



Module Two: File System Introduction

In Module Two we will introduce the file system; the way Windows 10 organizes saved files. We will learn how applications create files and name them. We explore how the computer file system is organized and how to view the file locations using the File Explorer. We will create file folders that will store our files and we will use the file system in several student exercises.

Topics

- Permanent and removable file drives.
- View the permanent and removable drives in the computer.
- Review files names and file types.
- Hierarchies and their relation to the file system structure.
- Introduction of the Windows File Explorer
- File system navigation.
- Creation of a file folder.

Exercises

- Exercise 2A – Display the Computer Drives
- Exercise 2B: Navigate through the File System
- Exercise 2C: Create a folder using the File Explorer

Objectives

At the end of this module you will be able to:

- Know where data is stored in a Computer.
- Find the hard disk properties and where to start a disk file cleanup.
- Understand how the file system operates in a computer.
- Understand how to open the File Explorer.
- Use the File Explorer to move through the file system.
- Create a new folder.

1. Where are files stored?

Data files in a Computer are created by applications and stored in one of several data storage devices inside or connected to the computer. Data storage devices include:

- Hard Disk – permanent hardware device inside the PC that stores data
- CD Drive – a permanent hardware device that accepts Compact Disks and DVD (movies).
- Removable Device – small electronic storage device typically called a “flash drive” connected to the computer using the USB port.
- Shared Drive – used to share files and folders among a network of computer users, such as a workplace. You will be using a shared drive as part of this class.
- Portable Device – single magnetic storage devices inserted in a predefined slot in the computer.
- Other devices capable of storing files such as a cell phone, camera, and Cloud Storage such as the “Microsoft OneDrive”, Google Drive or “Dropbox”.

2. Hard Disk Drive

Almost every desktop and portable personal computer contains a permanent storage device called a “Hard Disk Drive”. The Hard Disk stores between 60 GB (60 billion characters) and 1 TB (trillion characters) although most computers have hard drives in the 200 GB range.

A Hard Disk drive is a 3 ½ inch set of three platters that stores and reads information while it's spinning.

