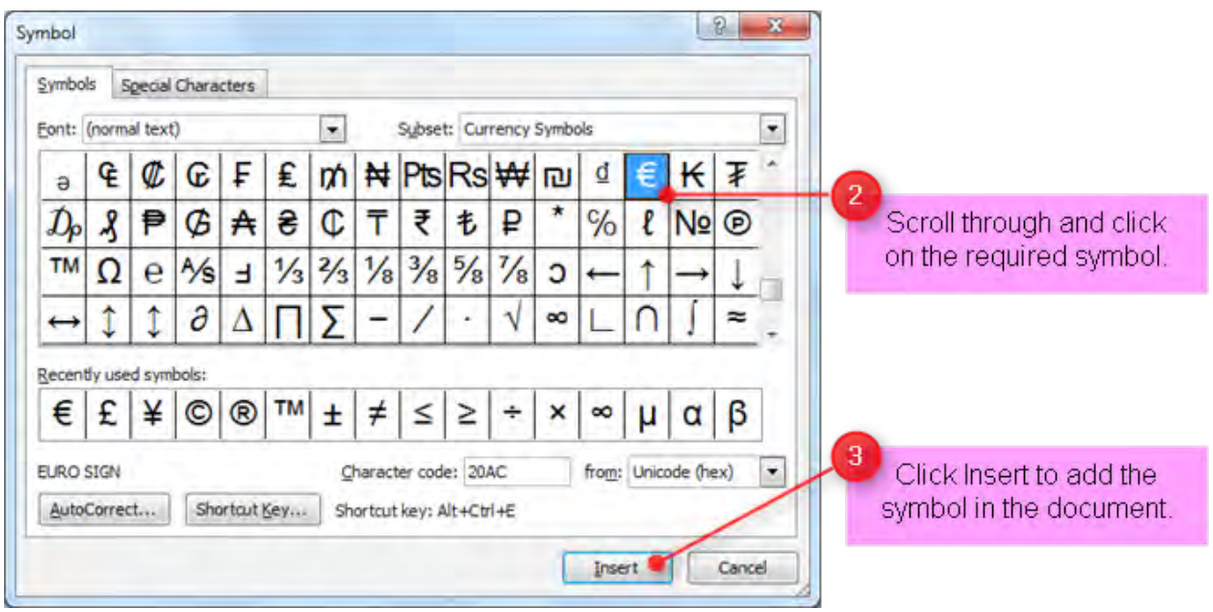


Figure 2.22. Inserting symbols

Try This on Machine

1. Using clip arts, shapes and pictures, create a simple comic strip of conversation between you and your friend. An example is given in Figure 2.23 to help you get started. Save the document as My Comic Strip.

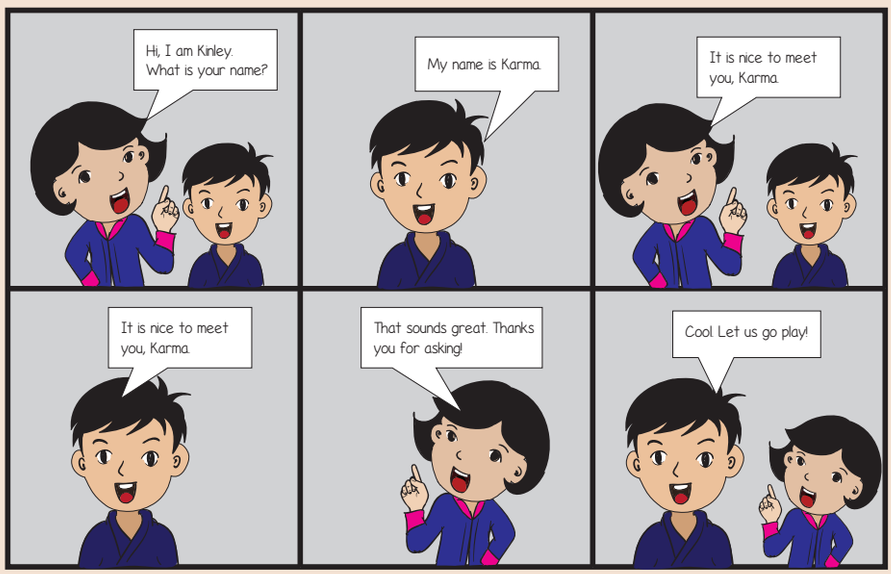


Figure 2.23. Example of comic strip of conversation

2. Create a table containing symbols as shown below: Choose Wingdings font when inserting the symbols.

👍	Thumbs up
☸	Khorlo
✂	Scissors
☠	Danger
✓	Tick
❿	Ten
🖱	Mouse
☺	Happy

2.9 Protecting Document with Password

We can use a password to prevent other people from opening our Word document. In this part, you will learn how to set and remove password for a Word document.

A. Setting Password

Open a Word document and follow the steps given below.

❶ Click the Office button > Prepare > Encrypt Document (Figure 2.24).

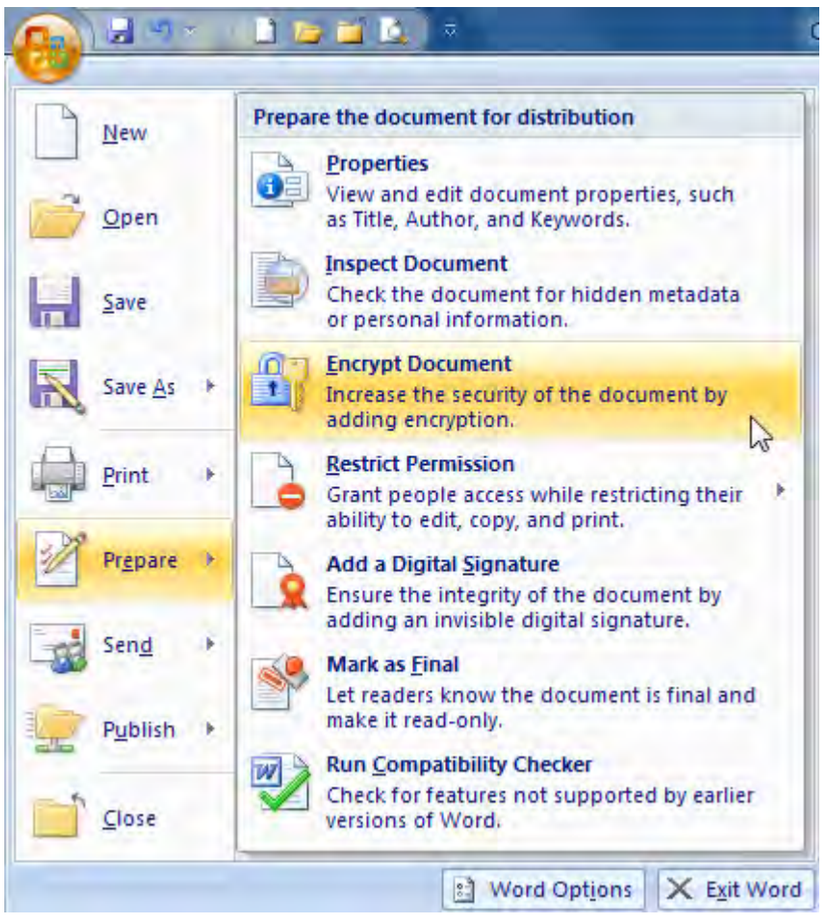


Figure 2.24. Setting password

2. Type a password in the Encrypt Document dialog and click OK. Your password is shown as a set of black dots to prevent other people from reading your password easily.
3. In the Confirm Password dialog box, type the password again and click OK.
4. Save the file. Now you will be required to type your password every time you open your document.

Tips

It is always good to use a password which is not easy to guess. Memorize the password. If you forget it, you will not be able to open the document.

B. Removing Password

Open the document which is password protected. You will be asked to type password to open it. Once opened, follow the steps below to remove the password.

1. Click the Office button > Prepare > Encrypt Document.
2. In the Encrypt Document dialog box, delete the password (shown as black dots) and click OK.
3. Save the file.

Try This on Machine

Open any Word document you have created and protect it with a password. Try opening your password protected document with incorrect and correct passwords to see if it is working properly.

Now You Know

1. Under the Insert tab, there are many tools for adding objects such as pictures, clip arts, shapes and WordArt as well as symbols and header and footer.
2. Objects are useful for making your document attractive and showing your information pictorially.
3. Information can also be organized using tables.
4. Applying picture styles, effects and colour makes object look better.
5. We can use text wrapping to arrange text around objects.
6. Header and footer are used to insert text and pictures that appear on all pages.
7. Word document can be protected by setting a password.

Check Your Progress

1. Do the following tasks:
   a. Insert a table with 5 rows and 2 columns.
   b. Type the heading for the columns as Shapes and Description.
   c. Under the Shapes column, insert a circle, a triangle, a square and a rectangle in separate rows. Use different outline and fill colours for shapes.
   d. Use text wrapping In Line with Text for shapes.
   e. Under the Description column, describe the shapes you have inserted.

f. Write Mathematics in the header, and your name and page number in the footer.

g. Set the table border to 3 pt.

h. Give a title for the table using WordArt.

i. Protect your file with a strong password.

Explore Further

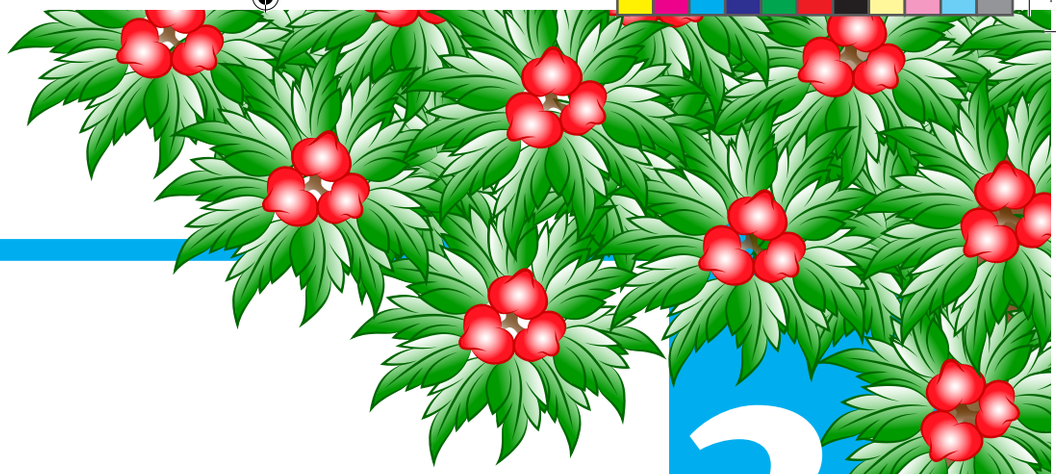
1. Draw the life cycle of an animal using SmartArt. Add relevant text and pictures.

2. Create the poster shown in Figure 2.25 of classroom rules on being a good listener.

Figure 2.25. Sample poster of classroom rules

Web Links

1. **Text wrapping**
   - http://wordribbon.tips.net/T009382_Understanding_Through_Text_Wrapping.html
2. **Pictures**
   - http://www.gcflearnfree.org/word2007/16
3. **Header and footers**
   - http://www.gcflearnfree.org/word2007/18
4. **Create password for a document**
   - http://www.wikihow.com/Make-a-Password-Protected-Word-Document



3

CONNECT AND COLLABORATE

In this Chapter

Learning Objectives

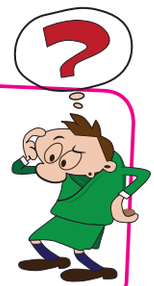
1. Define a computer network.
2. List required devices for the Internet connection.
3. Identify general web address structure.
4. Discuss ideas using an online collaboration tool.

3.1 Computer Network

A computer network is a group of computers connected with one another using cables, telephones lines, modem, cellular radio or satellite. Computers are connected in a network for the purpose of sharing resources like hardware devices, software programs, data and information. When your computer is connected to a network, you are said to be **online**.

Do You Know?

A computer that is connected to network is called workstation or node.



There are many advantages of setting up a computer network. Some of the benefits of networking are:

» **Quick communication**: Users on network can communicate with each other using technologies such as instant messengers or electronic mail. It allows users to communicate easily, cheaply and instantly from anywhere in the world.

» **Resource sharing**: Sharing of hardware devices and software programs is easier and cheaper on network. For example, a printer can be shared by many users on a network to save cost. It is also cheaper to buy software licence for a network than for individual computers.

» **Data sharing**: Instead of using an external storage disk such as portable hard drives or thumb drives to transfer files from one computer to another, we can share files directly through a network.

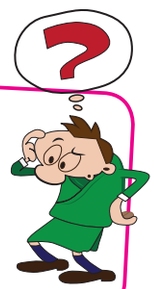
» **Internet access**: Network allows multiple users to share a single Internet connection.

» **Data security and management**: Access to resources and data in the network can be controlled. Depending on how sensitive the information is, users can be given different level of access to the shared resources.

» **Entertainment**: Network allows to play multi-player games and broadcast video and audio to many users at the same time.

Do You Know?

The network administrator is the person looking after the operations of the network.



Computer network is classified into three types based on the area of its coverage.

1. Local Area Network (LAN)

LAN is a connection of computers and devices in a small geographical area such as a school, a home or an office.

2. Metropolitan Area Network (MAN)

MAN is larger than LAN and usually covers the geographical area of a city. A MAN includes one or more LANs.

3. Wide Area Network (WAN)

WAN covers a large area such as the entire country or the entire world. It includes multiple LANs or MANs. The Internet is an example of WAN.

3.2 The Internet

The Internet is a network of networks that connects computers all over the world. The Internet is widely used since it offers many services at our fingertips. We can send messages, meet new friends, play games, listen to music, invest in business, do banking, carry out research, watch movies, buy or sell products, shares resources, conduct video conference, use programs and many more.

The U.S. Department of Defence (DoD) laid the foundation of the Internet in the 1969 by linking computers on a network called **ARPANET** (Advanced Research Project Agency Network). It connected different universities and research centres of USA to share information on research and development in scientific and military fields. The success of this program gradually lead to connection of more computers from across the world. This gave birth to what we now call as the Internet.

3.3 Connecting to the Internet

To connect to the Internet (Figure 5.1), we need:

1. A **computer system** - Any computer can be used to connect to the Internet through a modem.
2. A **modem** - Modem is a device that allows information to be sent and received through a telephone or cable line. It is connected either internally or externally to the computer.
3. A **telephone line or cable** - A telephone or cable line connects the modem to the Internet Service Provider.
4. An **Internet Service provider** (ISP) - An ISP is a company or an agency that provides Internet services for a fee. A user has to register with the ISP to get an Internet connection. DrukNet and Tashi InfoComm Ltd are ISPs in Bhutan.

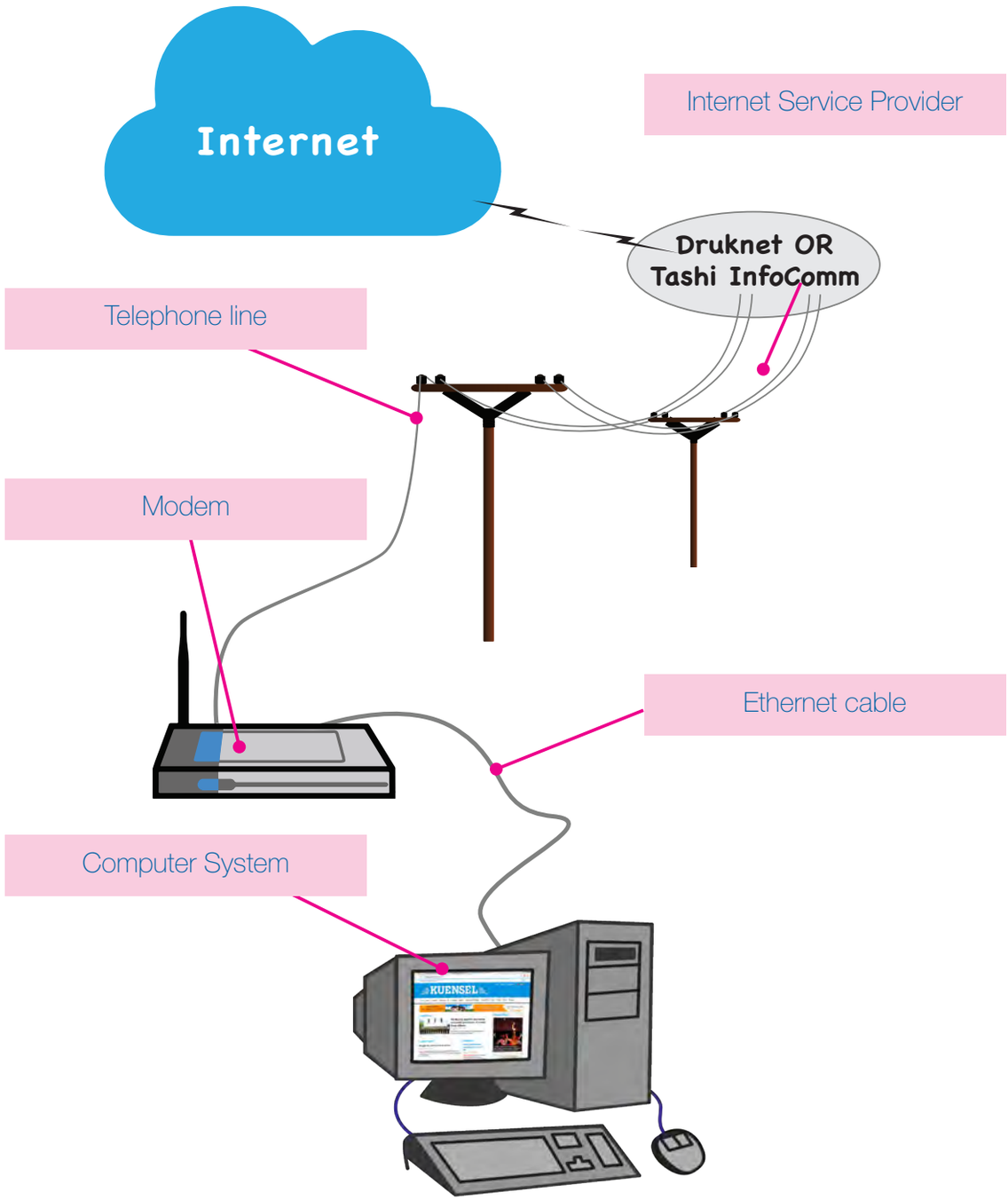


Figure 5.1. Connecting to the Internet

Try This on Machine

Divide yourselves into five groups and find information on the topics from the Internet.

