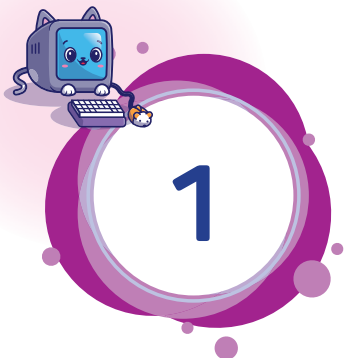


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EVOLUTION OF COMPUTERS



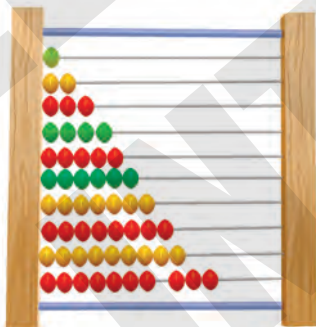
Learning Outcomes

At the end of this chapter, students will be able to:

- ◆ Know about varieties of calculating devices.
- ◆ Comprehend the differences between various calculating devices.
- ◆ Explain the evolution of computers.



Look at the pictures carefully and circle the pictures which are able to calculate.



Teacher's Note:

Apprise students that earlier computers were only designed to function like calculating devices.



“Hey Friends! We have already covered the components of computers in the previous class. Now, let’s learn about the changes that computers have undergone over time.”

Over the past few decades, computers have undergone significant advances. Many years ago, in their most basic form, computers were very huge and slow. Computers have evolved over time to become faster and smaller. Earlier, Abacus helped people to do calculations and now computers are envisioned to perform this task.

Calculating devices have been developing ever since, giving rise to the potent computers we have today.



ABACUS

The abacus is considered to have been the earliest mechanical calculator. It was used to rapidly and easily conduct addition and subtraction.

An **Abacus** is made up of a wooden frame with rods, each having beads. It is divided into two parts called ‘**Heaven**’ - the upper part and ‘**Earth**’ - the lower part. By carefully positioning the beads, any number can be displayed.



Do You Know?

Abacus is also called a counting frame.



Figure 1.1: Abacus



Let Me Answer

Have you ever done calculation using an abacus?



NAPIER'S BONES

John Napier of Scotland invented Napier's bones in 1617, a manually driven calculator for calculating products and quotients of numbers. It made the method of multiplication simple and also increased the speed of performing multiplication. This reduced the risk of error in large multiplication problems. This instrument was more compact than the earlier creations.



Figure 1.2: Napier's Bones



ARITHMETIC MACHINE

Blaise Pascal created the mechanical calculator known as [Pascal's calculator](#), often referred to as the [arithmetic machine](#) or [Pascaline](#), in 1642. It represents the position of digits with the help of gears in it.



Figure 1.3: Pascaline

Pascal designed the machine to add and subtract two numbers directly and to perform multiplication and division through repeated addition or subtraction.



STEPPED RECKONER

German scientist, Gottfried Wilhelm Leibniz, created the [stepped reckoner](#), sometimes referred to as the [Leibniz calculator](#), in 1672 and finished it in 1694. The machine performs the basic operation to add and subtract as well as multiplication by repeated addition, and division by repeated subtraction.



Figure 1.4: Stepped Reckoner

REMEMBER IT!



Sir Charles Babbage is also known as the 'Father of the Computer.'





ANALYTICAL ENGINE

English mathematician and computer pioneer, Charles Babbage, created a mechanical general-purpose computer called the **Analytical Engine**. It could perform any calculations. It had four different components or parts. These components are the reader, the store, the mill and the printer which are essential components of every computer, even today.

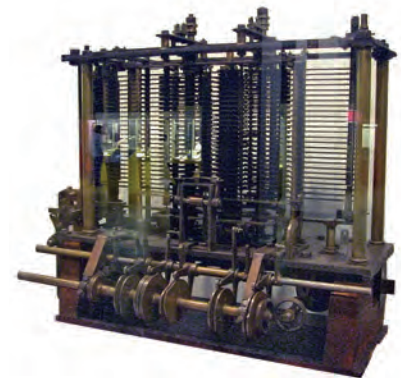


Figure 1.5: Analytical Engine



Let Me Answer

What are the components of computer?