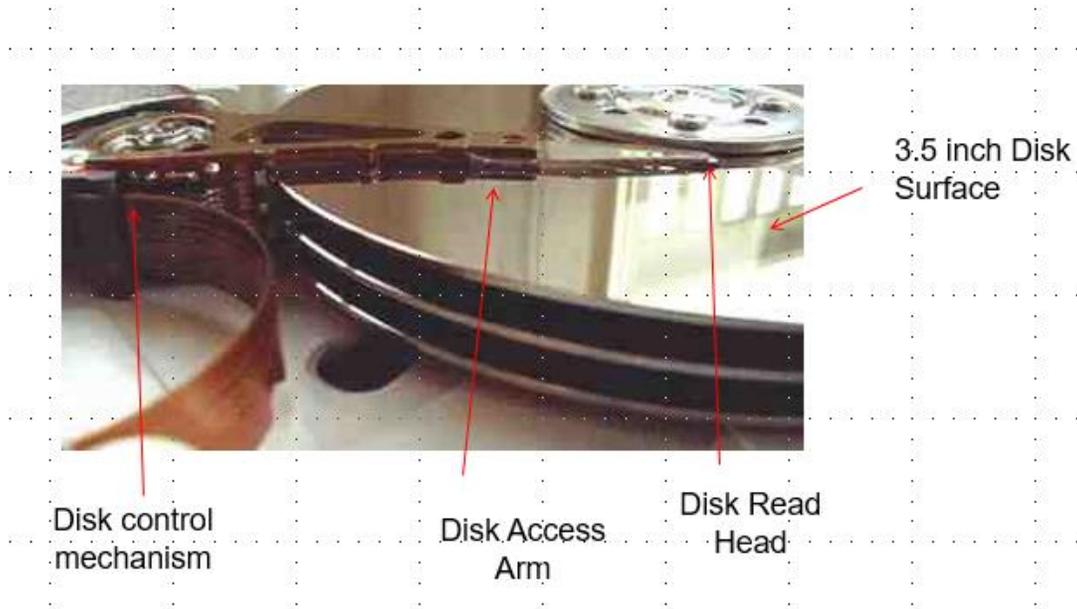


Figure 2.1- Hard Disk Drive

<u>Component</u>	<u>What does it do?</u>	<u>When do I use it?</u>
<i>Disk Control Mechanism</i>	Responds to request by the application and Operating System to read or write data.	Whenever you Open or Save a file when using an application.
<i>Disk Access Arm</i>	Moves across the disk surface to read and write data.	Whenever you read or write data to the disk. Usually a light on the computer flashes when it moves.
<i>Disk Read Head</i>	Transfers the data between the disk surface and the computer.	Whenever a request for data is made.
<i>3 ½ inch Disk surface</i>	Records the data written in magnetic form.	Whenever data is written or read from the Drive

3. Devices and drives

There are other devices that can save and retrieve data. The most common is the removable “flash” drive.

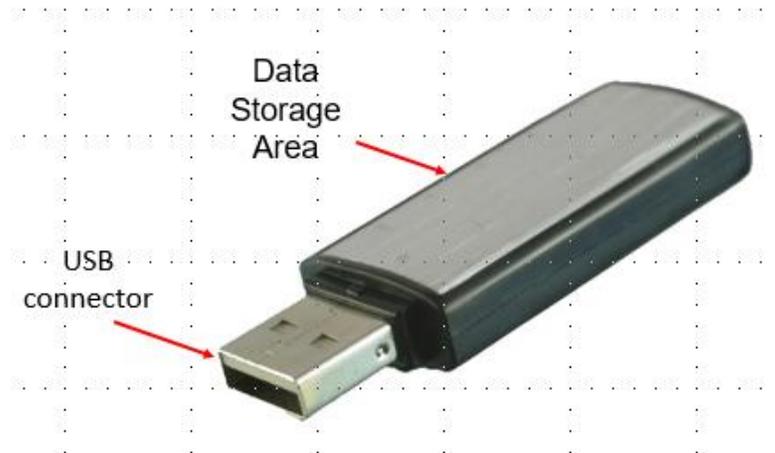


Figure 2.2- Removable (flash) drive

The USB connector is inserted into the USB Port of the computer and the flash drive becomes part of the Computer's file system.

Exercise 2A – Display the Computer Drives

This exercise displays the drives currently assigned to the computer.

1. Locate the Windows Explorer Icon in the Quick Action Icons on the left edge of the Task Bar.

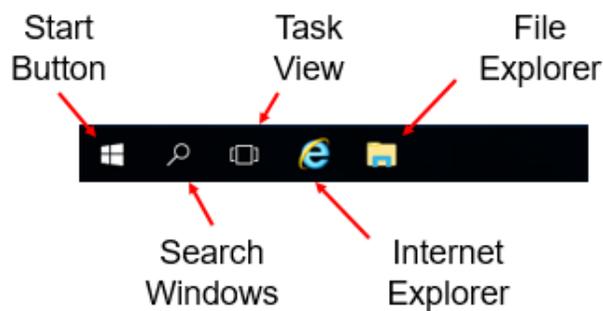


Figure 1- 3 Quick action icons

2. Click the left mouse button on the File Explorer Icon and the Windows Explorer panel will appear.
3. Locate the "This PC" entry at the top of the left panel.
4. Click the left mouse button on the "This PC" entry and the Drives will appear in the right panel.