Group 1: Definition of computer network and types of computer network
Group 2: Advantages of network
Group 3: History of the Internet
Group 4: Uses of the Internet
Group 5: Devices required to connect to the Internet

3.4 Web Address

Many computers are connected to a network for sharing of resources and information. Each computer in a network is called a **host** and they have a unique address that identifies it from the rest.

Some hosts, known as web servers, carry out special tasks of sharing resources and information in the form of websites. Each website is accessed using a unique URL called **web address**. It indicates the location of a webpage or a file on the network.

The web address is divided into different parts as in Figure 5.2.

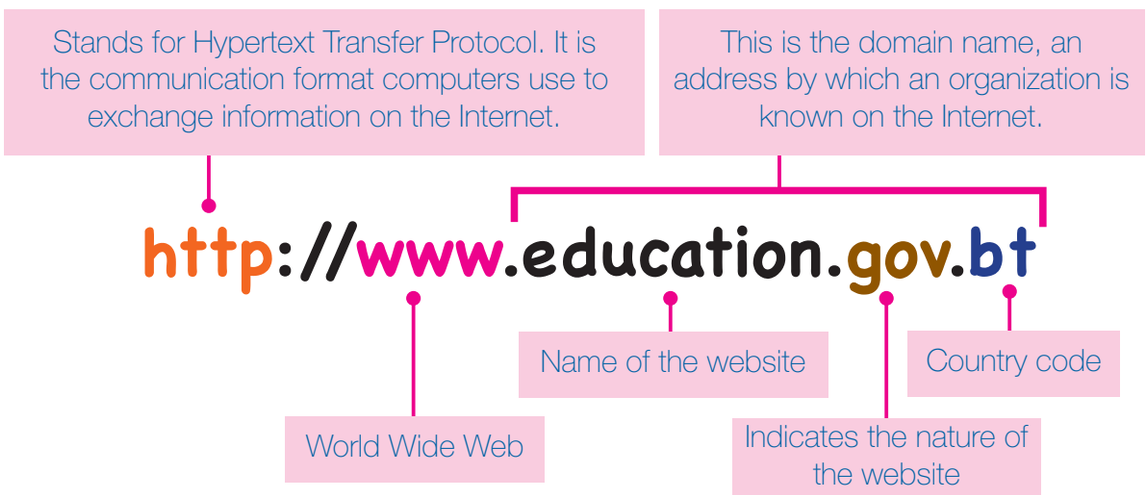


Figure 5.2. Web address

Each part provides clues to where a webpage is loacted and who might be responsible for providing the information on that page.

The first part **http://** is usually used in all webpages. It is a communication format used to send and receive information on the Internet. The part after http:// mostly begins with the letters **www** (World Wide Web) followed by the **domain name**. A domain name identifies the type of organization who may be either directly responsible for the information, or is providing the space to store the information. The three letters after the name shows the nature of the website. For example:

Domain extension	Type of organization
.com	Commercial
.edu	Educational
.org	Non-profit
.net	Networking
.gov	Government
.mil	Military
.int	International

Sometimes domain name ends with two letters. It identifies the country where the domain name is registered. For example:

Code	Country
.bt	Bhutan
.in	India
.us	United States
.au	Australia
.ca	Canada
.jp	Japan
.sg	Singapore

Try This

Identify the type of website or country where it is registered.

1. www.pbskids.org
2. www.dzongkha.gov.bt
3. www.bbc.co.uk
4. www.army.mil
5. www.discoverykids.co.in
6. www.dictionary.com
7. www.kidoz.net

3.5 Online Collaboration

Group of people working together for a common goal over the network like the Internet is referred as **online collaboration**. Online collaboration offers flexibility of working on a project without the need to be physically present at the same location.

There are many online collaboration tools on the Internet. Some common tools are blogs, wikis, forums, instant messengers, and social networking sites. These tools can be used in schools to promote student's participation in learning.

Large companies like Google and Microsoft provide free and paid online services for collaboration. Google Classroom is one such free service from Google, which is created for teachers and students to use it for their teaching and learning. In Google Classroom, students can participate in discussion, answer questions, upload assignments and go through the resources provided by the teacher.

You will need a G Suite for Education account to use Google Classroom. School teachers and students in Bhutan are provided with G Suite for Education accounts by the Ministry of Education. Your teacher will be

able to help you get your Google account and temporary password. Follow the steps given below to use Google Classroom:

1. Open the website **https://classroom.google.com**
2. Type your G Suite for Education username > Next > (Figure 5.3) Type your temporary password > Sign in.

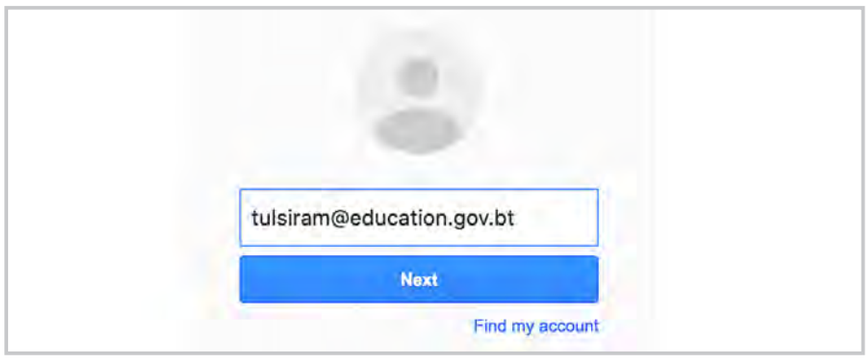


Figure 5.3. Google Classroom sign in page

3. Read the welcome message > Accept (Figure 5.4). If you are using Google Classroom for the first time, you will have to accept Google's welcome message, which contains the terms of service and privacy policy.

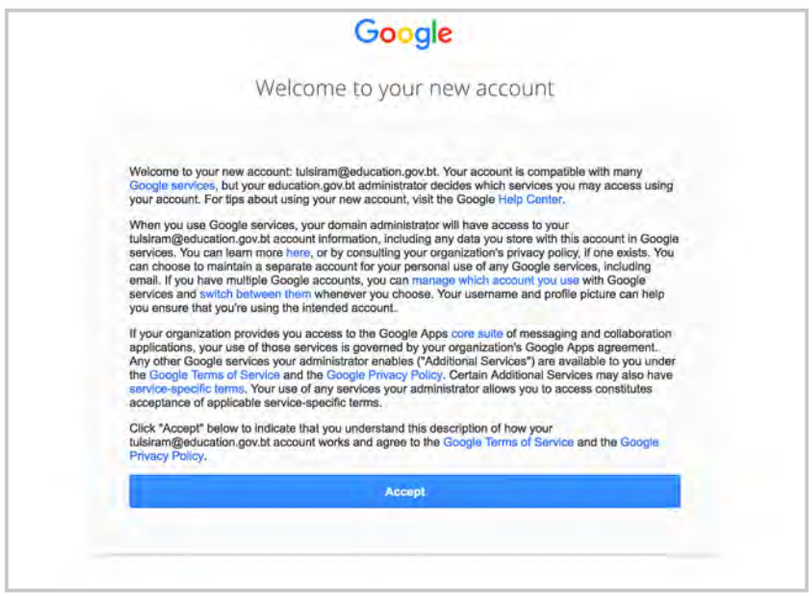


Figure 5.4. Google terms of service and privacy policy

4. You will be asked to change your password. (Figure 5.5) Remember to set a strong password as learned earlier in Class Five.

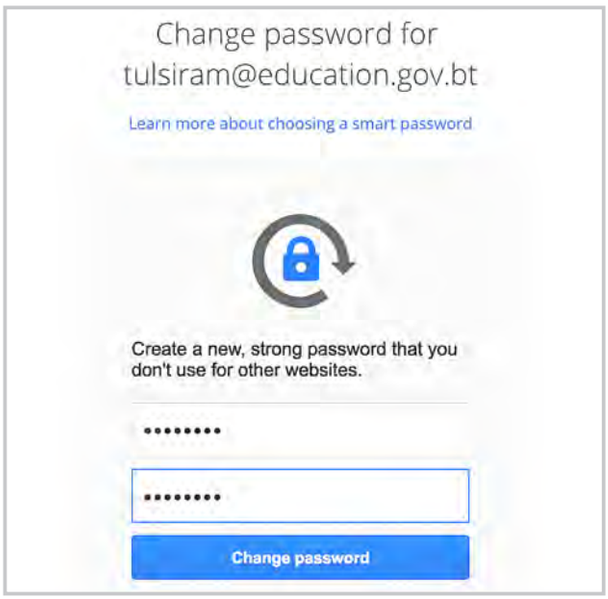


Figure 5.5. Change password

5. On the bottom-right corner, click on Student (Figure 5.6).

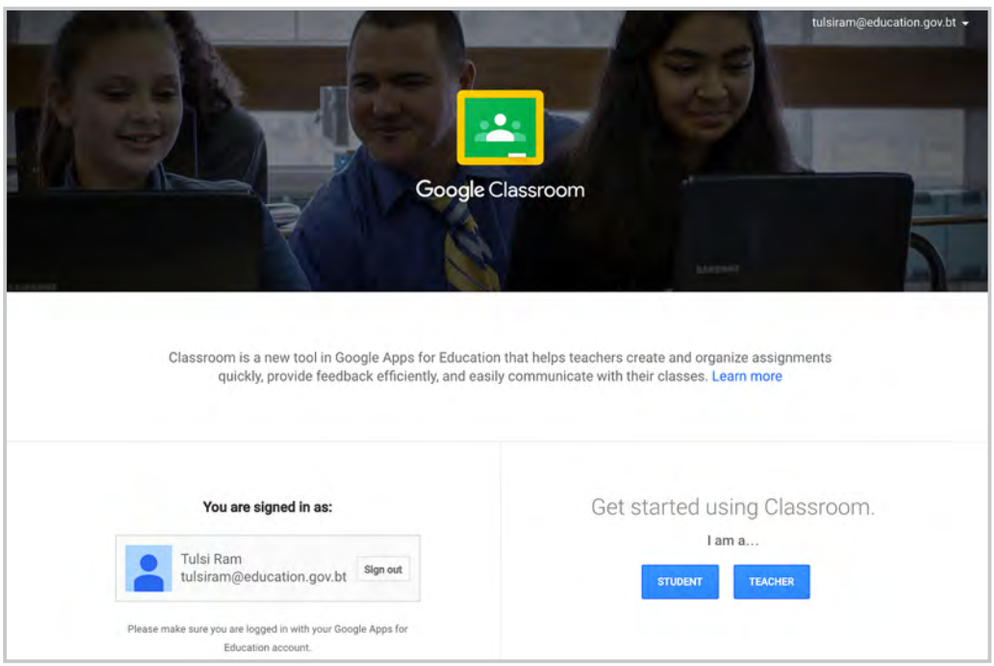


Figure 5.6. Using Google Classroom as student

6. Click on + on the top-right corner > Enter Class Code (Figure 5.7) > Join. Class Code will be provided to you by your teacher.

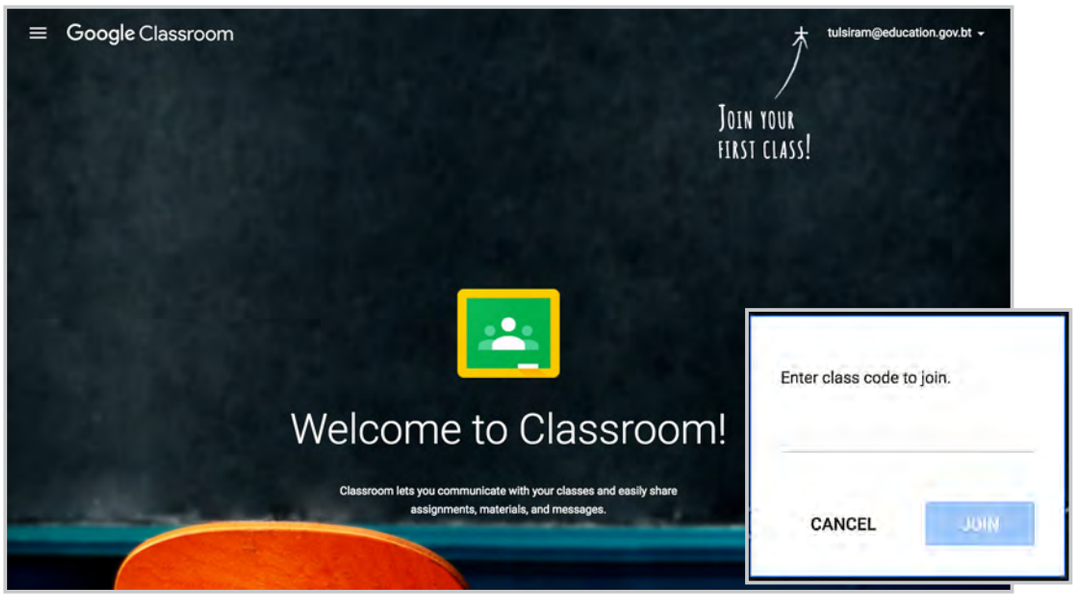


Figure 5.7. Joining a class

7. You have now successfully joined a class created by your teacher. You can now start answering the questions posted by the teacher or give your comments to the post or add your own post as shown in Figure 5.8.

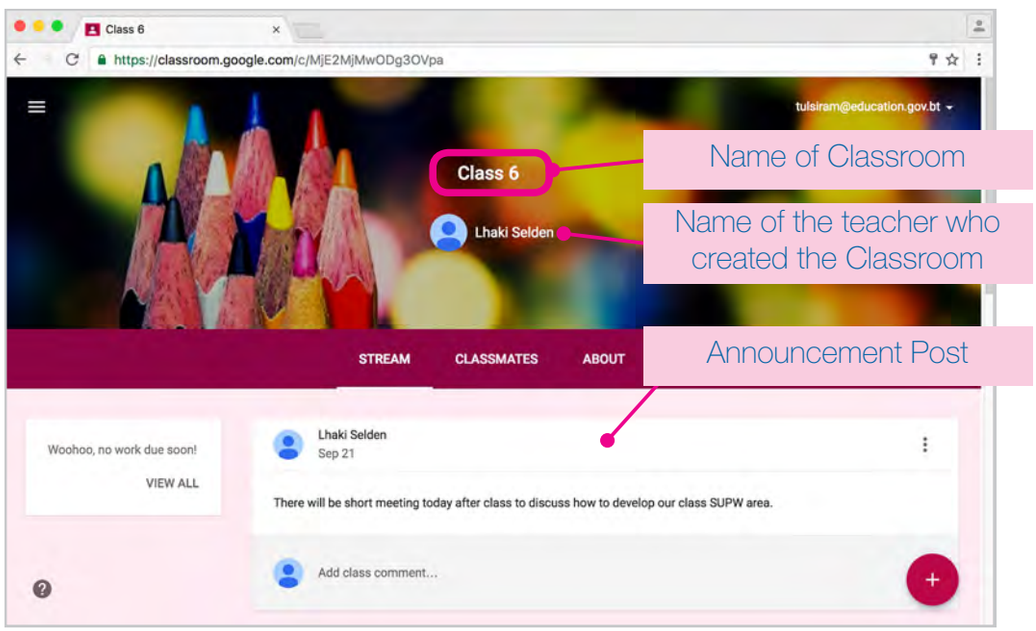


Figure 5.8. Google Classroom Post - Announcement

To add your post to the class in Google Classroom, follow the steps given below:

1. Click on + button.
2. Type the topic for your post in the space given in the post dialog box as shown in Figure 5.9.

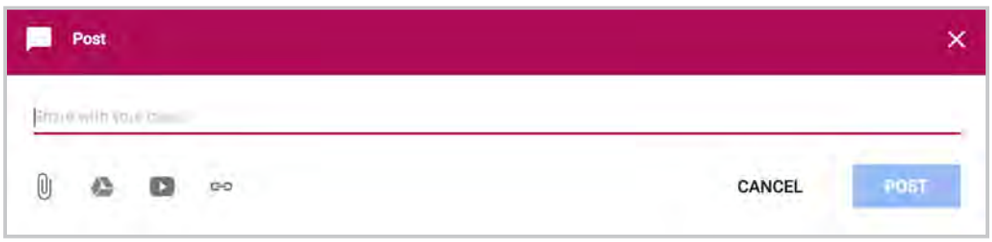


Figure 5.9. Post dialog box

You have learned how you can work together on a topic in the Google Classroom. You have answered questions asked by the teacher. You also gave comments to what others have posted. So what started as a simple question by your teacher, or a post by your friend can become a discussion which involves all the students. Through such a discussion, you will be able to reach a common understanding. This process of working together on a topic in Google Classroom is an example of online collaboration.

Try This on Machine

Work in groups. The group members start discussion on any topic by creating a post using the Google Classroom. The discussion can be joined in by other group members though comments. Each groups should write a report using comments given by other groups on their post.