TABULATING MACHINE

Tabulating Machine was invented by an American Statistician Herman Hollerith. This machine had the ability to read and process the data, further giving the desired output. Punch cards were used to give the inputs.



Figure 1.6: Tabulating Machine



ENIAC

Invented by American physicist John Mauchly and American engineer J. Presper Eckert in 1946, **ENIAC** was the first programmable, electronic, general-purpose digital computer. These features were available on other computers, but the ENIAC offered them all in one convenient package. It could solve a vast category of numerical problems through reprogramming.



Figure 1.7: ENIAC



UNIVAC I

UNIVAC I stands for **Universal Automatic Computer I**. It was the first commercially available general-purpose electronic digital computer designed in the United States for business applications.



Figure 1.8: UNIVAC-I



HARVARD MARK I

Howard Aiken at Harvard University and IBM developed the Harvard Mark I in 1944. It is also referred to as the **Automatic Sequence Controlled Calculator**.

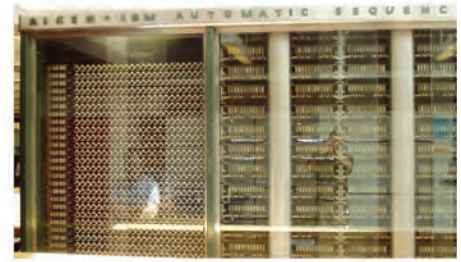


Figure 1.9: Harvard Mark-I

It was a general-purpose electromechanical computer. It also provided vital calculations for the U.S. Navy during World War II. One of the early programs to run on the MARK I was initiated on 29th March 1944 by John Von Neumann.



Kids' IQ

Arrange the following devices in descending order according to their year of invention.



Let's Recall

- The abacus is considered to have been the earliest mechanical calculator.
- Blaise Pascal created the mechanical calculator known as Pascal's calculator.
- John Napier of Scotland invented Napier's bones, a manually driven calculator.
- Charles Babbage created a mechanical general-purpose computer called the Analytical Engine.
- UNIVAC I stands for Universal Automatic Computer I.
- ENIAC was invented by John Mauchly and J. Presper Eckert, in 1946.
- Howard Aiken at Harvard University and IBM developed the Harvard Mark I in 1944.



A. Fill in the blanks.

1. Abacus is divided into two parts called ‘ ’ - the upper part and ‘ ’ - the lower part.
2. Over the past few decades, computers have undergone significant
3. UNIVAC I stands for
4. Charles Babbage created a mechanical general-purpose computer called the
5. One of the early programs to run on the MARK I was initiated by

B. Answer the following questions.

1. State the features of the Abacus.
.....
.....
2. List any two differences between Arithmetic Machine and Napier’s Bones.
.....
.....
3. Who invented Stepped Reckoner?
.....
.....
4. State any similarity between ENIAC and UNIVAC I.
.....
.....

5. State any two features of Harvard Mark I.

.....
.....

C. Match the following.

- | | |
|---------|------------------|
| 1. 1642 | ENIAC |
| 2. 1617 | Harvard Mark I |
| 3. 1694 | Pascaline |
| 4. 1946 | Napier's Bones |
| 5. 1944 | Stepped Reckoner |

D. Write 'T' for True statements and 'F' for False statements.

1. Abacus is also called a counting frame.
2. Analytical Engine had four different components.
3. John Napier created the Stepped Reckoner.
4. Sir Charles Babbage is also known as the Father of the Computer.
5. Punch cards were used to give the outputs in Tabulating Machine.