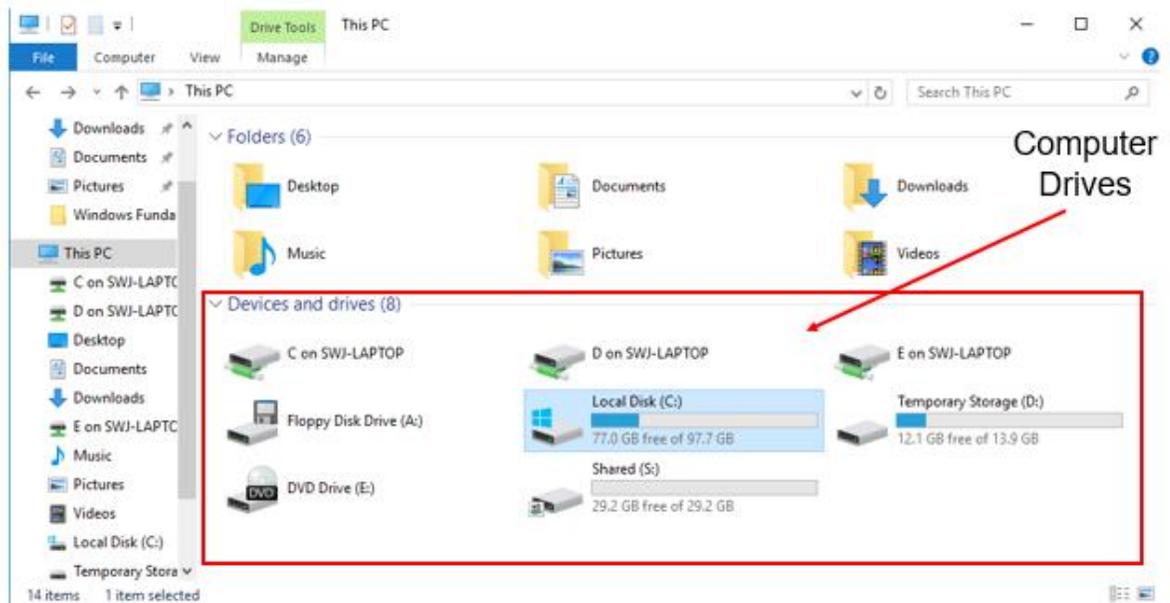


Figure 2.4- File Explorer (This PC)

5. Notice the amount of space available and used on each drive.
6. Click the Right Mouse button on the "Windows: (C)" icon and click the left mouse button on the "Properties" entry at the bottom of the list.

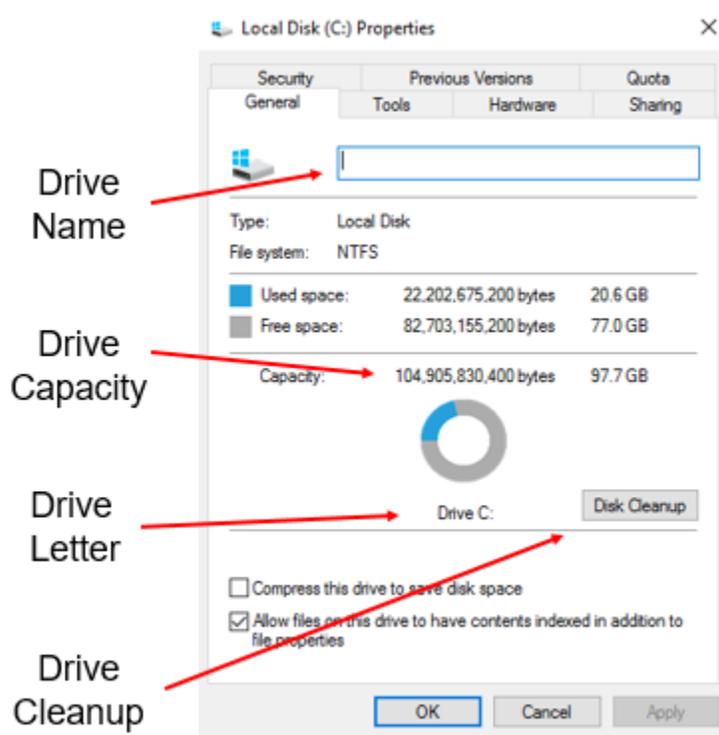


Figure 2.5- Drive Properties Dialog Box

7. Drive Name is purposely blank.
8. Verify the Drive Capacity.
9. Confirm the Drive letter: C
10. **Note:** the Drive Cleanup button can be used at home to remove unnecessary files from your Computer!