Now You Know

1. A group of computers connected together to share data and resources is called computer network.
2. The Internet is worldwide network of networks.
3. LAN, MAN, and WAN are types of network grouped by its area of coverage.
4. Computer, modem, telephone line and ISP are required to connect to the Internet.
5. Google Classroom is an online collaboration tool that can be used to share and discuss ideas.

Check Your Progress

1. Fill in the blanks
   (a) The computer network that covers the whole city is called .....
   (b) When you are on a network, you are said to be .....
   (c) A device that connects computer to the Internet using telephone line is called .....
   (d) An agency that provides Internet services is called .....
   (e) Blogs, wikis, forums and instant messengers are examples of .....
   (f) **.bt** in http://www.rcsc.gov.bt stands for .....
   (g) The US Department of Defence started a network called ..... which became the foundation for the Internet.

2. Answer the following questions

   (a) What type of network is used in your computer laboratory? Why is it used?

   (b) Is the Internet useful? Explain.

   (c) Explain how you would connect a computer at home to the Internet.

   (d) What are the advantages and disadvantages of using online collaboration tools?

Explore Further

1. Find and describe five websites with .bt in their URL. One website and its description is given as an example.

   http://www.bbs.bt is a daily news broadcasting website. It mostly provides news on Bhutan.

2. Find out which ISP provides the Internet connection to your school? Find out the monthly fee paid by the school.

3. In Google Classroom, make a new post with an interesting picture, and ask your friends to comment on your post.

Web Links

1. Understanding web addresses

http://techwelkin.com/understanding-the-components-and-structure-of-a-url

2. History of the Internet

http://www.history.com/topics/inventions/invention-of-the-internet

3. Modem

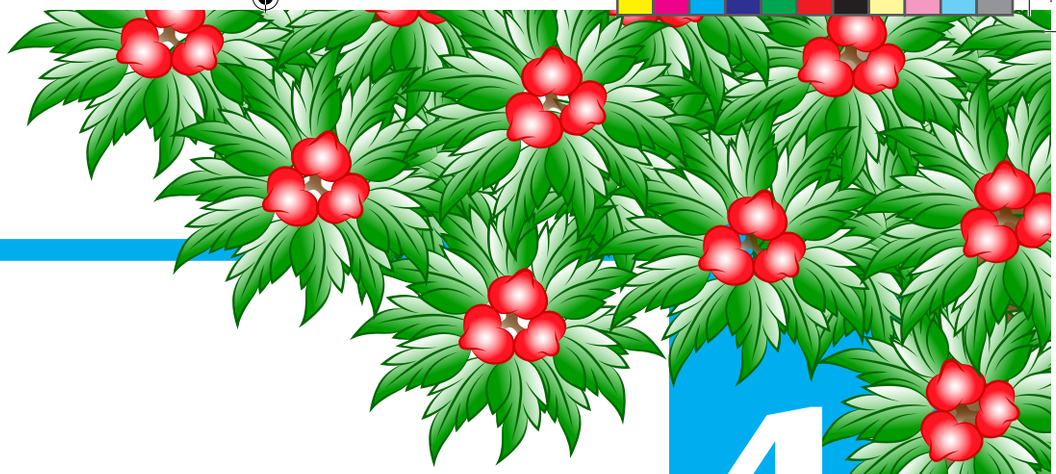
- https://www.scienceabc.com/innovation/what-is-a-modem-what-does-it-do-router-working.html

4. Online collaboration tools

- https://globaldigitalcitizen.org/online-collaboration-tools-teamwork

5. Computer network

- http://www.tutorialspoint.com/data_communication_computer_network/computer_network_types.htm
- http://www.buzzle.com/articles/advantages-and-disadvantages-of-computer-networks.html
- http://www.spamlaws.com/network-advantage.html



4

COMMUNICATE WITH EMAIL

In this Chapter

Learning Objectives

1. Exchange emails.
2. Follow email etiquette.

4.1 Introduction to Email

In class five, you have learned how to send messages to your friends on the school Local Area Network (LAN). You used LAN messenger software to do that. Another way to send messages to your friends is by using email (electronic mail). Email is a way to send and receive messages over the Internet. It is similar to postal mail, except that the messages are received and delivered over the Internet.

Read the table below to understand how postal mail compares to email.

	Postal Mail	Email
Address	Tulsi Ram Dagala Primary School Chukha Bhutan	tulsiram@education.gov.bt
Writing	Message is written on paper.	Message is written on email program.
Content	Packages with paper documents, books and objects.	Digital documents, files, images and video.
Delivery	- Envelope or packages delivered by people. - Send to one person at a time.	- Message delivered over the Internet. - Can be sent to one person or many people at the same time.
Time	Takes days or weeks.	Instantly.
Cost of service	Usually expensive.	Usually less expensive.

4.2 Login to Email

We need an email account to send and receive emails on the Internet. There are many email service providers on the Internet. Some provide free services while others require monthly or yearly fees. Yahoo! Mail, Microsoft's Outlook.com, and Google's Gmail are some of the popular free email services.

In Chapter 3, you have learned how to use Google Classroom. It is one of the apps in G Suite for Education for online discussion and collaboration. It also simplifies classroom management for teachers by allowing them to create, distribute and grade assignments, post announcements, and generate and moderate discussions in a paperless way.

Another app included in G Suite for Education is Gmail, which is used for sending emails. Since Gmail is a part of G Suite for Education, we can use the same account that you used to sign in Google Classroom.

1. Go to **https://www.gmail.com** > Type your G Suite for Education account > Click on Next button. (Figure 4.1)

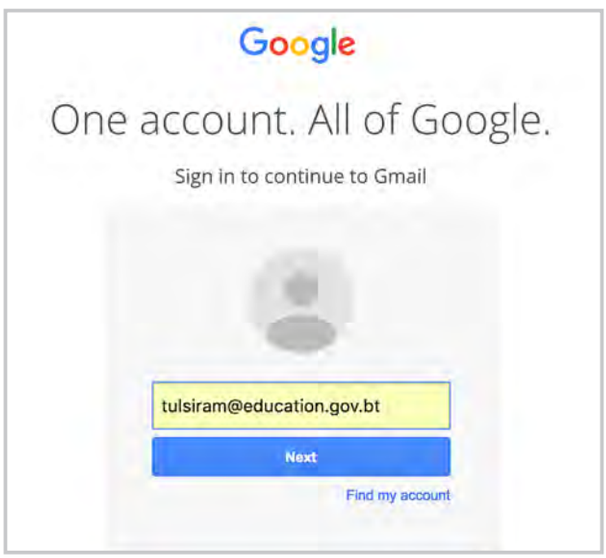


Figure 4.1. Typing email address

❷ Type your password > Sign in (Figure 4.2).

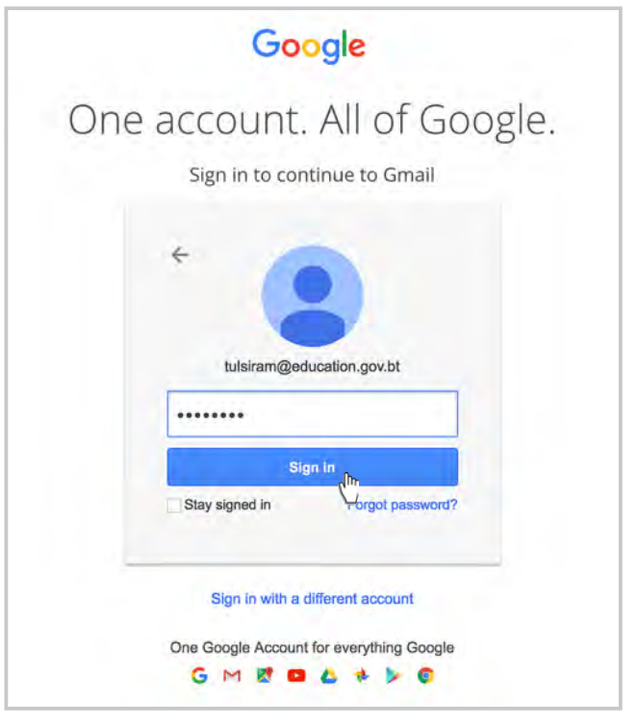


Figure 4.2. Typing password

❸ Accept Google Terms of Service and the Google Privacy Policy (Figure 4.3).

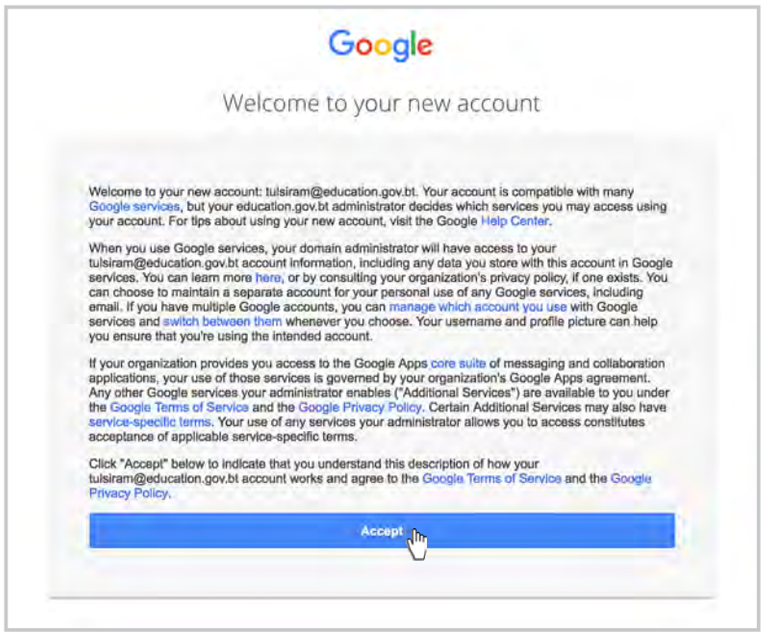


Figure 4.3. Google Terms of Service and Privacy Policy

4. Change your password (Figure 4.4).

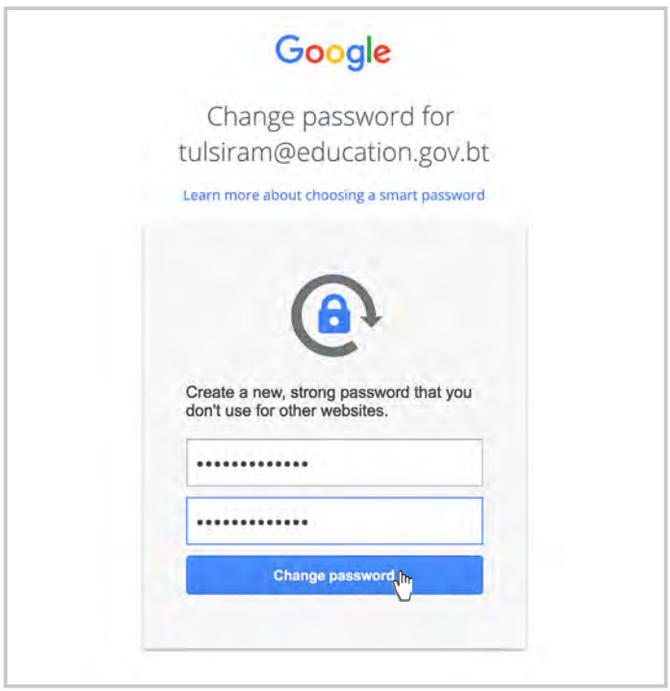


Figure 4.4. Changing password

5. Click on Gmail (Figure 4.5).

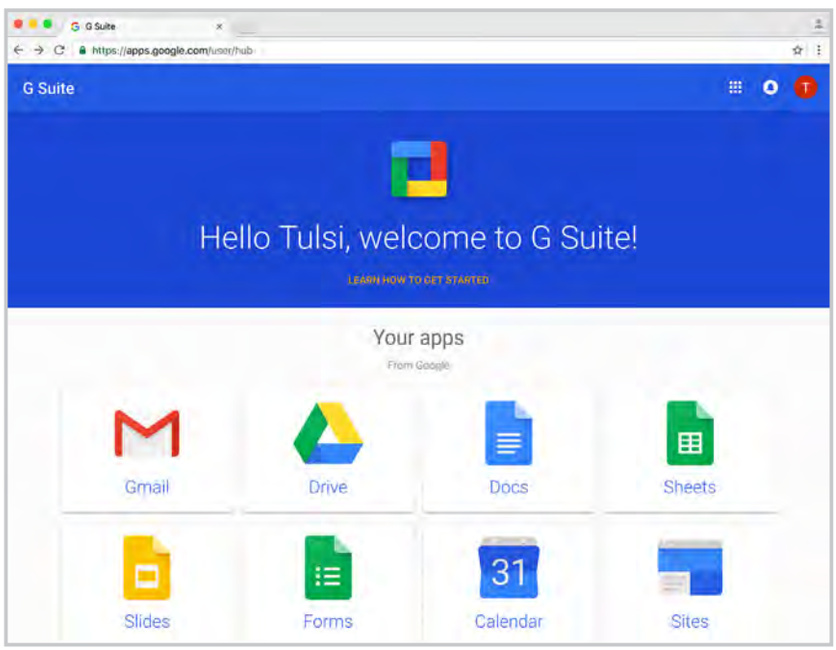


Figure 4.5. Google Apps

6 Now you can see your Inbox, where all the emails you received will be listed. You should already see a few emails from Gmail as shown in Figure 4.6.

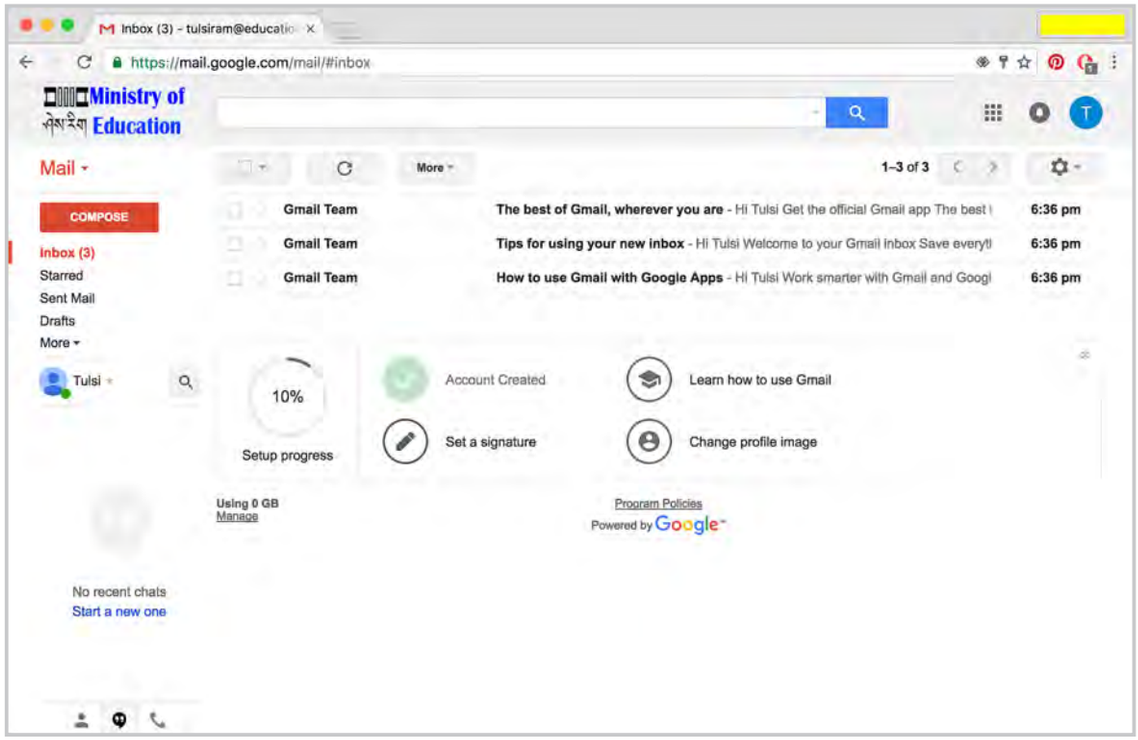


Figure 4.6. Main email box window

7 Once you have finished reading your emails, you should sign out of your email account. Click on your initial (T) on the right-top corner of the email window and click on Sign out button as shown in Figure 4.7.

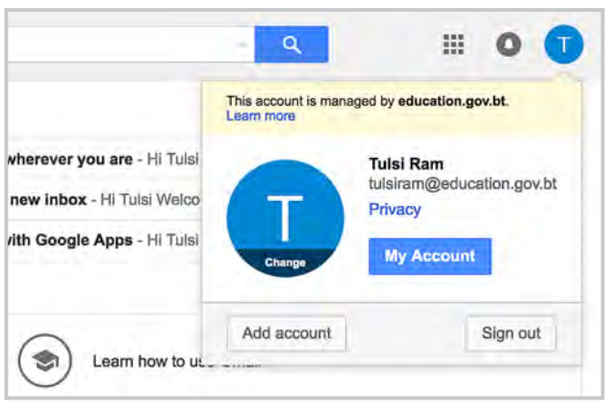


Figure 4.7. Sign out button

Try This on Machine

Work in group. Take turns to sign in to Gmail using G Suite for Education account. Sign out when you have finished checking your emails.

4.3 Email Basics

In this section, you will learn to send an email or reply to an email. Gmail window consists of the Navigation pane, the Message pane and the Compose pane as shown in Figure 4.8.

Navigation Pane is what you see on the left hand side such as Inbox, Sent Mail, Trash and others. Inbox is where you receive all your emails. Sent Mail contains a copy of all emails you have sent and Trash keeps your mails when deleted from Inbox.

The **Message pane** on the right hand side will list emails. From here, you can select an email to read.