E. Tick (✓) the correct answers.

1. The Mill, Store, Reader and Printer are components of the
 a. Napier's Bones b. Arithmetic Machine
 c. Abacus d. Analytical Engine
2. is designed in the United States for business application.
 a. UNIVAC I b. Tabulating Machine
 c. MARK I d. Pascaline
3. Tabulating Machine was invented by
 a. Charles Babbage b. Blaise Pascal
 c. Herman Hollerith d. Leibniz
4. Which calculator represents the position of digits with the help of gears in it?
 a. Pascaline b. Abacus c. ENIAC d. UNIVAC I

5. One of the early programs to run on the MARK I was initiated on
- a. 29th April 1943 b. 29th March 1944
- c. 27 March 1944 d. 21 May 1956



Critical Thinking

A. Rahul is giving/writing his exam and he is stuck on the question which asks, “Tell the name of the calculating device which was invented by a German scientist in 1694.” Help him to find the answer.

.....

.....

.....

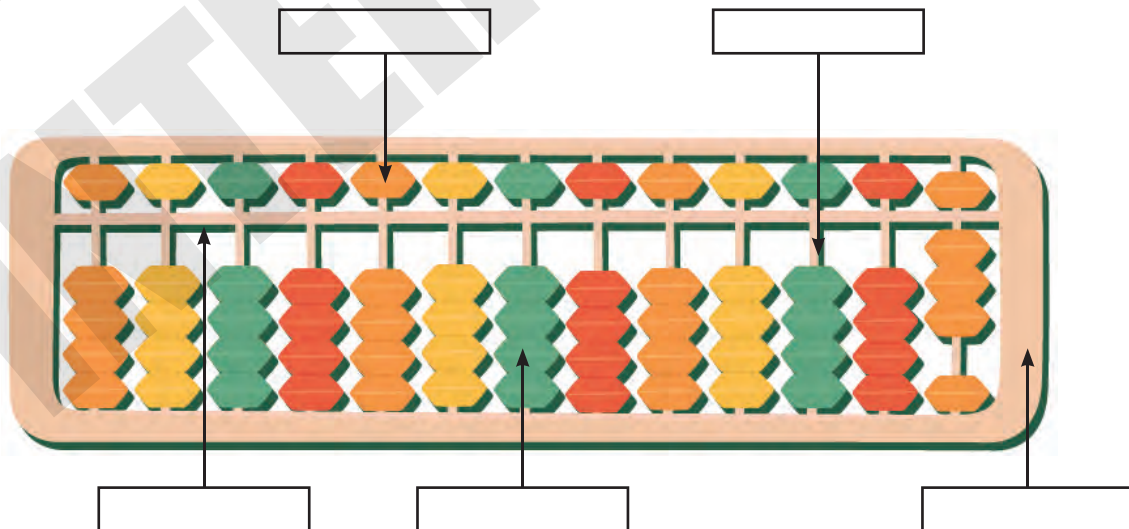
B. Unjumble the following devices.

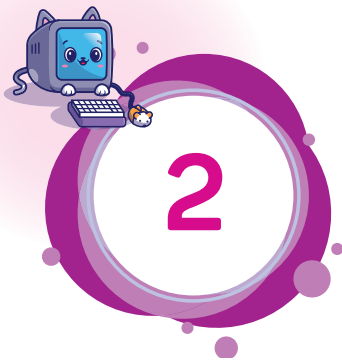
1. ANIEC -
2. ELAASCNPI -
3. PNREIA EBSON -



Team Work

With the help of your Maths teacher, use the Abacus for doing mathematical calculations. Discuss the benefits of using an Abacus. Further, label the parts of the Abacus given below.





ORGANISING FILES AND FOLDERS



Learning Outcomes

At the end of this chapter, students will be able to:

- ◆ Manage files and folders using Windows 10.
- ◆ Create a folder.
- ◆ Rename, delete and restore a file and folder.

Warm-up

Reena wants to organise the things in a proper way. Help her by matching the objects with their appropriate storage.



Teacher's Note:

Inform students that we keep or arrange our items at home. Similar to this, we can use files and folders to keep our data on computers.



