

TOPIC 3: FILE AND FOLDER MANAGEMENT

Senior One ICT | Creating, Organising, and Managing Digital Files
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Connecting to What You Already Know (Topics 1 & 2)

- **Before we begin, confirm you can answer YES to all of these:**
 - I can start up and shut down a computer correctly.
 - I know what storage devices are (hard drive, USB flash drive, memory card).
 - I understand that computers store data as files.
 - I have basic mouse and keyboard skills.
- **Why this topic matters:**
 - Every time you type a document, take a photograph, or download a song — a FILE is created.
 - Without organisation, files become impossible to find. This topic teaches you how to manage them properly.



Quick Recall: Name TWO storage devices from Topic 2. What is the difference between RAM and a hard disk drive when it comes to storing files?

What You Will Learn in This Topic

- **By the end of Topic 3, you should be able to:**
 - Define what a file and a folder are and explain how they are related.
 - Identify common file types and their extensions.
 - Create, name, rename, and organise files and folders.
 - Save and transfer files between different storage devices.
 - Classify types of storage media and compare their features.
 - Understand and convert between data storage measurement units.
 - Read and interpret a file path.

3.1 What is a File?

- **A FILE is a collection of related data stored together under a SINGLE NAME on a storage device.**
- Just as a physical sheet of paper holds written information, a computer file holds DIGITAL information.
- **Files have TWO parts to their name:**
 - FILENAME – the name you give the file (e.g., 'ICT_Notes')
 - FILE EXTENSION – the part after the dot that tells the computer what TYPE of file it is and which PROGRAMME to use to open it (e.g., '.docx')
- Example: ICT_Notes.docx → 'ICT_Notes' is the filename, '.docx' is the extension.
- **IMPORTANT: Never change or delete a file extension — this can make the file impossible to open.**

 **Think:** Open File Explorer on your computer. Can you find TWO files with different extensions? What programme would each one open with?

Common File Extensions and Their Types

Extension	File Type	Programme Used to Open
.docx	Word processing document	Microsoft Word
.xlsx	Spreadsheet	Microsoft Excel
.pptx	Presentation	Microsoft PowerPoint
.pdf	Portable Document Format	Adobe Reader, any browser
.jpg / .png	Image / Photo	Photo Viewer, Paint
.mp3	Audio file	Windows Media Player, VLC
.mp4	Video file	Windows Media Player, VLC
.txt	Plain text file	Notepad
.zip	Compressed / archived files	WinRAR, Windows Explorer



Quick Check: File Extensions

- **Match each file name to its type and the programme used to open it:**
 1. SchoolReport.pdf
 2. ClassPhoto.jpg
 3. MathHomework.xlsx
 4. FavouriteSong.mp3
 5. ScienceNotes.docx
 6. SchoolPresentation.pptx
 7. CompressedFiles.zip
- **Discussion: What would happen if you renamed 'ClassPhoto.jpg' to 'ClassPhoto.txt'? Try to predict before testing.**

What is a Folder?

- **A FOLDER (also called a DIRECTORY) is a container used to ORGANISE and GROUP related files together.**
- Just as a physical folder in a filing cabinet holds related papers, a computer folder holds related files.
- Folders can contain other folders — these are called SUBFOLDERS.
- **ANALOGY: Filing Cabinet System:**
 - Filing Cabinet = The Computer / Hard Drive
 - Drawers = Main Drives (C:, D:, E:)
 - Hanging Folders = Folders / Directories
 - Papers inside = Files (documents, photos, videos, etc.)

Continuation

- Example: 'S1 Schoolwork' folder → contains subfolders: Mathematics, English, ICT, Science → ICT contains: ICT_Assignment1.docx and ICT_Notes.docx

 **Real Life:** On paper, draw a folder structure you would use to organise YOUR own school files for all your subjects this term.