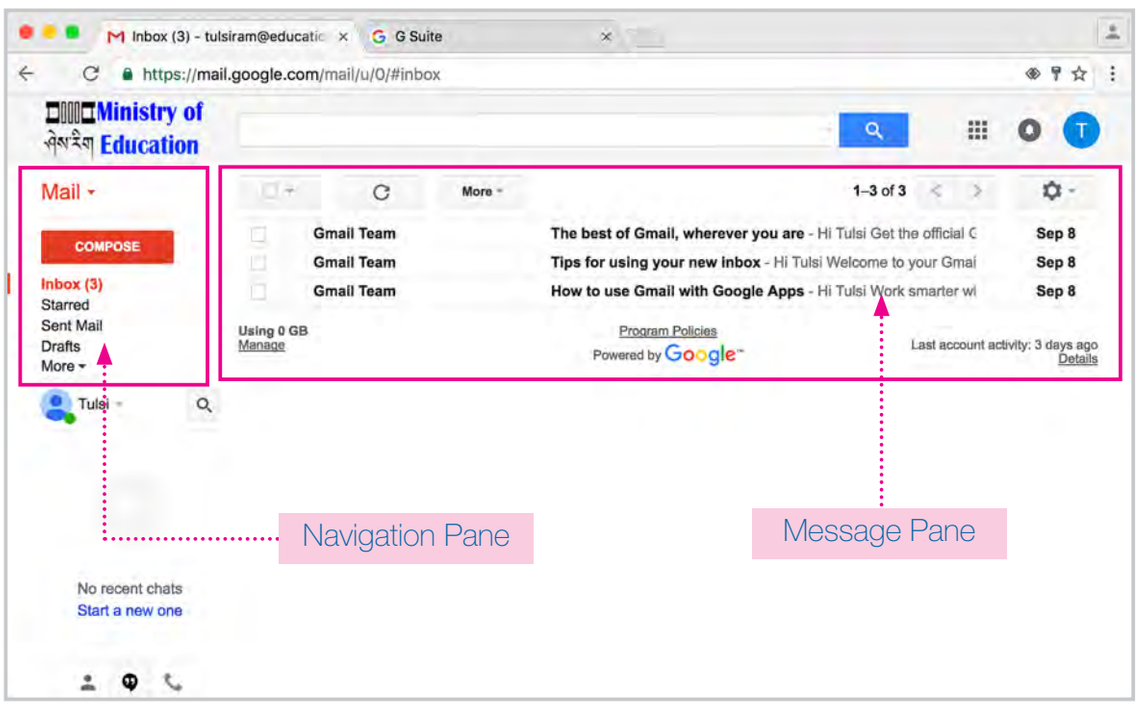


Figure 4.8. Email interface

A. Writing and Sending Email

Writing an email is similar to writing a letter. You will need the address of the recipient, subject of the letter, salutation, body, closing and your name like you have learned in your English class.

Let us look at the steps followed by Tulsi Ram, a student in Class 6A, writing an application asking for a leave, to his class teacher Ms Lhaki Selden whose email address is **lhakiselden@education.gov.bt**.

1. Click on COMPOSE button in Navigation pane.
2. The New Message window or Compose pane appears, where you enter the address of the recipient and the details of your email as shown in Figure 4.9.

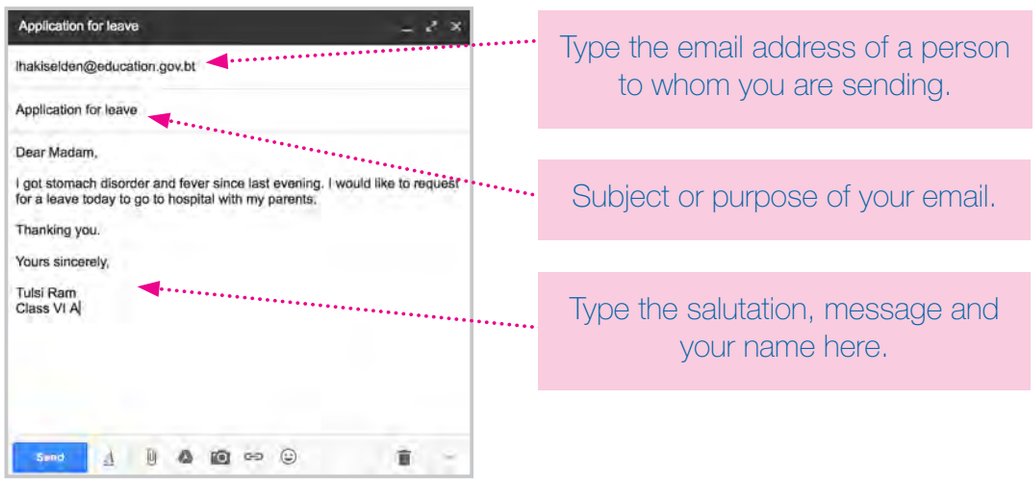


Figure 4.9. Writing message in Compose pane

Tips

You can add multiple email addresses by separating them with commas.
E.g. teacher1@education.gov.bt, teacher2@education.gov.bt, teacher3@education.gov.bt

3. Once the email details are filled, click on **Send** button. Your email will be sent to the address you have typed, that is to **tulsiram@education.gov.bt**

> **Tips**
>
> Email once sent cannot be stopped and changed again. So always check your email once before clicking on Send.

4. Click on **Sent Mail** in the Navigation pane to check whether the mail has been successfully sent as shown in Figure 4.10.

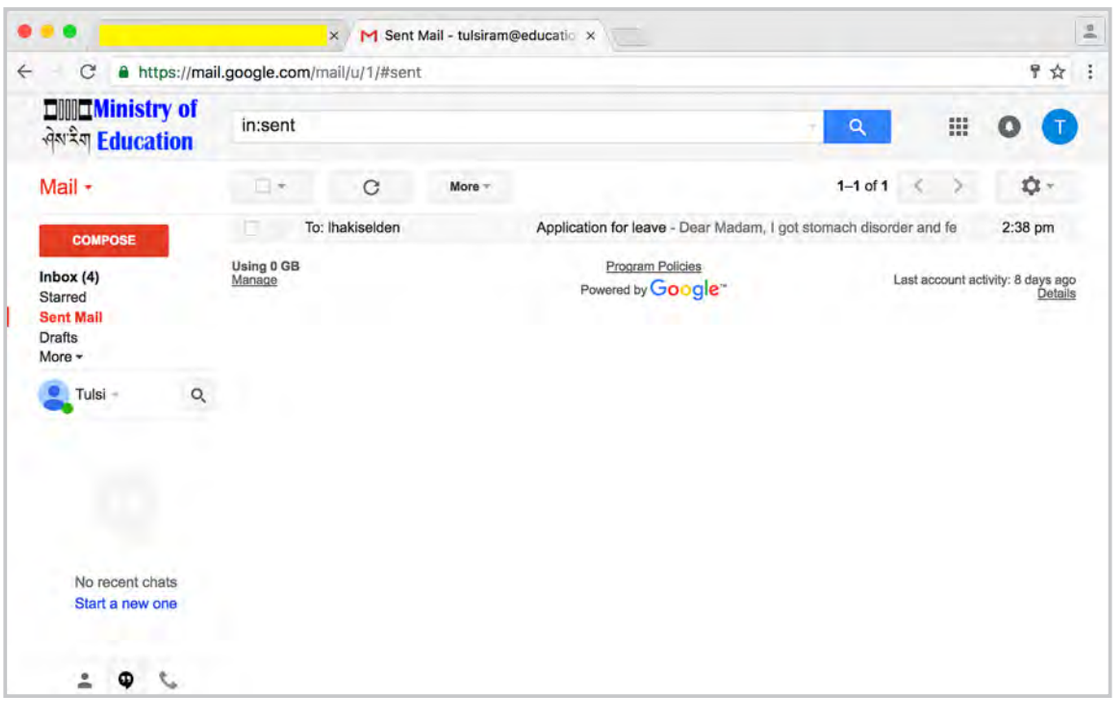


Figure 4.10. Sent Mail folder

Try This on Machine

Send an email to your friend sharing an interesting incident that happened during the last winter vacation.

B. Reading and Replying Email

Tulsi Ram had sent an email to his teacher Ms Lhaki Selden requesting for leave. The teacher replies to Tulsi Ram's email and grants him the leave. Follow the steps below to reply to an email.

1. Sign in to email account to check for new emails.

Figure 4.11. Checking for new emails

2. Click on new email to read it. In our example, click on the email sent by Tulsi Ram.

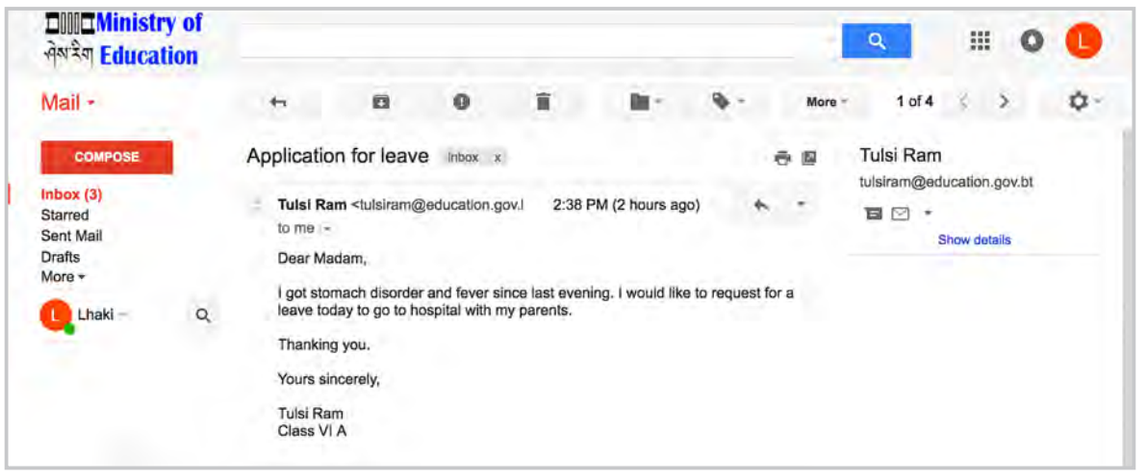


Figure 4.12. Reading new email

Caution

Do not open emails from unknown sender. Such emails could be harmful to your computer.

3. Click on Reply button, either at the top of the message or one below the message as shown in Figure 4.13.

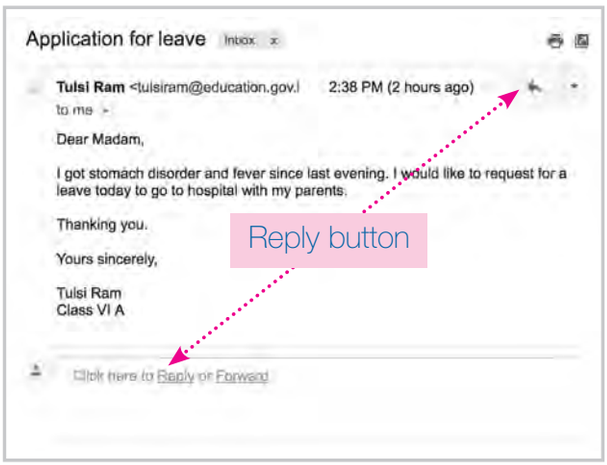


Figure 4.13. Selecting Reply button

4. Start writing your reply in the window that appears below the message. Click Send button when you have finished writing as shown in Figure 4.14.

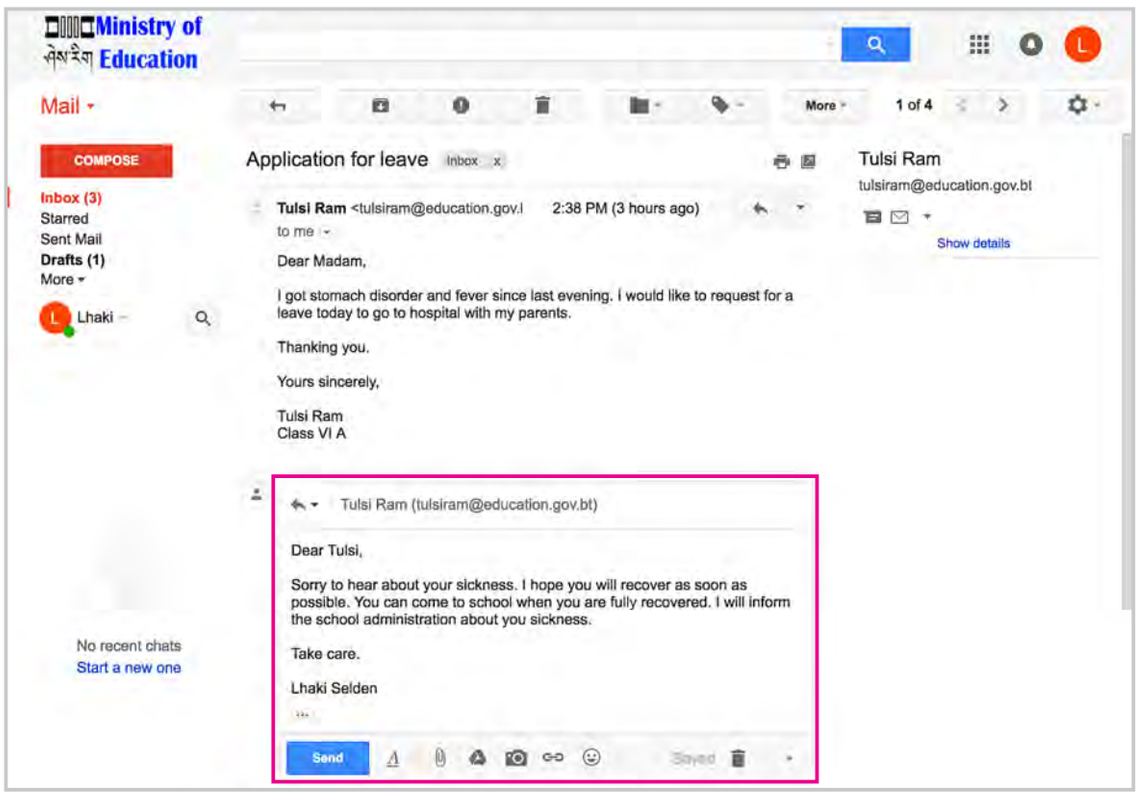


Figure 4.14. Writing in Reply window

Try This on Machine

Your friend had earlier sent an email to you sharing an interesting incident that happened during the last winter vacation. Reply to the email describing how much you enjoyed reading his/her story.

C. Forwarding Email

When the email that is sent to you is sent to another person, it is called **forwarding email**. In our example, teacher Lhaki Selden wants to let Principal and other teachers know about Tulsi Ram's leave. So, she forwards Tulsi Ram's email to them. The procedure for forwarding an email is similar to replying an email.

1. After reading the email, select Forward button from the drop down menu at the top of the message as shown in Figure 4.15.

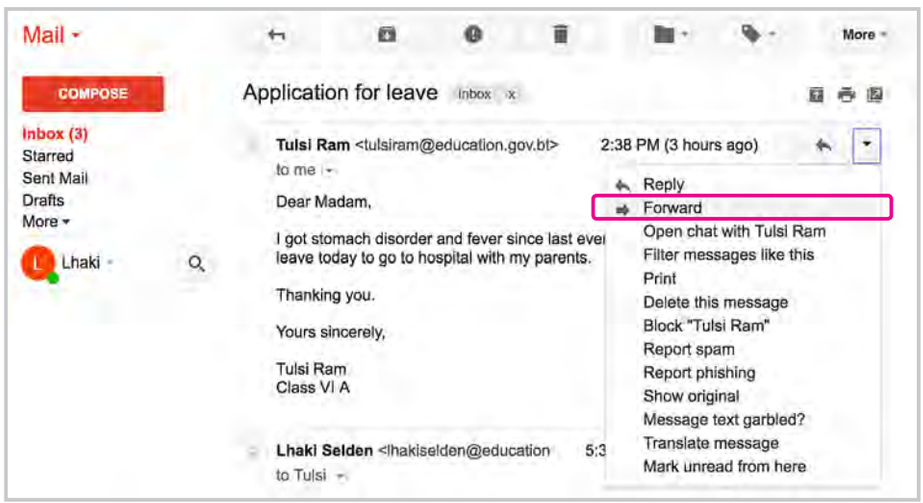


Figure 4.15. Choosing Forward button

2. Enter the address of the person to whom you are going to forward the email as shown in Figure 4.16. If you want, you can also type your message below it. Click on Send button when completed.