“Hi Friends! Let’s learn how to keep our data in files and folders on computers.”

We make files and folders which makes it easier for us to remember where we have stored our work. Let us learn how to manage files and folders using Windows 10.



ATTRIBUTES OF WINDOWS 10

- ❖ In Windows 10, multiple users can work on one computer system at the same time.
- ❖ The search tool of Windows 10 is called Cortana which lets us search for any information on the system or on the internet directly.
- ❖ It also provides the feature of downloading free and paid apps from an application called the Microsoft Store.
- ❖ We can open numerous desktops simultaneously by using the task view button.
- ❖ The snap feature allows us to drag and drop a window to a corner of the screen, thereby making space for the other application.
- ❖ It enables to start more than one program at a time.



Figure 2.1:
Windows Logo



Let Me Answer

Which is the most commonly used operating system developed by Microsoft Corporation?



Do You Know?

Cortana interacts naturally via talking or typing and provides relevant recommendations, quick access to information, better searches and important reminders.



FILES

A file is a collection of data or information. When you save your work in a program, it is saved as a file. Files are represented on computers by icons. The Windows 10 operating system allows us to generate many file types. The type of file can be recognised by its icon.



Word File



PowerPoint File



Picture File



FOLDERS

A folder serves as storage for files or other folders. A folder within a folder is called a sub-folder. We can create any number of folders where each can hold any number of files and subfolders.



Pictures Folder



Desktop Folder



Documents Folder



CREATING A FOLDER

Follow the given steps to create a folder.

Steps:

- ❖ Go to the location where you want to create the folder.
- ❖ Right-click on a blank space.
- ❖ Select New then Folder from the contextual menu.
- ❖ Windows will create the new folder at your current location.
- ❖ Enter your desired folder name and press enter.

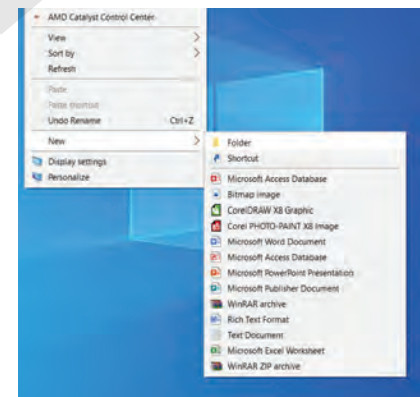


Figure 2.2:
Creating a Folder

Shortcut Keys Combination: Press Ctrl + Shift + N key combination to create a new folder.



FILE EXPLORER WINDOW

File Explorer window provides comprehensive details of the drives, files, and folders that are present in our system. In this window, we can also create, open, move, or remove a folder.

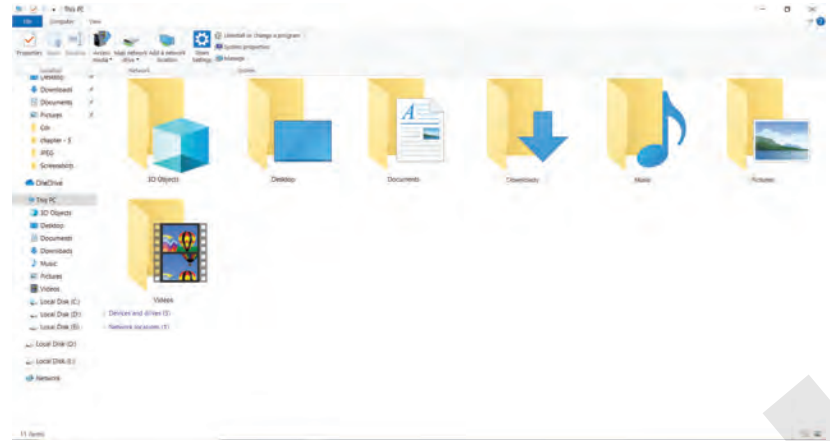


Figure 2.3: File Explorer Window



OPENING FILE EXPLORER

Follow the given steps to open File Explorer.