3.2 Creating a New Folder – Step by Step

- **METHOD 1: Using Right-Click (Context Menu)**

- Step 1 – Open File Explorer (Windows key + E) or navigate to where you want the folder.
- Step 2 – Right-click on an EMPTY area (e.g., on the Desktop).
- Step 3 – From the context menu, hover over 'New' and click 'Folder'.
- Step 4 – A new folder appears with the default name 'New folder' highlighted in blue. Type your desired folder name.
- Step 5 – Press Enter or click elsewhere to confirm the name.

- **METHOD 2: Using the Ribbon (File Explorer)**

- Click the 'Home' tab in File Explorer → Click 'New Folder' → Type the name and press Enter.

- **SHORTCUT: Ctrl + Shift + N = creates a new folder instantly!**



Practical: Create a folder on the Desktop called 'S1_ICT_Work'. Inside it, create 3 subfolders: 'Notes', 'Assignments', and 'Practicals'.

Renaming a File or Folder – Step by Step

- **METHOD 1: Using Right-Click**

- Step 1 – Right-click on the file or folder you want to rename.
- Step 2 – Click 'Rename' from the context menu.
- Step 3 – The name becomes highlighted — type the new name.
- Step 4 – Press Enter to confirm.

- **METHOD 2: Single slow double-click**

- Click once to select, then click again slowly (not a double-click) — the name becomes editable.

- **METHOD 3: Select then press F2 key on keyboard → name becomes editable.**

-  **CRITICAL WARNING: NEVER change the file EXTENSION (the part after the dot). Changing '.docx' to '.txt' can make the file impossible to open!**



Practical: Rename one of your subfolders from 'Practicals' to 'Lab_Work'. What happens if you accidentally delete the extension of a file?

File Naming Best Practices – Name Your Files Wisely!

- Good file names make it EASY to find files later and understand what they contain AT A GLANCE.
-  Use DESCRIPTIVE names: 'Science_Assignment_Term1' is better than 'doc1'
-  Include DATES when relevant: 'ICT_Notes_March2024'
-  Avoid SPACES — use underscores (_) or hyphens (-): 'My_File' NOT 'My File'
-  Keep names REASONABLY SHORT — long names are hard to read
-  Do NOT use special characters: / \ * ? < > | : " in file names — the computer will reject them
-  Avoid vague names like 'doc1', 'untitled', 'new file', 'pic', 'homework'



Activity: Improve these poor file names: (a) doc1 (b) pic (c) homework (d) new file (e) untitled. Write better names for each.

3.3 Saving a File – Step by Step

- **QUICK SAVE (already saved once before):** Press **Ctrl + S** — saves the file instantly.
- **SAVING FOR THE FIRST TIME ('Save As'):**
 - Step 1 – While working in a programme (e.g., Word), press **Ctrl + S**.
 - Step 2 – The 'Save As' dialogue box appears.
 - Step 3 – Navigate to the folder where you want to save the file.
 - Step 4 – Type a **DESCRIPTIVE** name in the 'File name' field.
 - Step 5 – Select the correct file **FORMAT** from the 'Save as type' dropdown (e.g., .docx for Word).
 - Step 6 – Click 'Save'.
- **GOOD HABIT: Save your work EVERY 5–10 MINUTES using Ctrl + S to avoid losing data if the computer crashes.**

 **Discuss:** What would happen if the power went off while you were typing a long document you had NOT saved? How can Ctrl+S protect you?

Transferring Files Between Storage Devices

- **Files can be MOVED or COPIED between different storage devices.**
- Step 1 – Connect the target storage device (e.g., USB flash drive) to the computer.
- Step 2 – Open File Explorer. The USB drive appears as a new drive letter (e.g., D:, E:).
- Step 3 – Navigate to the file you want to transfer.
- Step 4 – Right-click the file and select:
 - 'COPY' (Ctrl+C) – keeps a copy in BOTH the original and destination locations.

Continuation

- 'CUT' (Ctrl+X) – MOVES the file; removes it from the original location.
- Step 5 – Navigate to the destination folder on the USB drive.
- Step 6 – Right-click on an empty area and select 'Paste' (Ctrl+V).
- Step 7 – WAIT for the transfer to complete before removing the USB drive.
- Step 8 – SAFELY EJECT: Right-click the USB icon in File Explorer → 'Eject'.