4. Review file names and File Types

Every file created in windows needs a name and a file type. The name usually describes the file's contents like, Resume, Pancake Menu, etc. In addition each file name must have a file type to help Windows select the correct application to open and process the file.

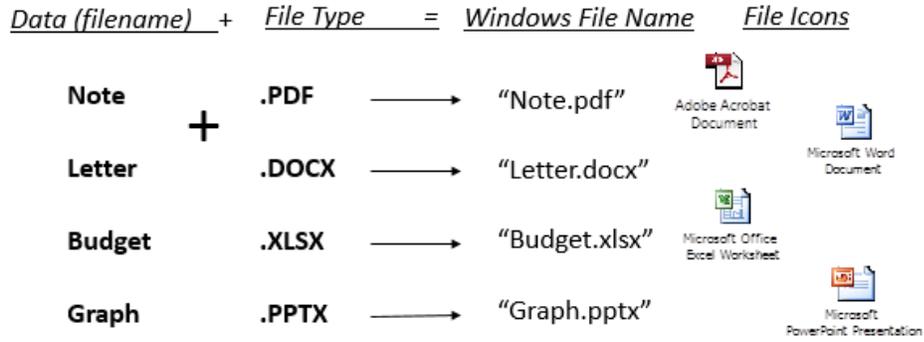
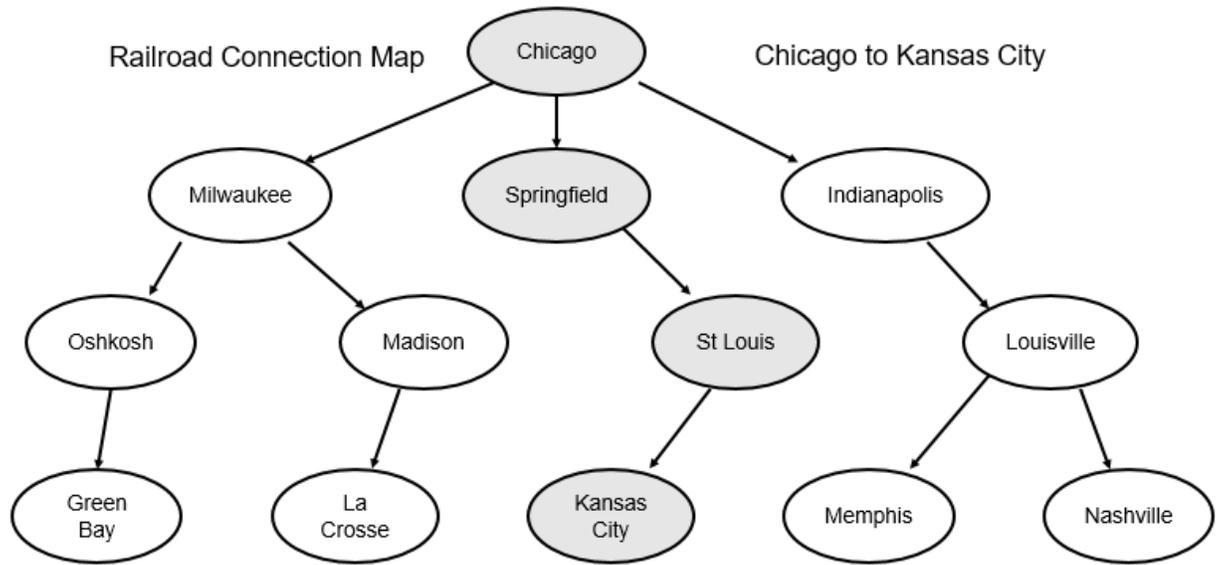


Figure 2.6 - Mapping filenames

The illustration above shows how the data filename when added to the file type creates a Windows filename. The Icons tell us that Windows recognizes the files and the applications used to read and update the data.