Steps:

1. Click on the Start button.
2. Select the File Explorer.
3. The File Explorer window will open.



Figure 2.4: Opening File Explorer

Shortcut Keys Combination: Press Win + E key combination to open Windows File Explorer.



OPENING A FILE AND FOLDER

Follow the given steps to open a file and a folder.

Steps:

1. Click on the Start button.
2. Open the file explorer window.
3. Choose the folder or a file you want to open.



CONTEXT MENU

A context menu (also called a contextual, shortcut and pop-up or pop-up menu) is opened when we right-click anywhere on the app. It provides options that can be accessed quickly. Let us know how to use the context menu.



USING CONTEXT MENU

By using the context menu, a folder can be opened. Follow the given steps to open a folder using the context menu.

Steps:

1. Choose the folder you want to open.
2. Right-click on it.
3. From the context menu, select the open option.
4. The desired folder will open.

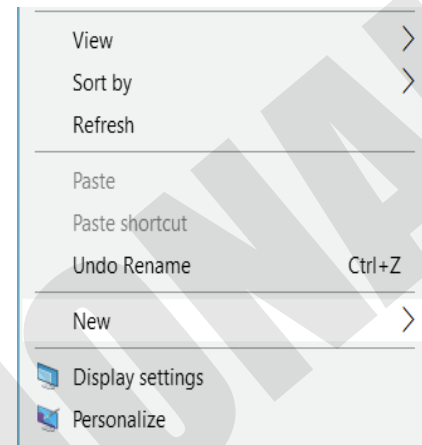


Figure 2.5: Context Menu



RENAMING A FILE AND FOLDER

Have you ever given a name to someone and wanted to change the name later? Similarly, sometimes you may want to change the name of an existing folder or file. In doing so, renaming is required. Renaming is to change the existing name of the file or folder.

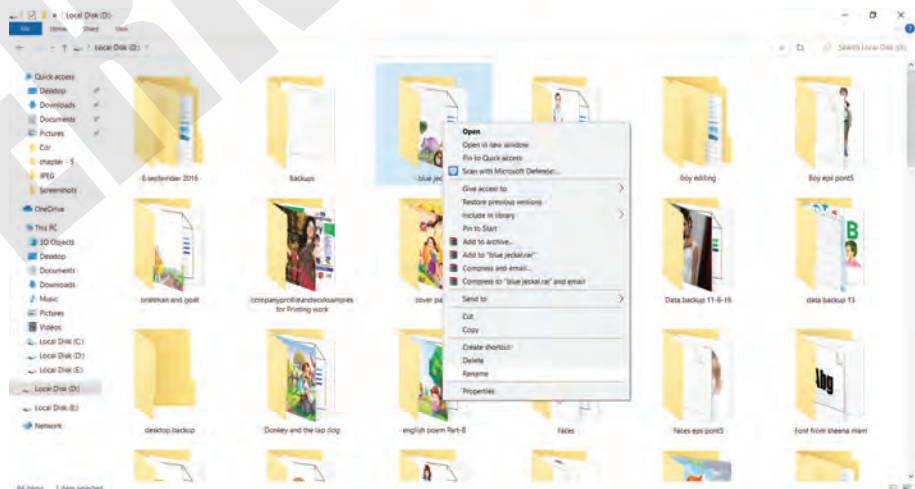


Figure 2.6: Renaming a File

Follow the given steps to rename an existing file or folder.

Steps:

1. Right-click on the folder or file that you want to rename.
2. Click on the Rename option from the context menu.
3. Type the new name for the folder or file.
4. Press enter.



Let Me Answer

What would you do if you save a Science project by the name of a Maths project?

Shortcut Keys: Press F2 to rename a folder.



DELETING A FILE AND FOLDER

There are some unused files and folders which you may want to delete. Deleted files or folders will be sent to the Recycle Bin.