Always Safely Eject Your USB Drive!

- **NEVER** pull out a USB drive without ejecting it first!
- **WHY?** The computer may still be writing data to the drive even if the transfer looks complete. Pulling it out too early can:
 - CORRUPT files — making them impossible to open.
 - DAMAGE the USB drive permanently.
 - CAUSE DATA LOSS — you may lose all files on the drive.
- **HOW TO SAFELY EJECT:**
 - Method 1: Right-click the USB drive icon in File Explorer → click 'Eject'.
 - Method 2: Click the USB icon in the system tray (bottom right of taskbar) → 'Eject'.
 - Wait for the message: 'Safe to remove hardware' before pulling out the drive.



Scenario: Amara copied files to a USB drive and pulled it out immediately. The next day, the files would not open. What most likely happened? What should she have done?



SCENARIO: Apia's File Organisation Problem

- **Read carefully and answer ALL parts in your exercise book:**
 - Apia has all her S1 school files saved directly on her Desktop with NO folders. Her files are named: 'document1', 'new file', 'untitled', 'pic', and 'homework'. She spends 10 minutes EVERY TIME she needs to find a specific file.
- **QUESTIONS:**
 - (a) What is WRONG with Apia's file management? List at least FOUR problems.
 - (b) DESIGN a proper folder structure for her S1 subjects (she takes 8 subjects). Draw it as a tree diagram.
 - (c) Suggest BETTER file names for each of her five existing files.
 - (d) Why should she also save copies of her files on a USB drive OR cloud storage?
 - (e) EXTENSION: What keyboard shortcut should Apia use to save her documents regularly?

3.4 Types of Storage Media

- **Storage media are the physical devices or systems used to STORE DIGITAL DATA.**
- They differ in: CAPACITY (how much they store) | SPEED (how fast they read/write) | PORTABILITY (how easy to carry) | DURABILITY (how long they last)
- **Storage media are classified into FOUR TYPES based on HOW data is stored:**
 - 1. MAGNETIC STORAGE – data stored using magnetic fields on a coated surface. Examples: HDD, Magnetic tape.
 - 2. OPTICAL STORAGE – data stored using laser light creating 'pits and lands' on a disc. Examples: CD, DVD, Blu-ray.

3.4 Types of Storage Media

- 3. FLASH / ELECTRONIC STORAGE – data stored electronically in flash memory chips with NO moving parts. Examples: USB Flash Drive, SSD, SD Card.
- 4. CLOUD STORAGE – data stored on REMOTE SERVERS accessed via the internet. Examples: Google Drive, Dropbox, OneDrive.

 **Discuss:** Which type of storage is your school using most? What are the advantages of cloud storage over a USB flash drive?

Classification of Storage Media by Method

Type	How Data is Stored	Examples
Magnetic Storage	Data stored using magnetic fields on a coated surface	Hard Disk Drive (HDD), Magnetic tape
Optical Storage	Data stored using laser light to create pits and lands on a disc surface	CD, DVD, Blu-ray
Flash / Electronic Storage	Data stored electronically in flash memory chips — NO moving parts	USB Flash Drive, SSD, SD Card
Cloud Storage	Data stored on remote servers accessed via the internet	Google Drive, Dropbox, OneDrive



Match It: Match: (1) CD (2) HDD (3) USB Flash Drive (4) Google Drive — to: Magnetic / Optical / Flash / Cloud storage.

Comparing Storage Media – Which is Best for What?

Device	Capacity	Speed	Portability	Durability
HDD	500 GB – 30 TB+	Moderate	Low (bulky)	Fragile (moving parts)
SSD	128 GB – 100 TB+	Very Fast	Moderate	Very durable (no moving parts)
USB Flash Drive	4 GB – 256 GB	Moderate	Very High	Fairly durable
CD / DVD	700 MB / 4.7 GB	Slow	High	Scratches easily
SD Card	2 GB – 512 GB	Moderate-Fast	Very High	Fairly durable
Cloud Storage	Scalable	Depends on internet	Universal (any device)	Very safe (redundant backups)