5. File system structure (hierarchy)

The Windows operating system stores its files in a structured way call a hierarchy. We are surrounded by hierarchies in our daily lives but here are some examples: your family tree, a company’s organization chart, our government, etc. Let’s take a simple example using a railroad connection map.



Path: *Chicago > Springfield > St Louis > Kansas City*

Figure 2.7- Hierarchy example

The connections between the cities shown above are permanent and once you've chosen your destination you follow the railroad connections to reach your destination. For example, to travel from Chicago to Kansas City using this hierarchy example you would make stops in Springfield and St Louis before reaching your destination.

The Computer file system hierarchy is similar in design. Rather than a city at each stop, the Computer hierarchy uses **folders**.

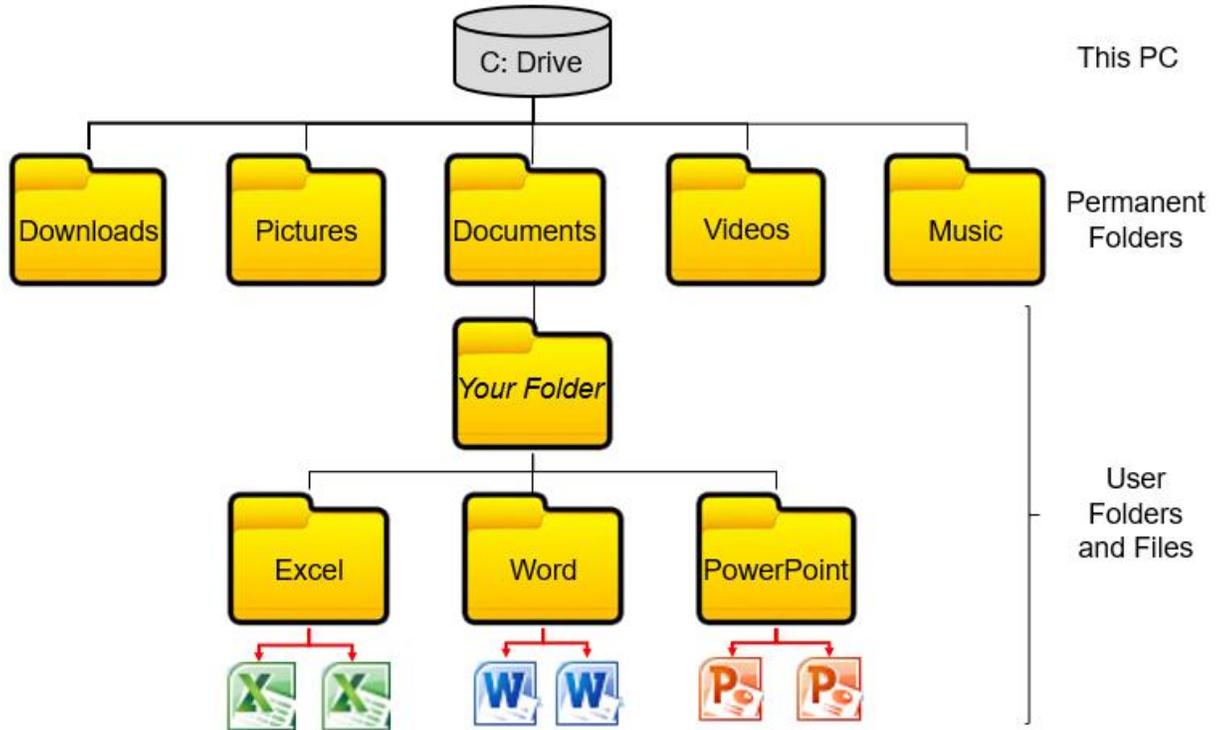


Figure 2.8- File System Folders

The Computer file system is a combination of Microsoft-provided folders and user folders.