Follow the given steps to delete an existing file or folder.

Steps:

1. Right-click on the folder or file which you desire to delete.
2. Click on the delete option from the context menu.

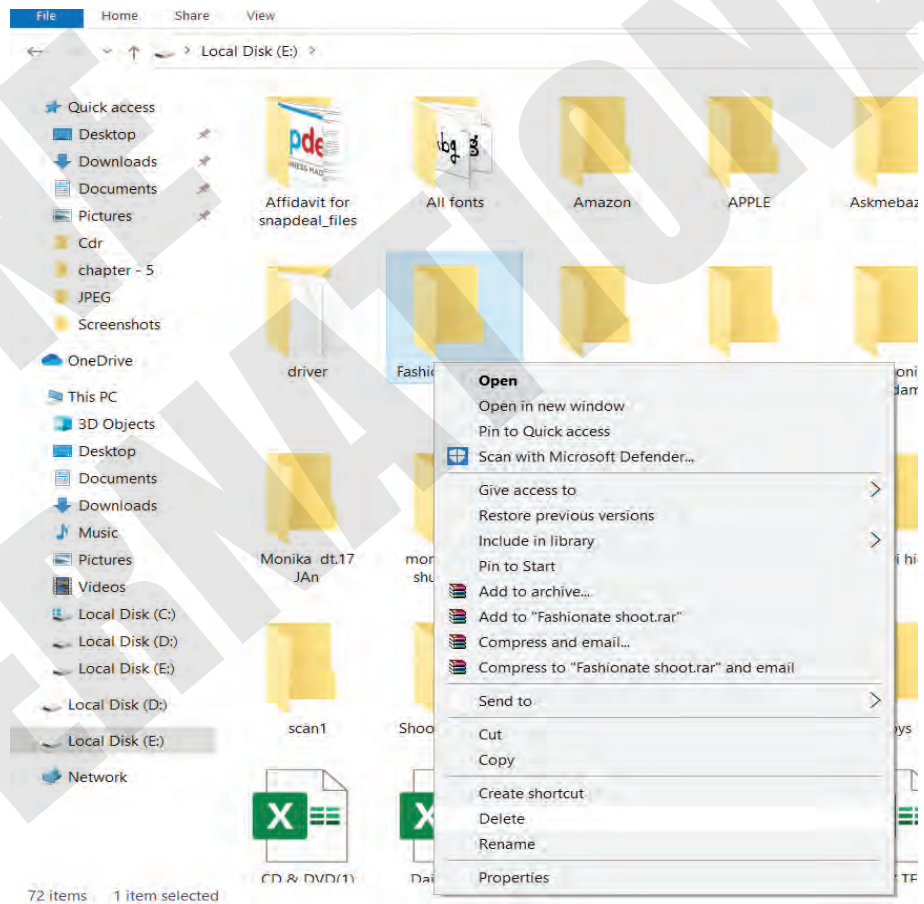


Figure 2.7: Deleting a File or Folder

Shortcut Keys Combination: Press the Shift + Del key combination.



RESTORING A FILE AND FOLDER

Sometimes you might unintentionally delete a file. To bring back the file from the recycle bin is called restoring. Follow the given steps to restore any file or folder.

Steps:

1. Double-click on the Recycle bin icon on the desktop.
2. The contents of the Recycle bin get displayed in a new window.
3. Right-click on the file or the folder you want to restore.
4. Click on the restore option from the context menu.
5. The file or folder will be restored to its original location.