SCENARIO: Choosing the Right Storage Media

- A school photographer has just taken 800 high-quality photographs from Sports Day. Each photo is about 4 MB in size.
- She needs to:
 - Store ALL photos permanently.
 - Send copies to the head teacher and parents.
 - Take a backup copy home.
- **QUESTIONS – Answer in your exercise book:**
 - (a) Calculate the TOTAL STORAGE SPACE needed for all 800 photos. Show your working.
 - (b) Which storage device would be BEST for each of the three needs? Give reasons.
 - (c) Why would a CD or DVD NOT be a practical choice for all these photos?
 - (d) EXTENSION: If she uses Google Drive to share with parents, what does she need to access it?

3.5 Data Storage Measurement Units

- Data is measured in units called BYTES. Understanding these units tells you how much data a device can store and how large a file is.
- The SMALLEST unit of data is a BIT — a single 0 or 1 (binary digit).
- 8 bits = 1 BYTE (one character, e.g. the letter 'A')
- Larger units are derived from the byte by multiplying by 1,024 each time:
 - 1 Kilobyte (KB) = 1,024 Bytes → a short text message
 - 1 Megabyte (MB) = 1,024 KB → a 3-minute MP3 song
 - 1 Gigabyte (GB) = 1,024 MB → a full-length movie
 - 1 Terabyte (TB) = 1,024 GB → about 1,000 movies
 - 1 Petabyte (PB) = 1,024 TB → used in large data centres

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34 **Remember:** Going UP (larger): DIVIDE by 1,024. Going DOWN (smaller): MULTIPLY by 1,024.

Data Storage Units – Full Reference Table

Unit	Symbol	Size Equivalent	Real-World Example
Bit	b	Smallest unit – a single 0 or 1	One binary digit
Byte	B	8 bits	One character, e.g. the letter 'A'
Kilobyte	KB	1,024 bytes	A short text message or email
Megabyte	MB	1,024 KB = 1,048,576 bytes	A 3-minute MP3 music file
Gigabyte	GB	1,024 MB	A full-length movie
Terabyte	TB	1,024 GB	About 1,000 movies
Petabyte	PB	1,024 TB	Used in large data centres

Converting Between Data Storage Units

- **THE GOLDEN RULES:**

- To convert from a **LARGER** unit to a **SMALLER** unit → **MULTIPLY** by 1,024
- To convert from a **SMALLER** unit to a **LARGER** unit → **DIVIDE** by 1,024

- **WORKED EXAMPLES:**

- Example 1: Convert 5 GB to MB. $5 \text{ GB} \times 1,024 = 5,120 \text{ MB}$
- Example 2: Convert 2,048 KB to MB. $2,048 \text{ KB} \div 1,024 = 2 \text{ MB}$
- Example 3: Convert 3 TB to GB. $3 \text{ TB} \times 1,024 = 3,072 \text{ GB}$
- Example 4: Convert 512 MB to GB. $512 \text{ MB} \div 1,024 = 0.5 \text{ GB}$
- **TIP: Ask yourself first — am I going to a BIGGER or SMALLER unit?**
Then decide to multiply or divide.



Try These: (a) 4 GB to MB (b) 3,072 MB to GB (c) 2 TB to GB (d) 1,024 KB to MB (e) 0.5 GB to MB



Pair Activity: Data Storage Conversions

- **Work in PAIRS. Show ALL working for each conversion.**
- **SECTION A – Convert to the unit shown:**
 - (1) 4 GB $\rightarrow$ MB
 - (2) 3,072 MB $\rightarrow$ GB
 - (3) 2 TB $\rightarrow$ GB
 - (4) 1,024 KB $\rightarrow$ MB
 - (5) 0.5 GB $\rightarrow$ MB
- **SECTION B – Challenge conversions:**
 - (6) 5,120 MB $\rightarrow$ GB
 - (7) 2 GB $\rightarrow$ KB
 - (8) A file is 4,096 KB. Is it larger or smaller than 5 MB? Show your working.
 - (9) A USB has 8 GB. How many 500 KB files can it store?