Component	Description
<i>This PC</i>	Contains the drives connected to the computer including the Hard Drive (C:).
<i>Permanent Folders</i>	Created by Microsoft and used by the applications as the primary location to save data files.
<i>User Folders and Files</i>	Created by <u>you</u> to hold data folders and files. (The Folders shown above were created by the PRC as an example.)

6. Introduce the File Explorer

Microsoft provides a tool to view the computer file hierarchy called the Windows Explorer. You can open it using the yellow  icon located in the Task Bar.

Note: The Expanded Ribbon mode is recommended.

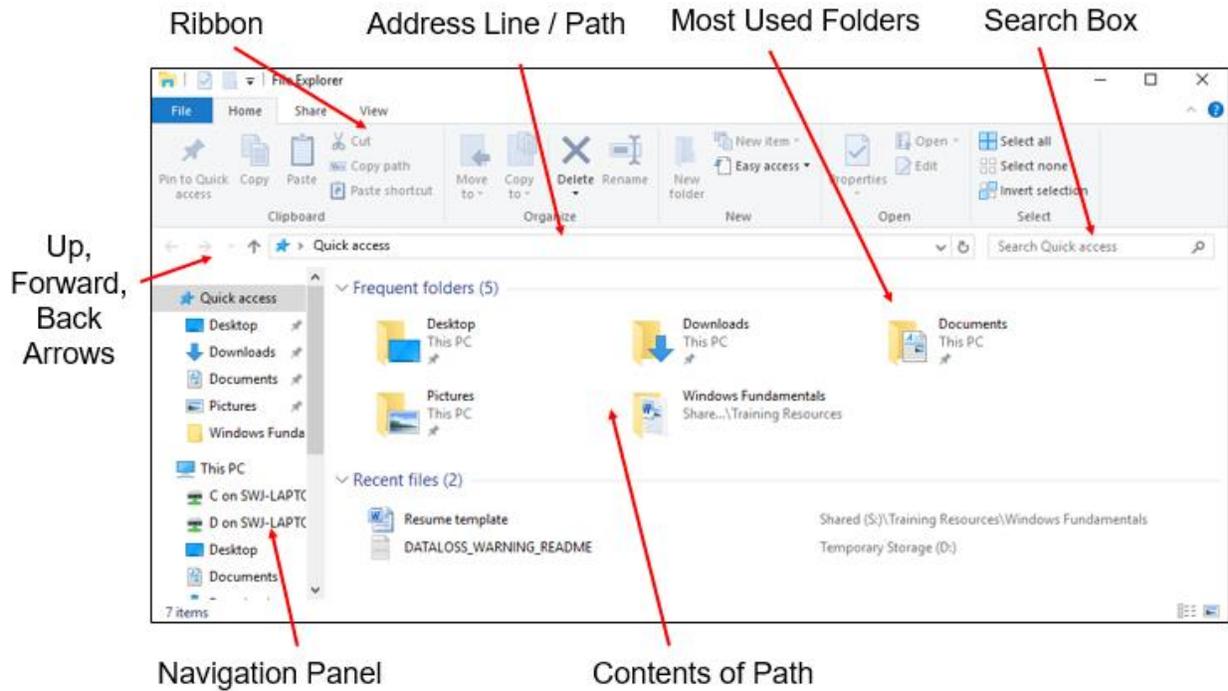


Figure 2.9- File Explorer

Component	Description
<i>Up, Forward, and Back Arrows</i>	Controls the navigation through the file folder path.
<i>Ribbon</i>	Contains the File Explorer tools: Home, Share, and View.
<i>Address Line / Path</i>	Path taken to display the current folder contents.
<i>Most used folders</i>	Display of the folders most accessed to date to speed up navigation through the file folders.
<i>Search Box</i>	Input field used to search for a file or folder within the current folder shown in the contents of path.
<i>Navigation Panel</i>	List of the Computer's folder organization in an indented format used to locate folders without expanding the path.
<i>Contents of the Path</i>	Files and folder within the path shown in the Address Line / Path.