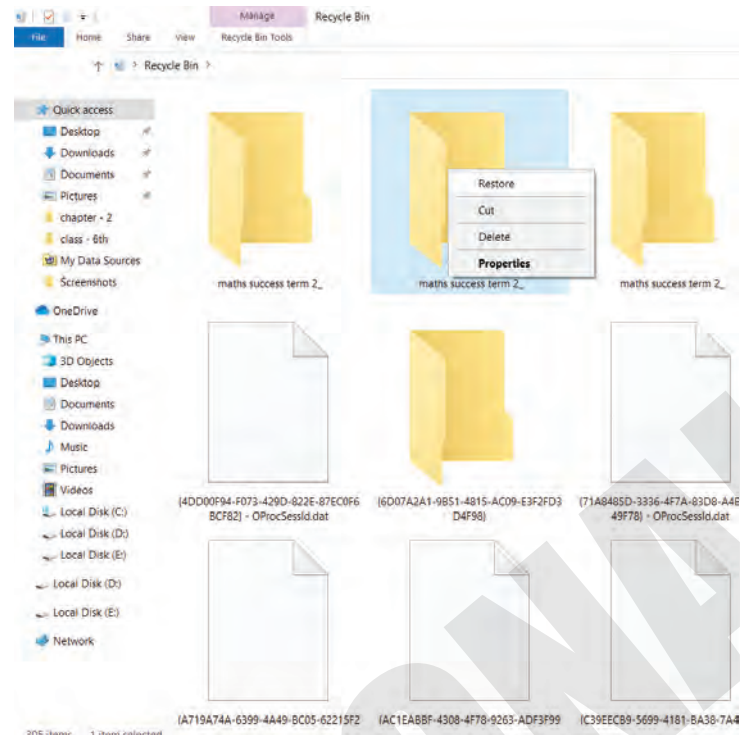


Figure 2.8: Restore



Kids' IQ

I am the pop-up menu you see when you right-click the mouse. Who am I?



Let's Recall

- In Windows 10, multiple users can work on one computer system at the same time.
- A file is a collection of data or information.
- A folder serves as storage for files or other folders.
- A folder within a folder is called a Sub-folder.
- A context menu provides options that can be accessed quickly.
- Renaming is to change the existing name of the file or folder.



A. Fill in the blanks.

1. The Search tool of Windows 10 is called
2. We can open numerous desktops simultaneously by using the button.
3. The type of file can be recognised by its
4. A folder serves as for files or other folders.
5. A context menu is also called a menu.

B. Match the following.

- | | |
|-------------------------|--------------------|
| 1. Ctrl + Shift + N key | Rename a folder |
| 2. Win + E key | Create a folder |
| 3. F2 | Delete a folder |
| 4. Shift + Del key | Open File Explorer |

C. Write 'T' for True statements and 'F' for False statements.

1. Search Tool is an application where you can get free and paid apps.
2. A folder is a collection of data or information.
3. Restoring is changing the existing name of the file or folder.
4. After restoring, the file will move to its original location.
5. By using the context menu, a folder can be opened.

D. Tick (✓) the correct answers.

1. Deleted files or folders will be sent to
 a. Search Tool b. Window Store
 c. Recycle Bin d. Window Explorer

2. A folder within a folder is called a
- a. In-folder b. Inside-folder
 c. View-folder d. Sub-folder
3. It shows a series of commands to access quickly.
- a. Title Bar b. Context Menu
 c. Tab Menu d. View Menu
4. If you want to give a new name to a file or folder, you will it.
- a. Restore b. Delete c. Rename d. Move
5. Which button provides the ability to open multiple desktops at the same time?
- a. Right click b. Task View c. Ctrl d. Shift

E. Answer the following questions.

1. State any three features of Windows 10.

.....
.....

2. What is a Folder?

.....
.....

3. What is the use of Context Menu?

.....
.....

4. Write the steps to rename a file.

.....
.....

5. Define a File.

.....
.....



Critical Thinking

Rahul wants to create a folder. The steps he has written are not in order. Number the steps to help him create a folder.

- Windows will create the new folder at your current location.
- Enter your desired folder name and press enter.
- Select New then Folder from the contextual menu.
- Go to the location where you want to create the folder.
- Right-click on a blank space.



Team Work

Circle the files in red colour and the folders in yellow. Further, discuss the steps of deleting a file with your partner.