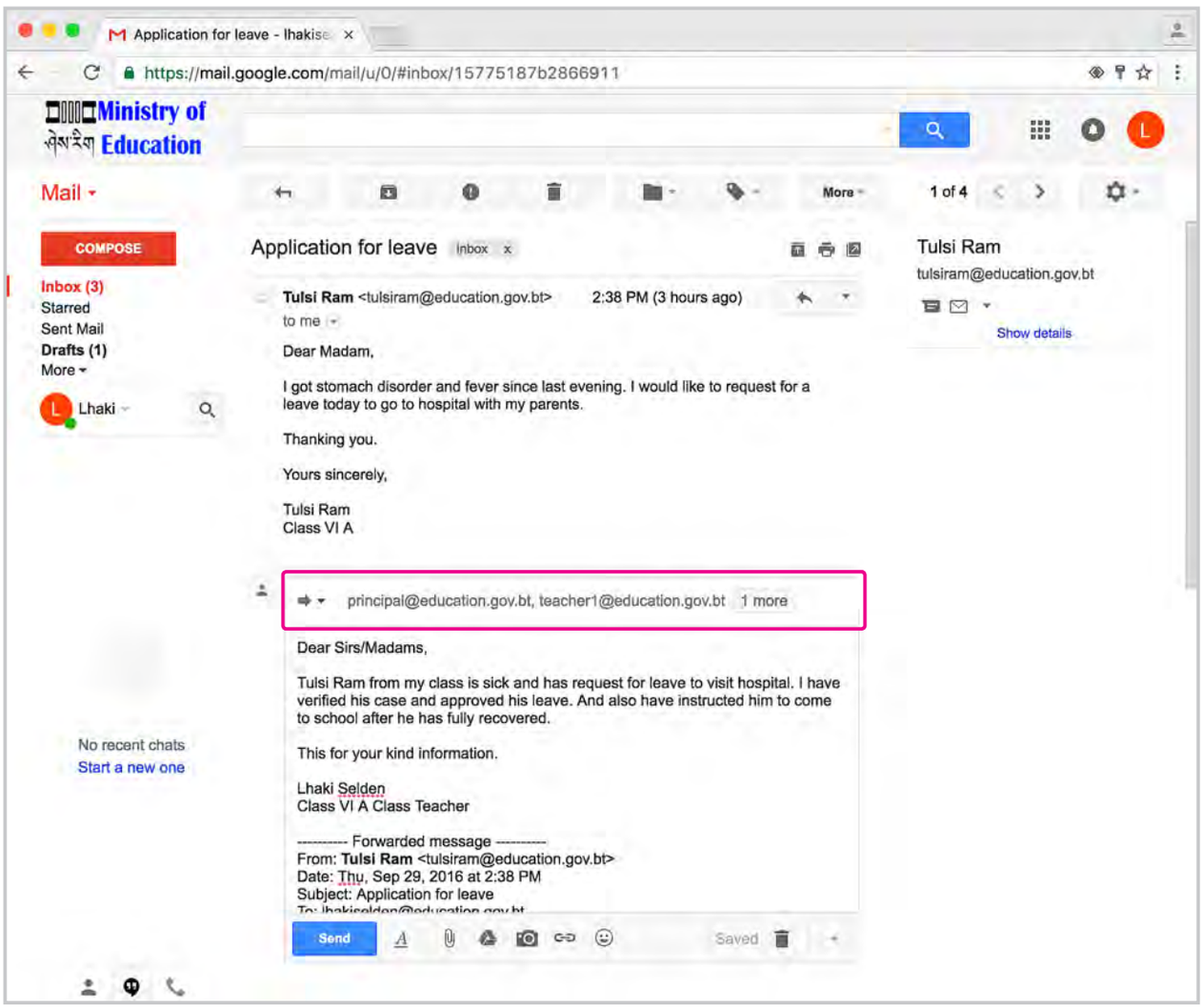


Figure 4.16. Entering address to forward email

Try This on Machine

Forward any email that you received earlier from a friend to other friends.

D. Deleting Email

It is a good practice to manage your emails from time to time. If you think an email may not be useful in the future, you should delete it to save space of your email account.

Teacher Lhaki Selden recieves an email about Losar from Tulsi Ram. She reads it and thinks it is not important to keep it. So, she decides to delete it. Follow the steps below to delete an email.

1. Open an email you want to delete.
2. Click on 🗑 button from the toolbar to delete the email (Figure 4.17).

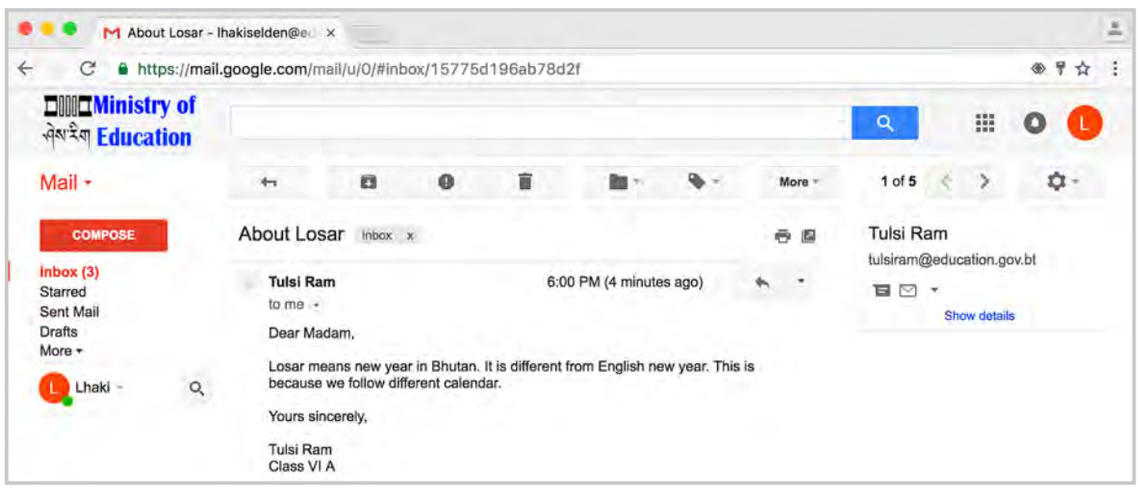
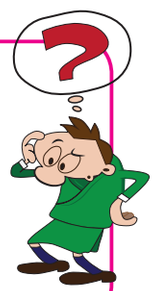


Figure 4.17. Deleting email

Do You Know?

The emails you deleted are not removed permanently. They are usually kept in Trash folder for some time. If you delete it from Trash folder, then it is lost forever.



E. Bounced Email

When an email cannot be delivered to an email address, it is sent back or bounced back to the sender with an error message. In Gmail, the message usually is "Delivery to the following recipient failed permanently: ..." as shown in Figure 4.18. Such an email is called a **bounced email**. It occurs due to one of the following reasons:

1. recipient's email address is incorrect,
2. recipient's mailbox is full, or
3. mail server, which does the job of sending and receving emails, is too busy and cannot handle request at that time.

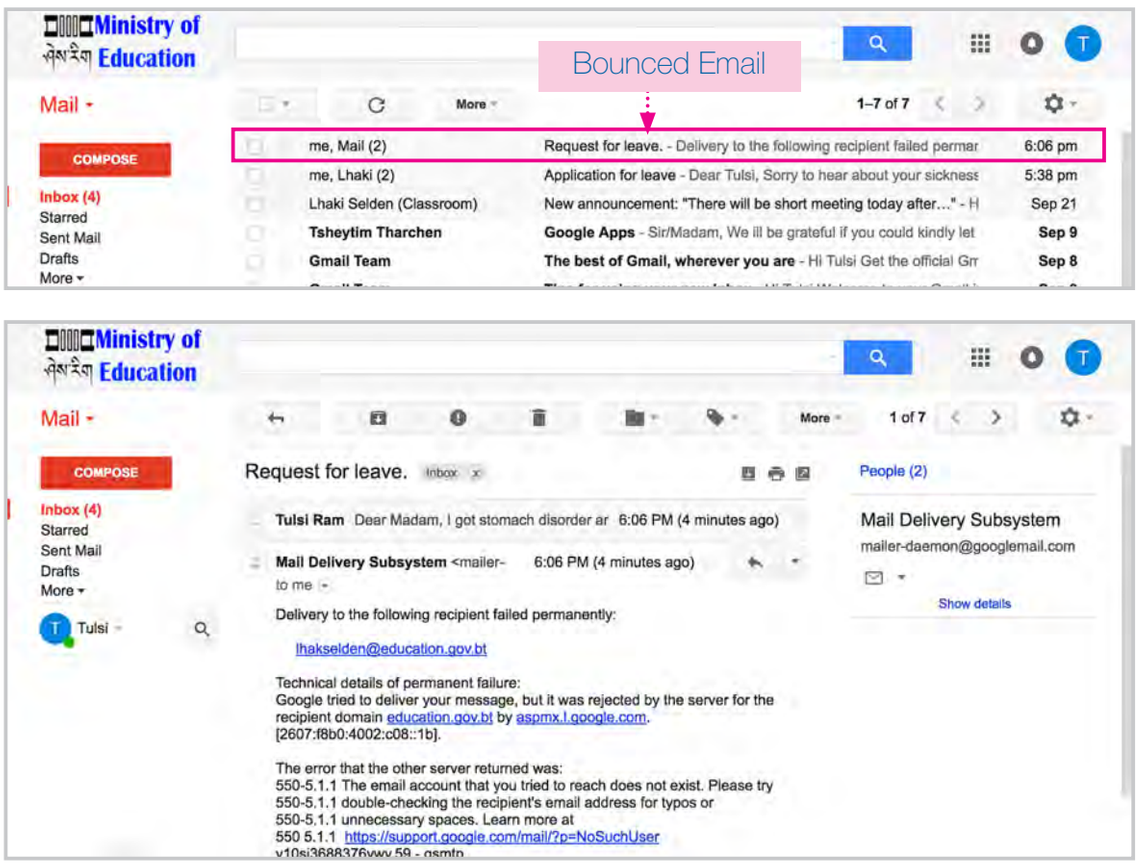


Figure 4.18. Bounced mail in a mailbox

Try This on Machine

Write an email to your friend with the message to delete it once he or she finishes reading.

4.4 Email Etiquette

Etiquette is a set of accepted code of polite conduct or behaviours in a social group. Following proper etiquette will help you avoid misunderstandings, and you are less likely to offend people.

Technology has enabled people to easily communicate with anyone from anywhere at anytime. But how you communicate with others is no less important than communicating online, be it phone, email, instant message or video chat.

Here are some basic rules you can follow to write better emails, no matter to whom you are writing.

1. Reread the whole message before you send it.
2. Keep email short. Short messages are easy to read. Recipients are less likely to read when the email is long. This does not mean you cannot write long emails. You may write as long and as much as is necessary but keep it to the point.
3. Write a good email subject. Be brief and clear about the message's purpose. Next to your name, email's subject is the first thing your recipient sees. It will help people receiving the email know right away what the message is about.
4. Use correct English including punctuation. Check your message is free of spelling and grammatical errors. Avoid using informal short forms as in mobile text messages. It will make you look careless and lazy.

5. Be careful of what you write. There is an actual human being on the other end of the computer. What you write could upset the other person.
6. Keep formatting to minimum. Excessive text formatting such as using many colours can make your emails difficult to read.
7. Do not write all in capitals letters. In online communication, writing in all capitals is equivalent to shouting in message. Nobody likes to be yelled at. It will annoy some people. Such a message is also not easy to read.
8. Finish your message with proper closing such as "Thank you", "Sincerely" or "Best regards". If you are in doubt which one is appropriate, end your message with simple "Thank you".
9. Keep your email signature short and simple. Email signature includes sender's name and contact information such as phone number, email address and website URL.

Try This on Machine

Write an email to a friend briefly describing an interesting book you read recently.

Now You Know

1. Email is a way of exchanging messages over the Internet.
2. Email works in a similar way as the postal mail.
3. Email address comes in the form of username@location such as yeewong@yahoo.com, krishnagiri@gmail.com and mindu@hotmail.com
4. When you reply email, it is usually sent to the same person who wrote you the email.

5. When you forward email, it is usually sent to a person other than the one who originally wrote to you.
6. It is a good practice to delete unwanted emails to save space of your email account.
7. Good email etiquette will help you write emails which are short, polite and easy to read.

Check Your Progress

1. A properly composed email includes
   (a) recipient address
   (b) subject
   (c) message in the body
   (d) all of the above

2. Shankar is the class captain for Class 6B. He is trying to send email (Figure 4.19) to a new student Lhakpa, welcoming him to the class. But he could not send it. Spot the error in the picture below and explain what should be done to make it work.

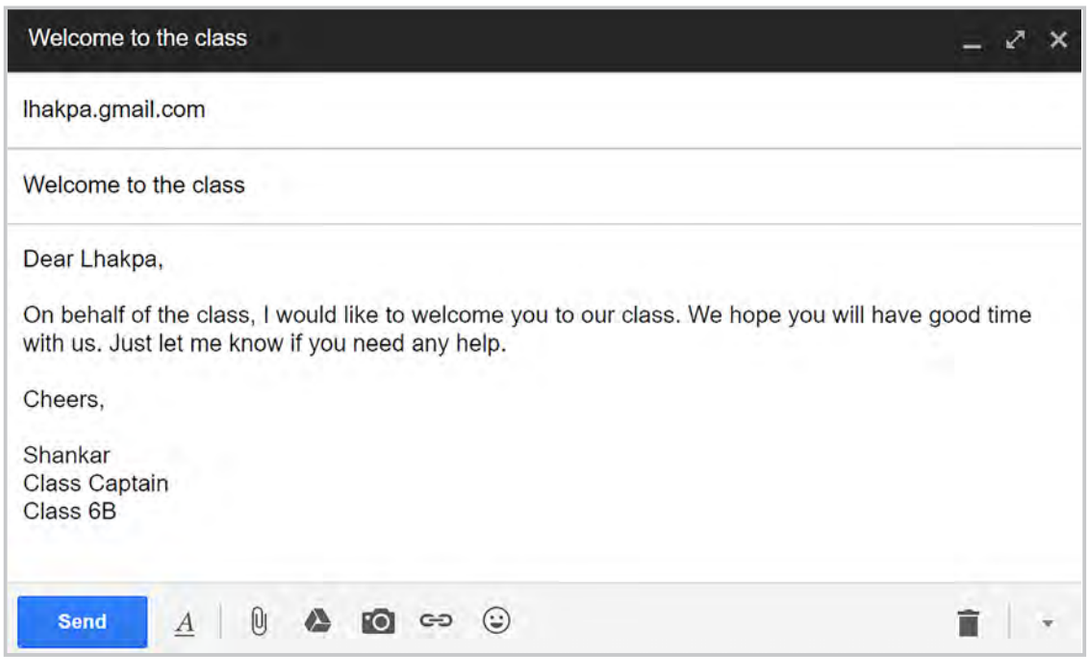


Figure 4.19. Shankar's email

3. Write TRUE or FALSE against each statement given below:
   (a) Email deleted from your mailbox is permanently lost.
   (b) We need a web browser and the Internet connection to use email.
   (c) A long email is easier to read than a short email.
   (d) Emails are delivered instantly.
   (e) Writing an email is similar to writing a letter.

Explore Further

Is there a way to send one email to multiple people at once? One way is to add multiple email addresses in To box (Figure 4.20). Explore another way to do it.

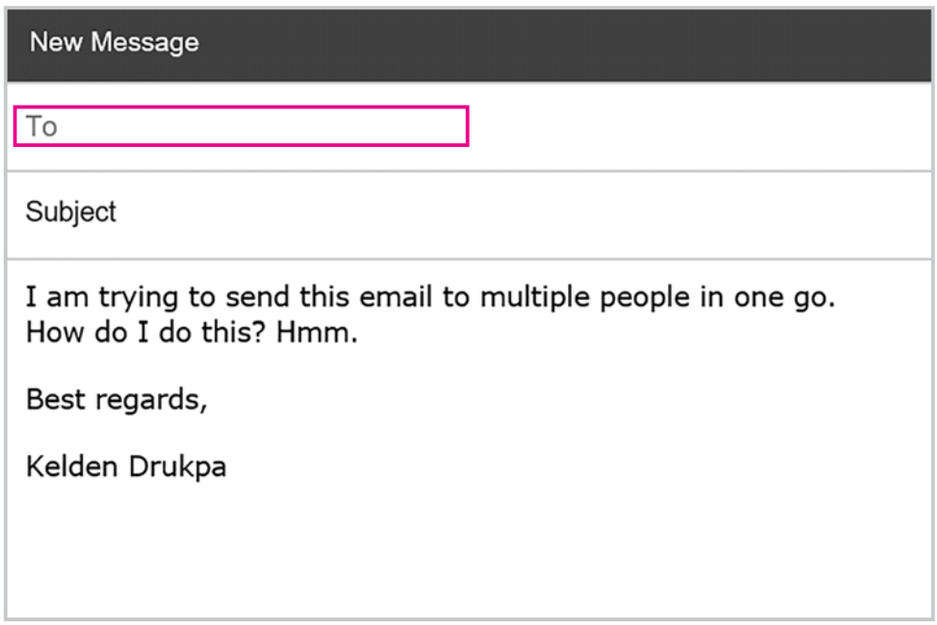


Figure 4.20. To box in Compose pan

Web Links

1. **General introduction to email**
   - http://www.gcflearnfree.org/emailbasics/email101
2. **Various tutorials on Gmail**
   - http://www.gcflearnfree.org/gmail
3. **Email etiquette**
   - http://www.entrepreneur.com/article/228787
   - http://email.about.com/od/emailnetiquette/tp/core_netiquette.htm
   - http://www.gcflearnfree.org/emailbasics/email101/4.4

5 COMPUTER AND HEALTH

In this Chapter

Learning Objectives

1. Explain common health issues related to use of computer.
2. Explain ways to prevent injuries related to use of computer.

5.1 Computer Use and Health Issues

Try This

State whether you **agree** or **disagree** with the following statements.

(a) Headache is a common problem with people who use computers for a long duration.
(b) It is possible to get addicted to computers like getting addicted to chewing doma.
(c) Using computer frequently helps to keep our body fit and healthy.
(d) Using computer regularly for long duration may lead to children becoming overweight.
(e) People who use computers for long hours do not suffer from stress.

We have learned in previous classes about the benefits of using computers. We have come to know that computers are being used productively in many fields. Many office goers, university graduates, and school students use computers. But, not many are aware of health issues related to prolonged and incorrect use of computers. In this chapter, we will discuss some of those health issues:

A. Muscle and Joint Pain

People using computers for long hours often complain about muscle and joint pains. Muscles and joints can become stiff and painful due to either sitting in one place for a long duration or working on computer in awkward postures.

B. Back, Neck, and Shoulder Pain

Use of inappropriate chairs and tables while working on computer leads to sitting in awkward postures. That puts pressure on the back and neck areas, sometimes causing stiffness and swelling in these parts.

C. Arm, Wrist, and Finger Pain

Pain in the arm, wrist, and finger can be caused by working with bent wrists, repetitive use or lack of rest for the hands and forceful hand motions. Typing and clicking a mouse button may seem harmless but doing it again and again without breaks can eventually cause pain.