7. Navigate using the File Explorer

You can navigate through the file system by double clicking the left mouse button on any folder. That displays the contents of the folder in the right panel. The address field is updated with your path through the folders.

Using the File System - Shared Drive

The version of Windows 10 used by the PRC uses Computer two drives to store information:

C: Drive: Stores student files and folders.

S: Drive: Contains class files and folders.

To access the shared drive, you must select the Shared Drive: (S) from the “This PC” index. The contents of the Shared drive will appear in the right panel.

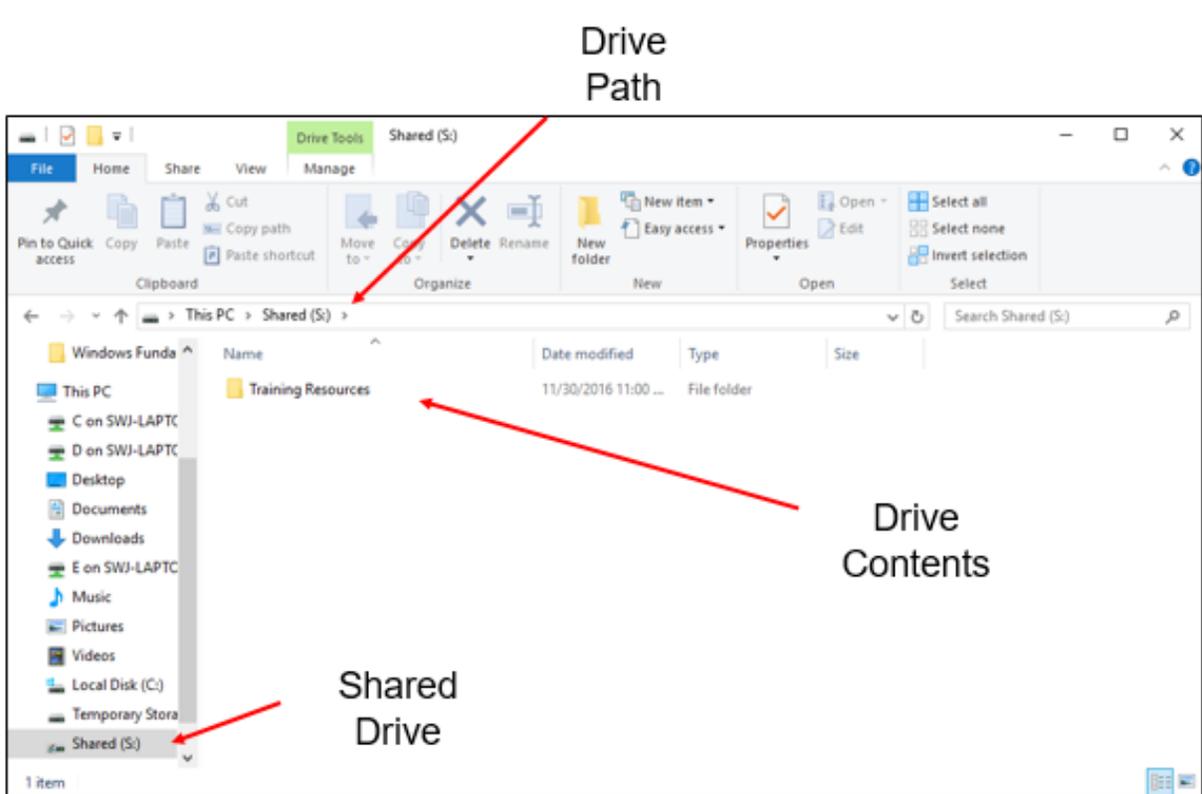


Figure 2-10- shared drive access

Exercise 2B: Navigate through the File System

This exercise shows how to navigate through the file system to find the contents of Class Folders.