SCENARIO: Hard Disk Storage Calculation

- A school computer has a hard disk with a total capacity of **500 GB**.
- The following files are currently stored on it:
 - 200 photos – each 3 MB
 - 50 videos – each 700 MB
 - 30 music files – each 5 MB
 - 1 word processor document – 2 MB
- **QUESTIONS – Show ALL working:**
 - (a) Calculate the TOTAL STORAGE USED in MB.
 - (b) Convert your answer from (a) to GB.
 - (c) How much FREE SPACE remains on the hard disk (in GB)?
 - (d) If each USB flash drive has a capacity of 8 GB, how many flash drives are needed to back up ALL the files?

Understanding File Paths

- A **FILE PATH** is the **FULL ADDRESS** that tells the computer exactly **WHERE** a file is stored.
- Understanding file paths helps you navigate to and access your files quickly.
- **Example Windows file path:**
 - C:\Users\Student\Documents\ICT\Notes.docx
- **Breaking it down:**
 - C:\ = The main hard drive (C drive)
 - Users\Student\ = The user account folder
 - Documents\ICT\ = Subfolders (Documents, then ICT inside it)
 - Notes.docx = The file name (with extension)
- **Each backslash (\) separates one folder level from the next.**
- Think of it like a postal address — each part gets more specific until you reach the exact file.



Activity: Write the file path for a file called 'Maths_Homework.docx' saved in a folder 'Maths' inside 'S1_Work' on the D: drive.



File Path Practice Activity

- **Read each file path and answer the questions below:**
- Path 1: C:\Users\Apio\Documents\Science\Lab_Report.docx
 - (a) What drive is this file on? (b) What is the file name?
 - (c) What folder is the file directly inside?
- Path 2: D:\S1_Schoolwork\ICT\Notes\Term1_ICT_Notes.pdf
 - (a) How many folder levels are there before the file? (b) What type of file is this? (c) Which programme would open it?
- **CONSTRUCTION CHALLENGE – Write a complete file path for:**
 - A file called 'English_Essay.docx' saved in an 'English' folder inside 'Assignments' inside 'S1_Work' on the C: drive.



Explore: Open File Explorer. Click on any file and look at the address bar at the top. Can you read its full file path? Write it down.



Revision Questions – Topic 3

- **Answer the following questions in your exercise book:**
- 1. Define: (a) a file (b) a folder (c) a subfolder (d) a file extension.
- 2. What programme would you use to open: (a) report.pdf (b) song.mp3 (c) photo.jpg (d) budget.xlsx?
- 3. State FOUR rules for good file naming. Give an example of a BAD name and rewrite it as a GOOD name.
- 4. Explain the difference between 'Copy + Paste' and 'Cut + Paste' when transferring files.
- 5. What is the danger of removing a USB drive without safely ejecting it?
- 6. Classify: HDD, SSD, CD, Google Drive, SD Card — by type of storage (magnetic/optical/flash/cloud).
- 7. Convert: (a) 3 GB to MB (b) 4,096 MB to GB (c) 1.5 TB to GB.
- 8. Interpret this file path: D:\S1_Work\ICT\Assignment1.docx — name each part.



Key Terms – Topic 3 Glossary

Term	Definition
File	A collection of related data stored under a single name on a storage device.
File Extension	The part of a file name after the dot (.docx, .jpg) that identifies its type.
Folder / Directory	A container used to organise and group related files together.
Subfolder	A folder stored inside another folder.
File Path	The full address showing exactly where a file is stored (e.g. C:\Users\...).
Magnetic Storage	Storage using magnetic fields on a coated surface (e.g. HDD).
Optical Storage	Storage using laser light on a disc (e.g. CD, DVD).
Flash Storage	Electronic storage with no moving parts (e.g. USB, SSD, SD Card).
Cloud Storage	Storage on remote servers accessed via the internet (e.g. Google Drive).
Byte	Basic unit of data storage; 8 bits = 1 byte.
Eject	Safely disconnecting a USB or storage device before physically removing it.

End of Topic 3

File and Folder Management

Next: Topic 4 – Word Processing I