D. Eye and Vision Problem

Eye problem is a common issue with computer users. Using computer for long duration can result in overworking of muscles in the eye that could lead to blurred vision, itchy eyes, and inability to see colour. Eye problem can lead to headache. It has also been noticed that being too close or too far to the monitor, bright light and reflections on computer screen can strain our eyes.

E. Emotional Strain

Using computer for long duration to complete tasks in time will leave less time for face-to-face interaction with friends and family. Working under pressure or alone for long period can lead to emotional strain or stress.

F. Obesity

Working on the computer involves less bodily movements. Without active exercise, spending more time on the computer can lead to obesity. Obesity is a term used to describe somebody who is overweight with a lot of body fats.

G. Addiction

Some people develop heavy dependence on computer for entertainment such as games, movies, music, and surfing the Internet. Such excessive dependence on computer leads to computer addiction. For example, many young people become addicted to computer games. Game addicts find it difficult to stop playing games and feel sad or angry when not allowed to play. Some gamers have difficulty adjusting to real life after having spent most of their time in the gaming world.

5.2 Preventing Computer-Related Health Issues

Health issues related to computer use can be prevented by following correct postures and good habits as listed below:

» Arrange a comfortable chair and table. Sit with your back straight and feet resting flat on the floor as shown in Figure 5.1.

Figure 5.1. Correct posture

» Adjust your chair and desk such that your screen is either at your eye level or lower.

» Place your keyboard next to the mouse, at a height that lets your elbows rest comfortably at your sides.

» Keep your wrist flat while typing as shown in Figure 5.2. Use your whole arm when moving the mouse. When you are not typing or using the mouse, remove your hands from the keyboard and relax or stretch.

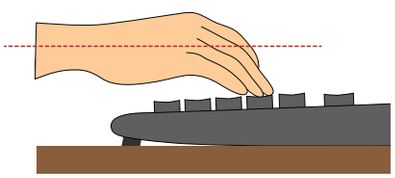


Figure 5.2. Wrist position

» Adjust the screen contrast and brightness such that your eyes are not strained. Tilt your screen to avoid reflection.

» Maintain a proper distance from the screen. Look away from the screen time to time and focus on faraway objects. Blink regularly to moisten your eyes. This will avoid dryness and burning in eyes.

» Take regular breaks about 10 minutes every hour from the computer.

» Set a time limit for playing computer games to avoid non-stop gaming. Instead, engage in playing outdoor games.

» Practise simple meditation or physical exercises and interact with friends and families to relieve stress.

Try This

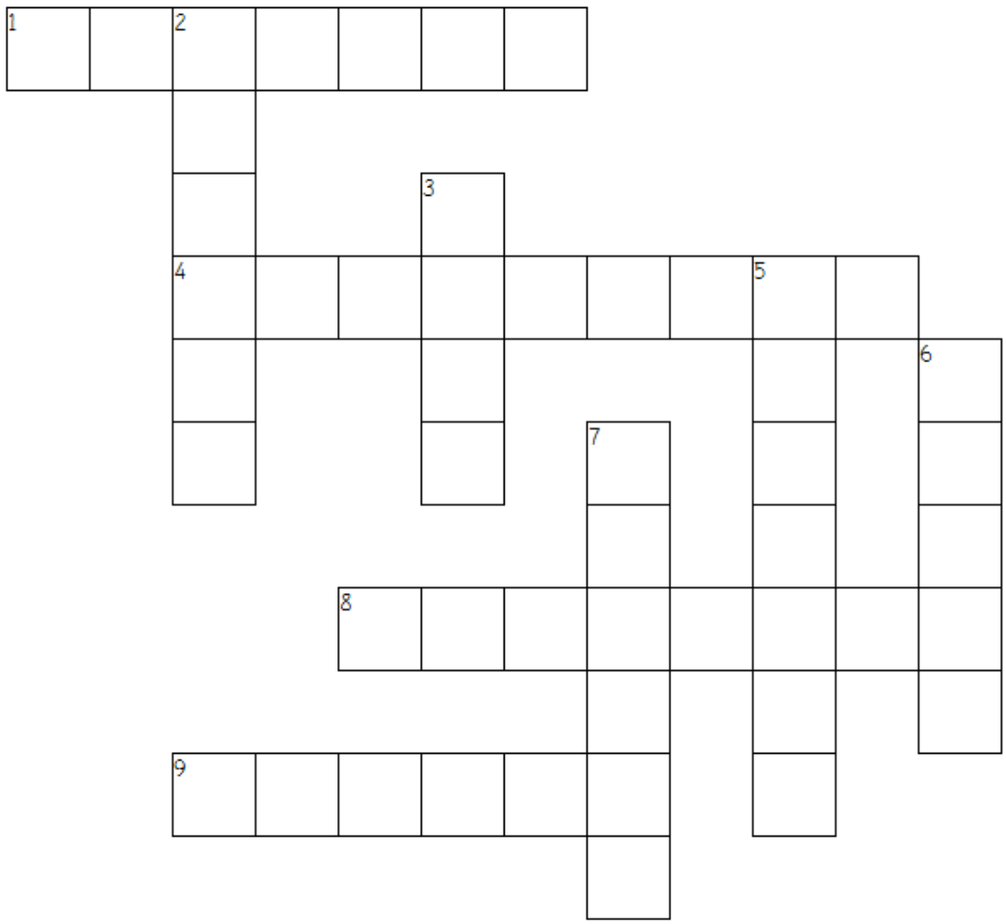
Redo the activity you did in the beginning of this chapter. Check if you answers have changed for each statement.

Now You Know

1. Computer related health issues are mostly caused by wrong postures and using computer for long period.
2. Following correct postures and good habits while using computer can prevent computer related injuries.

Check Your Progress

Using the clues given below, complete the crossword puzzle.



ACROSS

1 We should adopt correct body ..... when using a computer.

4 If you feel the need to use computer and cannot stay away from computer, you may be developing computer .....

8 We should avoid non-stop gaming on computer and engage in physical .....

9 We must take regular ..... from computer screen to give rest to your eyes.

DOWN

2 Bending over a keyboard when typing can cause ..... to your back.

3 Using computer without a break for a long ..... is harmful to our health.

5 Eating often and sitting long hours in front of computer without any exercise may result in .....

6 Playing ..... on the computer is exciting but it should be limited to short periods.

7 Prolonged use of computer may lead to emotional .....

Explore Further

What are the similarities and differences between computer addiction and television addiction?

Web Links

1. Computer use and health issues

- http://www.makeuseof.com/tag/5-reasons-working-with-computers-is-bad-for-you-how-to-stay-healthy/
- http://www.cyh.com/HealthTopics/HealthTopicDetails.aspx?p=243&np=295&id=2375
- http://www.thehealthsite.com/diseases-conditions/6-worst-health-problems-common-with-computer-use-sh214/

6

SEARCHING ON THE INTERNET

In this Chapter

Learning Objectives

1. Use basic search techniques to find information.
2. Provide source of online information.
3. Indicate ownership of one's own work.

6.1 Search Strategy

Try This

Identify and list the key words for each of the following questions:

(a) Which mineral is good for the formation of bones and teeth?
(b) Why do we celebrate Tshechu?
(c) What is the name of the famous tower in France?

We have learned in class five that the Internet is a vast source of information. It provides information on variety of areas including health, business, government, career, education, entertainment, religion and news. Given the huge amount of information on the Internet, it would have been difficult if there were no search engines. Search engines help users to locate information on the Internet quickly. Using words or phrases in the search engine will result in hundreds of links on a topic. Using good search strategy will help to find specific information quickly. Search strategy is a way of using the keyword or phrase that will narrow the search results. Let us now look at some search strategies.

(a) Keyword Search

It is a form of searching on the Internet using a keyword. A keyword is one or more words taken from a question, which is used to search for an answer or a piece of information for the question. A simple way to get a keyword from a question is by

» identifying the main words,

» ignoring the common words and punctuations,

» adding words that give similar meaning.

For example, let us look at the question **In what ways are acid useful to us?**. The main words can be **acid** and **useful** to make the keyword **useful acid**. The result of this keyword search will display a list of links on useful acid.

If the search results do not provide relevant information to your question, you can refine your search by changing keywords. For example, the keyword **useful acid** can be changed to **uses of acid** to get more appropriate information for the question.

Do You Know?

- Upper case or lower case keyword will give the same result in most search engines.
- Alan Emtage created the first search engine called Archie in 1990.

(b) Phrase Search

Searching for information using a keyword within quotation marks is called **phrase search**. The quotation marks tell the search engine to look for information that matches the keyword exactly as enclosed in quotes. For example, **"uses of acids"** tells the search engine to look for the phrase in the order it appears.

(c) Boolean Search

It is way of combining keywords with Boolean operators such as **AND**, **NOT** and **OR** to further produce more relevant results.

The Boolean search operator AND narrows a search by finding the websites that use both the specified keywords. For example, Paro AND Airport will look for all the websites that has both the words. You can also use **+** symbol in place of AND. For example, Paro + Airport.

The Boolean search operator NOT narrows a search by excluding the keyword that follows the operator. For example, Paro NOT Airport will look for only the websites with the word Paro. The search will not display any link to the word Airport. You can also use – symbol in place of NOT. For example, Paro-Airport.

The Boolean search operator OR broadens a search to include results that contain either of the words you typed in. For example, Paro OR Airport will look for all the websites that has either of the words.

Try This on Machine

You were given a science project to find out why an object weighs more on the Earth than on the moon.

(a) List the main words and frame a keyword.

(b) Note the differences in the search results as you carry out each of the following tasks:

1. Use a keyword search to find the information.
2. Do a phrase search for the information.
3. Use Boolean searches to get the information.

6.2 Citing Online Sources

You have learned how to search for information on the Internet. The information that we refer or gather from the Internet are ideas shared by other people. When we use information shared by others, it is important and morally right to mention or cite the source of information in your work. Mentioning or citing a source means telling your readers that certain information in your work is not your original idea but came from another source. The source can be mentioned within the text

or at the end of the text. This process of mentioning the source of information in your work is called **citation**.

Citing the source of any information taken from the Internet in your work is important because:

» It tells readers how much reading you have done for your work.
» It points your readers to the sources you have used.
» It avoids **plagiarism**. Plagiarism is a form of cheating where you use someone else's ideas and present them as your own.
» It acknowledges other people's work.

Even in our own work, we mention our names so that people will know that you are the writer or author of the work such as magazine articles, paintings, essays, poems and books.

To cite the source of information taken from websites, we need to have the following information:

1. **Author of the article**
2. **Title of the article**
3. **Year of posting the article**
4. **Date of accessing the webpage**
5. **The URL of the webpage**

As an example, let us now look at the Figure 6.1, webpage **http://www.bbs.bt/news/?p=57274** and find information required to cite its source.

1. **Author:** Cheten Dupchu
2. **Title of the article:** Bhutan wins 16 medals in South Asian Games
3. **Year of posting the article:** 2016
4. **Date of accessing the webpage:** 20 August 2016
5. **The URL of the webpage:** http://www.bbs.bt/news/?p=57274

Bhutan wins 16 medals in South Asian Games

Title

Cheten Dupchu, Thimphu
Feb 16 2016

Author and Date

Bhutan recorded its highest medal wins during this year's South Asian Games which concluded today. Despite achieving the feat of winning 16 medals, Bhutan ranked bottom of the table in the medal tally for third time in the event's history.

Bhutan surpassed its earlier record of 14 medals, which includes a gold medal in 1999. The year still remains Bhutan's top performance till date.

Bhutan bagged 15 bronze medals but managed to win only one silver medal, this time. It has been barren run yet again for the country in winning the gold medal since 2004.

Bhutan won the medals in three sports events only.

The most medals were won in Taekwondo followed Archery and boxing. The Bhutanese athletes will be returning to the country tomorrow.

Figure 6.1. Online article

Now that you have gathered the required information, you are ready to cite the source of information in your work. There is a correct way of writing it. Given below is one format of citation, which is added at the end of the text.

Author (Year, Month Date). Title of article. Retrieved from URL

Following this format, our earlier example (Figure 6.1) will, be cited as

Cheten Dupchu (2016, February 16). Bhutan wins 16 medals in South Asian Games. Retrieved from http://www.bbs.bt/news/?p=57274

Some webpages may not provide name of author or date. In such cases, you mention the title, date of referring the article and its URL.

Try This on Machine

(a) Refer the following websites and write about balanced diet in MS Word.

- http://www.wikihow.com/Maintain-a-Balanced-Diet
- http://www.healthline.com/health/balanced-diet#AchievingaBalancedDiet4
- http://www.caloriesecrets.net/what-is-a-balanced-diet-and-why-is-it-important/
- http://www.nhs.uk/Livewell/Goodfood/Pages/Healthyeating.aspx
- http://daniyasheikh.hubpages.com/hub/What-Is-A-Balanced-Diet-Definition-Tips-And-Guide

Your writing should cover the answers to these four questions:

» What is balanced diet?
» Why is it important?
» What are sources of balanced diet?
» Find out if your own diet is balanced?

(b) Cite the sources of the information, and include your name and class at the end of your work.

Now You Know

1. Information on the Internet can be searched quickly and effectively by using search strategies like keywords, phrases and Boolean operators.
2. Keywords in quotation marks are used in phrase search.
3. AND, NOT and OR are Boolean operators used in Boolean search.
4. We have to cite the source of information taken from the websites to acknowledge other people's ideas.

Check Your Progress

1. Choose the most correct answer from the given choices.

   a. The Boolean operator which narrows the search by excluding the keyword after it.

   - AND
   - OR
   - NOT
   - NEAR

b. Following are the reasons for citation, EXCEPT
   - To list the sources.
   - To copy other people's ideas.
   - To avoid plagiarism.
   - To acknowledge the author.

c. Which search strategy uses the keywords within the quotation marks to search for information?
   - Boolean
   - Keyword
   - Phrase
   - Google

d. Which search description will give the best result to search information about History of Bhutan?
   - History OR Bhutan
   - History AND Bhutan
   - History IN Bhutan
   - History NOT Bhutan

e. Presenting somebody's idea as your own without acknowledgement.
   - Citation
   - Plagiarism
   - Sharing
   - Referencing

f. We have to look for the following areas to cite an information from a website, EXCEPT:
   - Author of the article.
   - Title of the article.
   - Date of accessing the webpage.
   - Name of the search engine.

g. It is a way of acknowledging other people's ideas which you have used in your work.

- Plagiarism
- Citation
- Search strategy
- Ownership

Explore Further

There is another way to search information on the Internet called **wildcard search**. Using the search strategies you have learned, find out:

1. What is a wildcard search?
2. What are the common wildcard characters?
3. When do you use the wildcard search?
4. Use the wildcard search strategy to search information on the Internet.

Web Links

1. Citing Source of Online Information

- http://blog.apastyle.org/apastyle/2010/11/how-to-cite-something-you-found-on-a-website-in-apa-style.html
- http://libguides.mit.edu/citing

7

INTERACTION IN SCRATCH

In this Chapter

Learning Objectives

1. Use Control blocks in an animation to make a decision.
2. Use Events blocks to communicate between Sprites.
3. Use Sensing blocks in an animation to interact with users.
4. Use algorithm to solve a complex problem.

7.1 More Control Blocks

In class five, we have learned the functions of some Control blocks such as repeat, wait, sensing, if-then, and if-then-else. We can also make the Sprite perform a task repeatedly until a given condition is met, or stop script in the animation. This can be done by using some other blocks under Control category.

Let us discuss the following blocks:

A. repeat until block

This block runs the blocks inside it repeatedly until the condition set for the block is true (Figure 7.1).

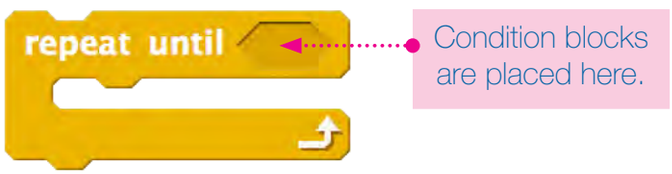


Figure 7.1. Using repeat until block

Example: Script to make Sprite move until it touches the edge of the stage (Figure 7.2).

Figure 7.2. Example of using repeat until block

B. wait until block

This block waits until the condition set for the block is true. When the condition becomes true, it runs the blocks below it.

Example: Script to play sound when spacebar is pressed on the keyboard (Figure 7.3).

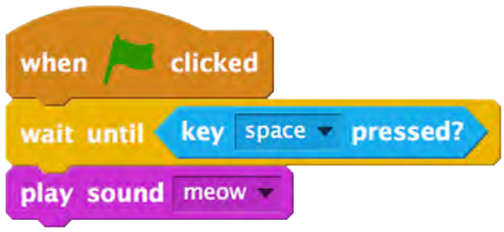


Figure 7.3. Example of using wait until block

C. stop block

This block stops the script. It has three options **all**, **this script** and **other scripts in sprite** as shown in Figure 7.4.

Figure 7.4. Options available in Stop block

1. **all** - Stops all the scripts for all the Sprites in the animation.
2. **this script** - Stops the script this block is attached to.
3. **other scripts in sprite** - Stops other scripts for a particular sprite.

Example: Script to stop a moving Sprite when it touches a specific colour (Figure 7.5) .

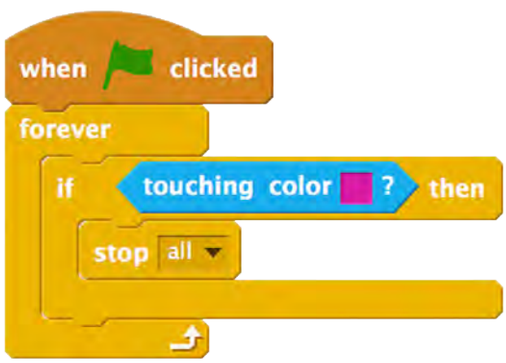


Figure 7.5. Example of using Stop block

Try This on Machine

1. Create an animation in which a Sprite stops when "H" key is pressed.
2. Insert another Sprite to the animation and it should move only when "S" key is pressed.
3. Make the second Sprite produce sound when it touches the first Sprite.

7.2 Events Blocks

In class five, you have learnt to use events like clicking on Sprite and pressing a key on the keyboard to run an animation. Animations in Scratch can be made more realistic by making Sprite and Sprite, or Sprite and Backdrop to interact between themselves. This is done by sending and receiving broadcasts. A broadcast is a message that is sent to all the Sprites and Backdrops in the animation.

A. broadcast block 

This block sends a message throughout the animation. The message is identified by a name. Follow the steps given below to send a message:

1. Click on dropdown menu > new message (Figure 7.6)
2. Give a name to the message in the textbox of the New Message dialog box.
3. Click Ok.

Figure 7.6. Specifying a message

B. when I receive block

This block runs the script below it when a specific message is received.

Example: To play a sound when the message "Make a sound" is received (Figure 7.8).

Figure 7.8. Play sound when message is received

C. broadcast and wait block

This block broadcasts the message and waits for the receiving blocks to complete running the scripts attached to them before continuing.

Try This on a Machine

Create an animation in the following sequence:

1. Sprite **Calvrett** asks Sprite **Dan** to sing a song.
2. Dan sings a song.
3. Dan asks Calvrett whether he liked it or not.
4. Calvrett replies that he really enjoyed listening.

7.3 Coordinates

A. Coordinates

Stage is a 2-D coordinate plane with **x-axis** and **y-axis** as shown in Figure 7.9.

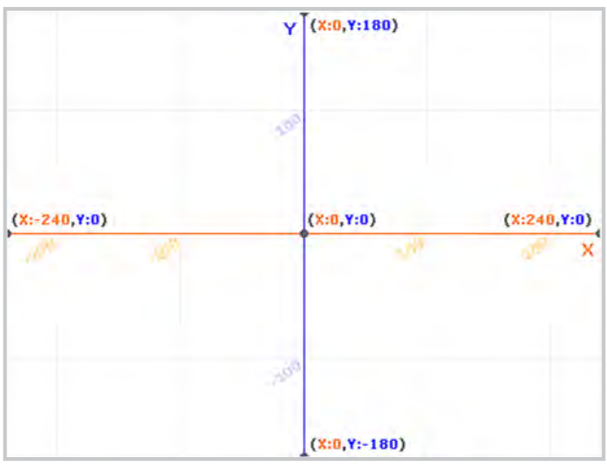


Figure 7.9. 2-D coordinate plane.

X-axis goes from side to side while **Y-axis** goes up and down. Every point on the stage has a position on the **x** and **y** axes. We write that position in parentheses, and put the **x** and **y** position separated by a comma (x, y). This pair of numbers is called **coordinates**.

For example in (-75, 40), x position is -75 and y position is 40.

Center of the stage is represented by coordinates (0, 0), **zero** for x-axis and **zero** for y-axis. This point is also known as **origin**.

Tips

- X position value determines the horizontal location of the Sprite.
- Y position value determines the vertical location of the Sprite.
- X position can range from -240 to 240.
- Y position can range from -180 to 180.
- When a Sprite moves a step, it covers a distance equal to one pixel.
- Pixel is the basic unit on the screen.

B. Setting X and Y Positions

1. set x to block 

This block sets a Sprite's x coordinate to a specified value.

2. set y to block 

This block sets a Sprite's y coordinate to a specified value.

3. x position block 

This block stores and displays x coordinate of a Sprite.

4. y position block 

This block stores and displays y coordinate of a Sprite.

x and y position blocks are also called **Stage monitors**. These blocks must be checked from the Blocks palette to actually display the positions on the Stage as shown in Figure 7.10.

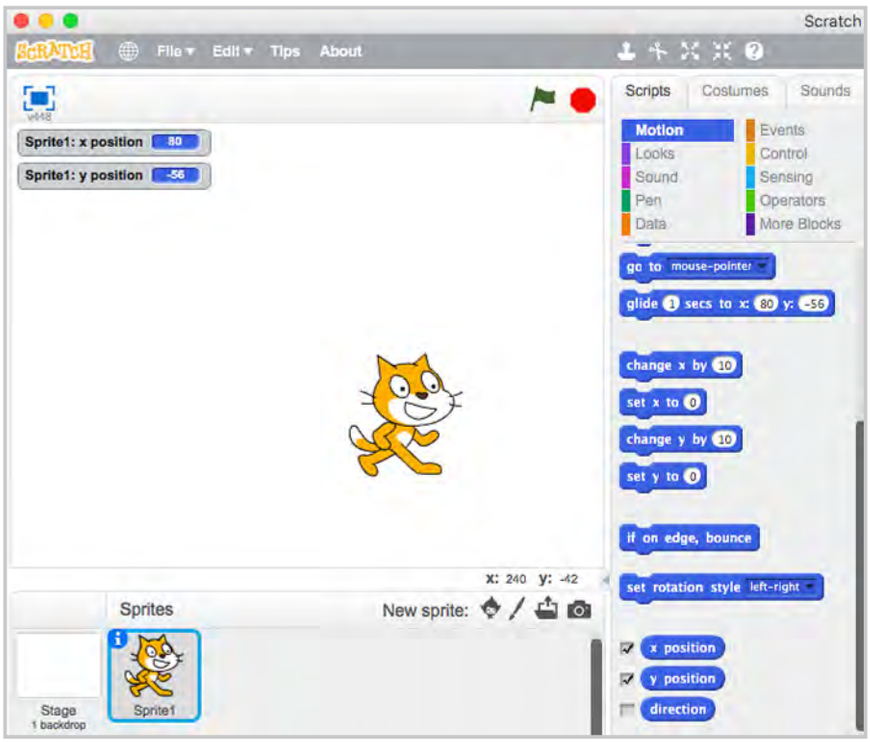


Figure 7.10. Displaying the Sprite's coordinates on the Stage

C. Drawing Shapes on a Coordinate Plane

In class five we have learned to draw shapes by specifying angles. Shapes can also be drawn by specifying the coordinates.

Steps to draw a shape:

1. Insert **XY-grid** as a Backdrop.
2. Insert a Sprite of your choice.
3. Determine the shape and the coordinates of its corners.
4. Determine starting coordinates to draw the shape.
5. Use appropriate blocks (move, go to, change y by, change x by and pen down) to draw the shape.

Example: Rectangle with coordinates (-100, 0), (-100,100), (100, 100) and (100, 0) can be drawn with the script shown in Figure 7.11.

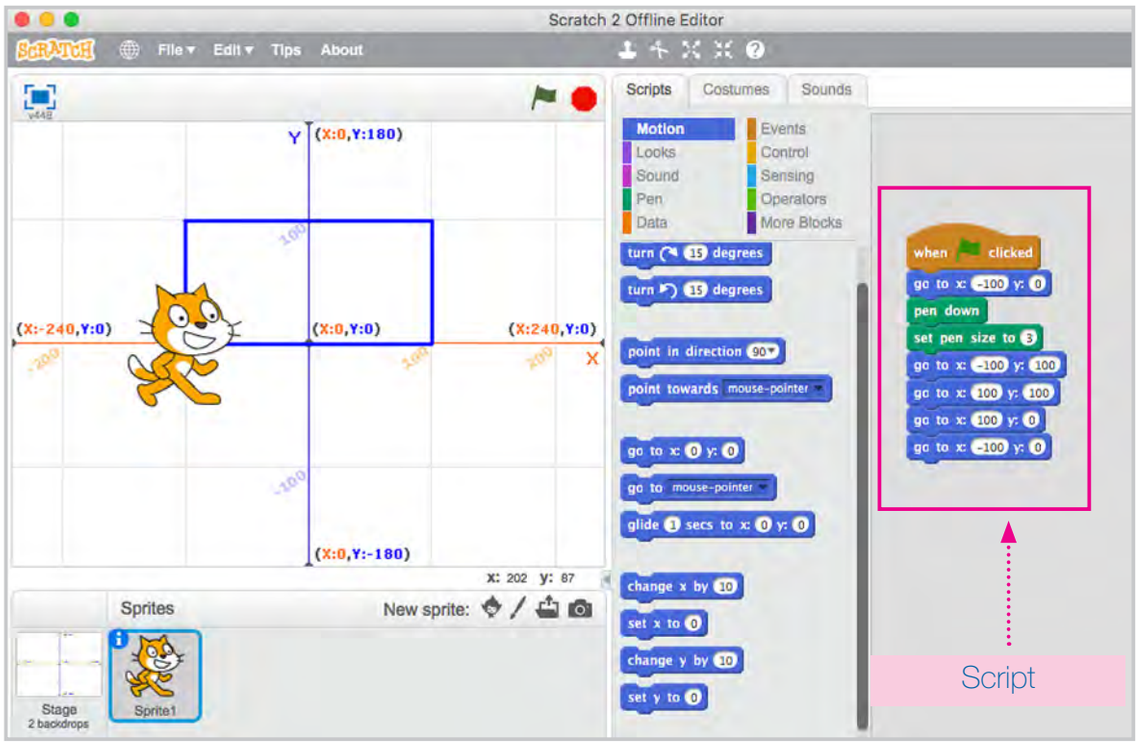


Figure 7.11. Rectangle on XY-grid and its script

Try This on Machine

Draw a hexagon, parallelogram, trapezium, kite and rhombus.

7.4 Operator Blocks

We can perform logical and mathematical operations in Scratch. Operators category has a number of blocks used for mathematical and logical operations.

The functions of some of the Operators blocks under Operators category are as follows:

A. add block

This block adds two numbers and reports the sum.

B. subtract block

This block subtracts second number from the first number, and reports the difference.

C. multiply block

This block multiplies two numbers and reports the product.

D. divide block

This block divides first number by the second, and reports the result.

For example, in the script in Figure 7.12, the Sprite displays the answer after division for 10 seconds.

Figure 7.12. Sprite reporting the result of an operation

E. join block

This block joins two values together and reports the result. Values can be text or numbers typed directly or from reporter blocks. Joining two or more values is called **concatenation**.

For example, in Figure 7.13 A a user directly enters "hello" and "world" in join block. It combines these two words into one phrase as "hello world".

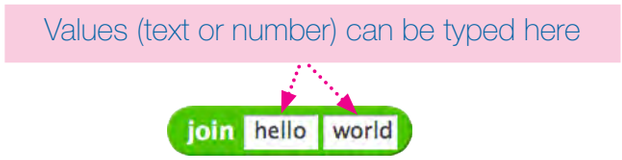


Figure 7.13 A. Joining values

Other blocks such as Operator blocks and Reporter blocks can also be dragged and placed inside the join block as shown in Figure 7.13 B. and Figure 7.13 C.

Figure 7.13 B. Joing Values

Figure 7.13 C. Joining values

Try This on Machine

Write a script in which a Sprite says "Any number divided by zero is infinity" when a number is divided by 0.

7.5 Sensing Blocks

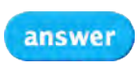
In class five, you have learned to add user's input like mouse click or pressing a key on the keyboard to run blocks. We can also make Sprites interact with users using Sensing blocks. Making Sprites ask questions to the user and display the user's input, and reporting mouse positions and clicks on the Stage are a few examples.

The functions of some of the Sensing blocks under Sensing category are as follows:

A. ask and wait block

This block displays the text entered in the block in a speech bubble and an input box at the bottom of the Stage for the user to enter a value (text or number). It waits for the user to type in a value and send it to **answer** block by pressing enter key or clicking on tick mark at the end of input box.

B. answer block



This block stores the user input. It keeps updating the most recent input from the user. It can also be displayed on the Stage. To display the answer block on the Stage, check the check box in front of the answer block on the Block palette area.

For example, a script which asks the name of the user and then displays the name as shown in Figure 7.14.

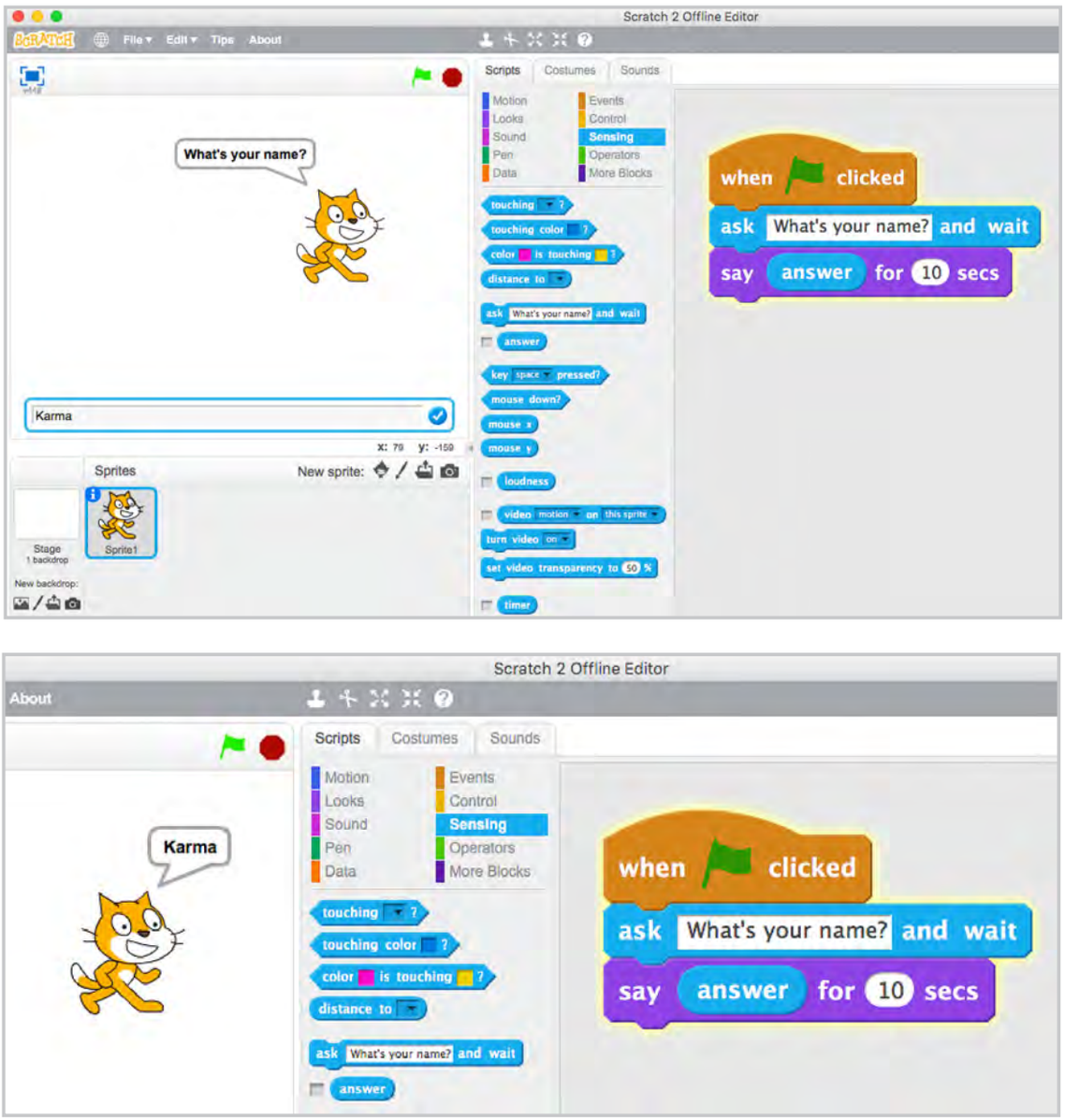


Figure 7.14. Example of Ask and Answer blocks

C. mouse down block 

This block checks if the mouse is being clicked while the script is running.

D. mouse x block 

The mouse x block stores and reports the mouse-pointer's current x coordinate as shown in Figure 7.15.

E. mouse y block mouse y

The mouse y block stores and reports the mouse-pointer's current y coordinate as shown in Figure 7.15.

Figure 7.15. Example of mouse position blocks.

Try This on Machine

Make an animation where a Sprite moves continuously and asks your name when touched with a mouse pointer. After getting the answer, it says your name for 3 seconds and starts moving again. (Hint: forever block, if then else, ask block).

7.6 Writing Algorithm

For a complex problem, it is always better to split it into simpler units so that it becomes easier for us to solve it.

For example, in an animation a dog barks at a cat and chases it. The cat runs away from the dog and enters a house. The dog then stops outside the house.

This whole process looks difficult and confusing. But we can simplify it by breaking down the process into small and separate units as follows:

Dog	Cat	Backdrop
1. Sees the cat. 2. Starts barking. 3. Follows the cat. 4. Stops at the door.	1. Starts running when the dog barks. 2. Moves towards the house. 3. Enters the house.	1. Set the backdrop to outside scene. 2. When the cat enters the house, backdrop changes to inside scene.

Now, as you can see it becomes easier to translate those steps into scripts in Scratch. Figure 7.16 shows the script for the dog.

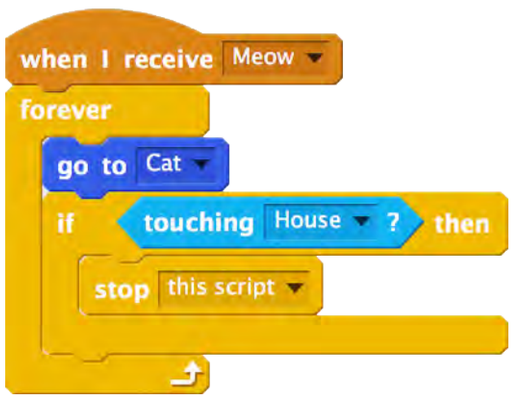


Figure 7.16. Sample script for Dog

There are some important points to consider when writing an algorithm. A good algorithm generally has these features:

» **Input**: What do we need to provide?

» **Output**: What should I get at the end?

» **Steps in definite order (logical)**: What steps to follow to get output?

» **Doable steps**: Can every step be done?

» **Final steps**: Do the steps come to an end?

Given below is the algorithm to find the sum of two numbers. Let us see if it is a good algorithm by checking for the features mentioned above.

Step 1: Start

Step 2: Provide two numbers to the computer

Step 3: Add two numbers

Step 4: Show the sum

Step 5: Stop

From the above algorithm, it is clear that

» we need to provide two numbers, which is the input.

» the sum of the two numbers is the output.

» the steps should be carried out in given order to get the output.

» all the steps are doable.

» the program comes to end when the last step is achieved.

The above algorithm to find the sum of two numbers in Scratch looks like in Figure 7.17.

Figure 7.17. Sum of two numbers

Try This!

Create an algorithm for a simple animated scene on a topic of your choice. Break down the scene into small sections of actions and dialogues. Write a program in Scratch to create the animation.

Now You Know

1. If then else block runs a set of blocks depending on whether the condition is true or false.
2. Repeat until block repeats the script inside it until the condition becomes true, whereas wait until block pauses the script until the condition becomes true.
3. We can stop either all the scripts or specific scripts using Stop block.
4. Messages can be sent and received using Broadcast and When I receive blocks.
5. Sprite can communicate using ask, broadcast, and When I receive blocks.
6. Mouse action and position can be sensed and reported using Sensing blocks.
7. Shapes can be drawn using coordinates.
8. Mathematical operations can be performed in Scratch.
9. We can concatenate values using join block.
10. It is easier to solve a problem by breaking it into smaller scripts.

Check Your Progress

1. Answer the following
   (a) What is the height and width of the Stage?
   (b) What is the default coordinates of default Sprite Cat when a new Scratch file is opened?
   (c) Write different ways to bring Sprite to the centre of the Stage.
   (d) Differentiate between **wait until** and **repeat until** blocks?

2. State True or False
   (a) We can place repeat block inside if then else block.
   (b) Sprite can perform mathematical operations.
   (c) To move the Sprite upwards we specify the x value.
   (d) We can draw shapes only by using coordinates.
   (e) Only two Sprites can communicate within an animation.

3. Fill in the blanks
   (a) Coordinates for the midpoint of the right edge of the stage is .....
   (b) The ..... block stores and reports the user input.
   (c) Broadcast block is used along with ..... block.
   (d) A reporter block that displays the value on the Stage is called .....
   (e) Combining two or more values is called .....

4. Modify the blocks in the script shown in Figure 7.18 such that Sprite moves to and fro on the Stage saying its coordinates after every step.

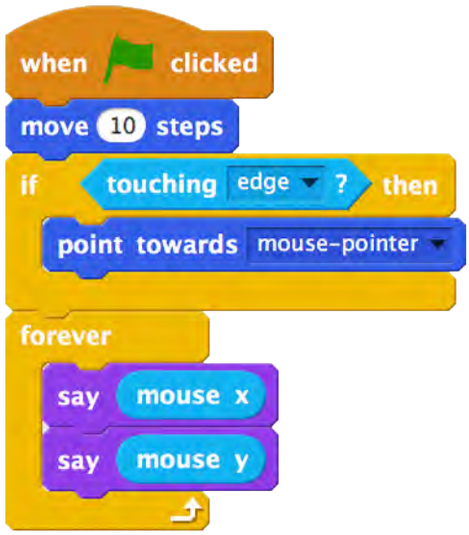


Figure 7.18. Script for the Sprite

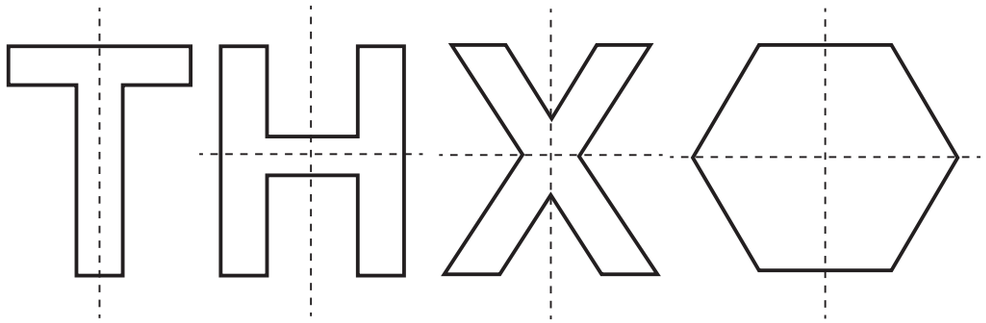
5. In the script shown in Figure 7.19, a Cat commands a Crab to walk. But the Crab does not listen to the Cat. Find out the problem and correct the Script for Crab.

Figure 7.19. Script for the cat and crab

6. Create an animation in which four friends Cat, Gobo, Pico and Tera go for a walk by the sea side. They are talking turn wise. They continue until the cat signals that there is a tiger. On receiving the signal, all four start jumping and running in four directions. If any one of them collides with the tiger, it shouts "Tiger! Tiger!" and falls. If not, they continue running in different directions.

Explore Further

1. Create an animation to draw each of the following symmetrical figures.



2. Create an animation for a short dialogue between a student and a teacher. Animation must include scene change, Sprite motion, backdrop change and costume change. You may create and add your own sprites, background and sounds.

3. Create an animation in which a teacher asks student a question. If the answer is correct, teacher praises by saying "Very Good" with clapping sound. Else teacher says "You must study once again". (Hint: Use comparison operators)

Web Links

1. **Broadcast**
   http://wiki.scratch.mit.edu/wiki/Broadcast
2. **Algorithms and Scratch program.**
   http://www.code-it.co.uk/scratch
3. **Scratch Resources**
   http://technologypainting.com/

4. Coordinates in Scratch

http://www.multiwingspan.co.uk/scratch.php?page=coord

5. Arithmetic operators

http://cnx.org/contents/97fc1f9c-bb27-42b2-8fca-797754e8f1ef@1/Scr0340:_Arithmetic_Operators_#The_Operators_panel

6. Creating Shapes

https://www.edutopia.org/blog/scratch-programming-drawing-2d-shapes-dylan-ryder

END OF THE YEAR ACTIVITY

Key Skills:

1. Using tables and objects in MS Word
2. Using email
3. Collaborating online
4. Citing source of information
5. Adding interactions in Scratch animation

Task

Every organism needs to obtain energy in order to live. For example, plants get energy from the sun, some animals eat plants, and some animals eat other animals. The sequence in which organisms obtain food in nature is called food chain.

1) Create a main folder named **project** and create three sub folders as **images**, **word** and **scratch**.
2) Discuss and agree on the topics to be included in the project using the Google Classroom.
3) Based on the topics you have agreed, search for
   a) Images related to food chain and save it in **images** folder.
   b) Information on food chain.

4) In a Word document, organize the information on food chain using tables, images, header and footer, and page number.

5) Give a proper citation of the sources of information at the end of your document.

6) Save the document as **food chain** in the folder **word**. Protect the document with a password.

7) In Scratch, create an interactive animation showing a food chain and save it as **animation** in the folder **scratch**. Your animation should have
   a) User interaction
   b) Message passing
   c) Decision making and repetition

8) Send an email to your teacher sharing your experiences in doing the project.

ASSESSMENT CHECKLIST

Name of the Student : .....

Roll No: ..... Class: ..... Section: .....

School : .....

Tick (✓) under the appropriate column 1, 2 or 3 against each core competency statement. The numbers, as described below, indicate the competency level of a student in each of the stated skills:

1 = Some of the time 2 = Most of the time 3 = All the time

For Explore Further activity, use tick (✓) or cross (x) to show whether the student was able to successfully do it or not.

Sl. #	Chapter 1 Core Competencies	Degree		
		1	2	3
1	Identify internal hardware components of a computer.			
2	Describe the functions of internal hardware components.			
3	Use folders to organize files in a computer.			
	Subtotal 1			
Explore Further				
a	Find out and write down the names and functions of other parts of computer which has not been discussed in the class.			

Sl. #	Chapter 2 Core Competencies	Degree		
		1	2	3
1	Use tables in a document.			
2	Format objects in a document.			
3	Insert header and footer.			
4	Protect document with a password.			
	Subtotal 2			
Explore Further				
a	Draw the life cycle of an animal using SmartArt. Add relevant text and pictures.			
b	Create a poster of classroom rules on being a good listener (as shown in the picture).			

Sl. #	Chapter 3 Core Competencies	Degree		
		1	2	3
1	Define a computer network.			
2	List required devices for Internet connection.			
3	Identify general web address structure.			
4	Discuss ideas using an online collaboration tool.			
	Subtotal 3			
Explore Further				
a	Find and describe five websites with their URLs ending in .bt			
b	Find out which ISP provides the Internet connection to your school? Find out the monthly fee paid by the school.			

c	In Google Classroom, make a new post with an interesting picture, and ask your friends to comment on your post.	

Sl. #	Chapter 4 Core Competencies	Degree		
		1	2	3
1	Exchange emails.			
2	Follow email etiquette.			
	Subtotal 4			
Explore Further				
a	Is there a way to send one email to multiple people at once? One way is to add multiple email addresses in To box. Explore another way to do it.			

Sl. #	Chapter 5 Core Competencies	Degree		
		1	2	3
1	Explain common health issues related to use of computer.			
2	Explain ways to prevent injuries related to use of computer.			
	Subtotal 5			
Explore Further				
a	What are the similarities and differences between computer addiction and television addiction?			

Sl. #	Chapter 6 Core Competencies	Degree		
		1	2	3
1	Use basic search techniques to find information.			
2	Provide source of online information.			
3	Indicate ownership of one's own work.			
	Subtotal 6			
Explore Further				
a	What is a wildcard search?			
b	What are the common wildcard characters?			
c	When do you use the wildcard search?			
d	Use the wildcard search strategy to search information on the Internet.			

Sl. #	Chapter 7 Core Competencies	Degree		
		1	2	3
1	Use Control blocks in an animation to make a decision.			
2	Use Events blocks to communicate between Sprites.			
3	Use Sensing blocks in an animation to interact with users.			
4	Use algorithm to solve a complex problem.			
	Subtotal 7			
Explore Further				
a	Create an animation to draw each of the four given symmetrical figures.			

b	Create an animation for a short dialogue between a student and a teacher. Animation must include scene change, Sprite motion, backdrop change and costume change. You may create and add your own sprites, background and sounds.	
c	Create an animation in which a teacher asks student a question. Teacher says "Very Good" and "claps" if the answer is correct. Else teacher says "You must study once again" if the answer is wrong. (Hint: use comparison operators)	

Total A = Subtotals 1 + 2 + 3 + 4 + 5 + 6 + 7

= .....

Sl. #	End of the Year Activity	Degree		
		1	2	3
1	Information on food chain organized and presented using various objects in Word. (Assesses the ability of organizing information using tables, shapes, images, clip arts, page number and header and footer)			
2	Files arranged in appropriate folders and sub-folders. Word document is password protected. (Assesses the student's ability to password protect Word document and manage files in folders and sub-folders)			

Sl. #	End of the Year Activity	Degree		
		1	2	3
3	Proper citation included in the document. (Assesses the student's ability to correctly cite the source of information in the document)			
4	Experience of doing this activity shared to the teacher by email. (Assesses the student's ability to communicate through email)			
5	Common topics for food chain agreed through Google Classroom. (Assesses the student's ability to discuss ideas using a collaborative tool)			
6	Food chain animated in Scratch using user interaction, loops and conditions. (Assesses the student's ability to incorporate user interaction, loops and conditions in a program to make it interactive)			
	Total B			

Total points scored = Total A + Total B = ...

$$\text{Score} = \frac{\text{Total points obtained}}{\text{Number of checklist items} \times 3} \times 100\,\%$$

Grade = ...

Note: Refer the table on page 134 to award grade.

ASSESSMENT PLAN

The achievement of learning objectives will be the focus of assessment for this course. This will include essential ICT knowledge, skills, values and computational thinking practices. This assessment comprises of two parts: the **through-course assessment** and the **year end assessment**, which will be examined through observations, conversations and portfolios.

The through-course assessment tasks consist of **Try This**, **Try This on Machine** and **Check Your Progress** which are designed to gather the evidence of student proficiency in specific skills defined in the learning objectives.

The year end assessment requires students to apply the key skills they have acquired over the year in a holistic way. This is a project based assessment spanning over several periods. Sample project is included in the book but teachers may choose to create their own projects, modelled on the sample. Students should also be encouraged to come up with their own projects. Teachers should ensure that key skills learnt during the course are clearly identified and applied in the projects.

In doing the assessment, teachers should focus on observing and discussing:

» how students carry out ICT supported learning.

» how students collaborate with peers, and seek support from parents and teachers.

» how students are progressing in their learning on the basis of work they are doing or have completed.

They should be given ample support and feedback to develop their competency in the key skills before they are assessed. This is to ensure that the nature of assessment is mostly formative as envisioned for this curriculum.

Assessments are done through checklists based on the learning objectives. Student's competency will graded in a scale of 1 to 3. Grades should be given after careful evaluation of how consistently the student has demonstrated the required competency.

The overall competency of a student is determined on the basis of the cumulative score of through-course assessments and the year end assessment. Based on the student's score, a grade from A to D will be awarded as per the table given below:

Score	Grade	Description
80% and above	A	Student is an expert in this area. He/she can provide guidance, troubleshoot and answer questions related to this area where the skill is used.
60% to 79%	B	Student can perform the actions associated with this skill without assistance. He/She is certainly recognized amongst the peers as "a person to ask" when difficult questions arise regarding this skill. He/She might require help from the teacher once in a while.
40% to 59%	C	Student is able to successfully complete tasks in this competency as requested. He/She will require help from the teacher time to time, but he/she can usually perform the skill independently.
Below 40%	D	Student have basic knowledge and understanding from experience gained in a classroom. He/She requires help when performing this skill.

Assessing Student Performance

Assessment is an integral part of teaching and learning. Teachers and schools are expected to conduct assessment to provide information about student's learning to the learner, the teacher and the parent.

Assessment is broadly of two types: formative assessment and summative assessment. Assessment primarily carried out to help students to learn is usually called formative assessment or assessment for learning. It takes place continually as students are learning. Assessment which is primarily for other purposes is often called summative assessment or assessment of learning. It usually comes at the end of learning.

The table below shows how assessment is used for variety of audiences and purposes.

Assessment OF Learning	Assessment FOR Learning
- To monitor national standards. - To report on achievement to students themselves and parents. - To make teachers, administrators and politicians accountable. - To screen students for higher studies and employment. - To determine what courses students should take in school or university.	- To help students to learn by diagnosing difficulties. - To support students to learn by providing feedback.

The distinction between summative and formative assessment can be confusing. After all, the results of assessment can often be used for both the purposes. When the results of assessment are used to evaluate student performance, it is called summative assessment. When the results of assessment are used to improve student performance, it is called formative assessment.

Assessment requires a variety of data-gathering methods, including observations, interviews, performances, and collections of student work.

Literacy with ICT looks at assessment through three lenses: observation, portfolio, and conversation.

Observations

By observing learners as they engage in using ICT, teachers determine which behaviours students have demonstrated and those they are still working towards. This information helps teachers plan for instruction that will further develop student's literacy with ICT.

Observation can be either direct or indirect. Direct observation is when you watch interactions, processes or behaviour as they occur, such as teacher watching student explore the Internet to find specific information. The teacher may focus on the student's ability choose the right tool and the relevancy of the information retrieved.

Indirect observations are when you watch the result of interaction, process or behaviour. For example, teacher can inspect the cleanliness of the computer laboratory to determine whether the students are following the laboratory rules.

Effective observation involves proper planning to determine the focus of observation. For example, in order to know how well your student applied the strategy while playing logical games, the focus should be on looking at the time taken to complete the game.

Teachers could use checklist, recording sheet and field notes to help them observe student's progress in use of ICT.

Conversations

Assessing literacy with ICT involves setting learning goals, building criteria and giving and getting feedback. These conversations may be shared between students, between teacher and student or be self-reflective. They may also be student-led conferences involving parents. This type of conversation is an important part of reporting to you about your child's literacy with ICT.

An effective conversation provides an opinion concerning the strengths and weaknesses of the student. The result may be then used to plan and design future learning programs.

Conversation may start with simple question of what their plan, quality of the work done and the results they achieved.

Portfolios

As they learn, students use portfolios to accumulate evidence of their literacy with ICT. These portfolios may be process or product portfolios, or a combination of the two. They may be paper-based or electronic. The electronic portfolio or e-portfolio may include images, audio, PowerPoint slides of the project, animation, video or a simple reflection. It can be used by teacher, parents and students themselves to document what they are doing (either day-to-day things or through their best work or improvements they've made).

Involving student actively in the portfolio process develops self-awareness, goal-setting, and decision-making skills essential for lifelong learning. They integrate diverse experiences in their portfolio over time and assess their own progress based on evidence and criteria, thus fostering the sense of responsibility and ownership of their own learning.

Students can organize their portfolios, as blogs, reflections on wiki, discussion on forum, and podcasting and vodcasting their works.

Focus on Proficiency

Assessment in this curriculum is based on holistic assessment of ICT skills and knowledge. Component skills would not be isolated and individually assessed. Doing so places strong emphasis on ICT literacy. Instead, a checklist would be developed which will define children's levels of performance or proficiency in each of the intended learning outcomes. It is hoped this will provide a good overview of children's area of strengths and weaknesses to plan for future learning.