1. Open the File Explorer using the  icon in the Task Bar.
2. Locate the “Shared (S:)” entry in the left panel of the File Explorer.
3. Click the left mouse button on the “*Shared (S:)*” entry. The *Training Resources* folder will appear in the contents section of the right panel.
4. Locate the “*Training Resources*” folder in the right panel and open the contents by double clicking the left mouse button on the “*Training Resources*” folder icon.

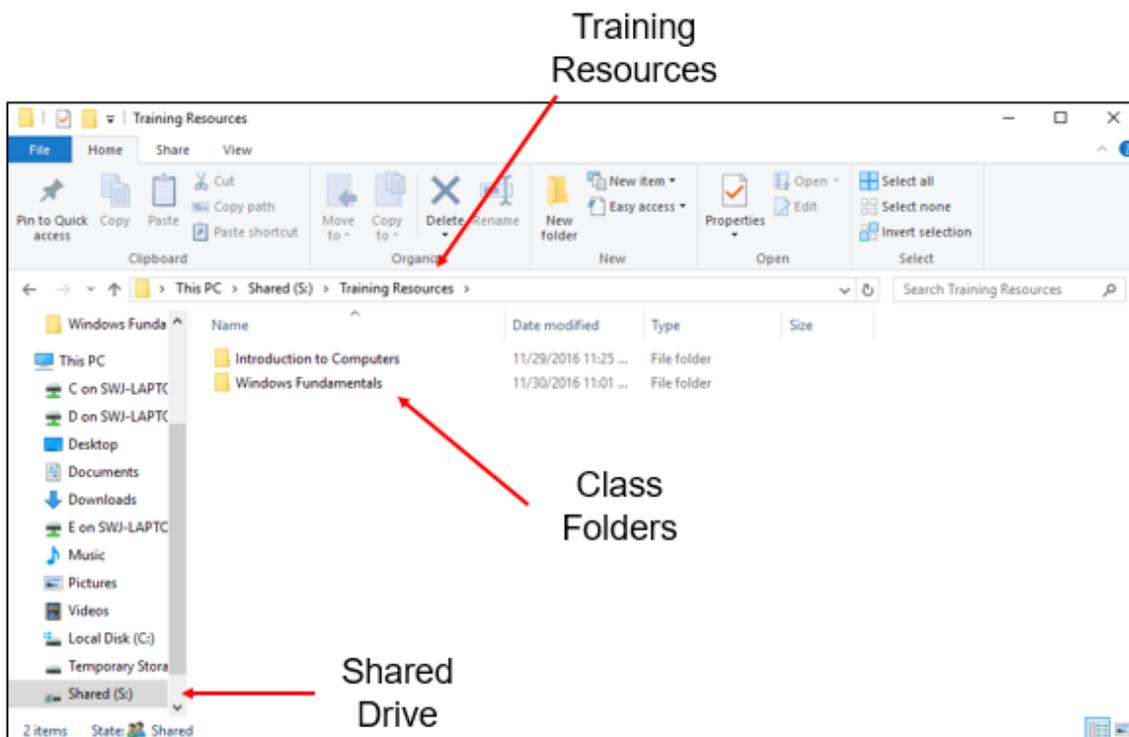


Figure 2-11 - Training Resources Folder Contents

5. The Contents of the “*Training Resources*” folder will appear in the right panel. The address line will now contain “*This PC > Shared (S:) > Training Resources*” showing the path taken in the file System.
6. Locate the “*Windows Fundamentals*” folder in the right Contents panel.
7. Double click the left mouse button on the “*Windows Fundamentals*” folder. The contents of the Windows Fundamentals folder will appear and the address line will show the path taken to the contents displayed.

8. Create a Folder

You can create a new folder at any point in the file system hierarchy. But new folders are created in the (C:) “*This PC*” Folder section to hold data files with similar topics or usage.

The File Explorer can create a folder in the Content of the current path using the “New Folder” tool in the “New” group of the “Home” ribbon.

New Folder Tool

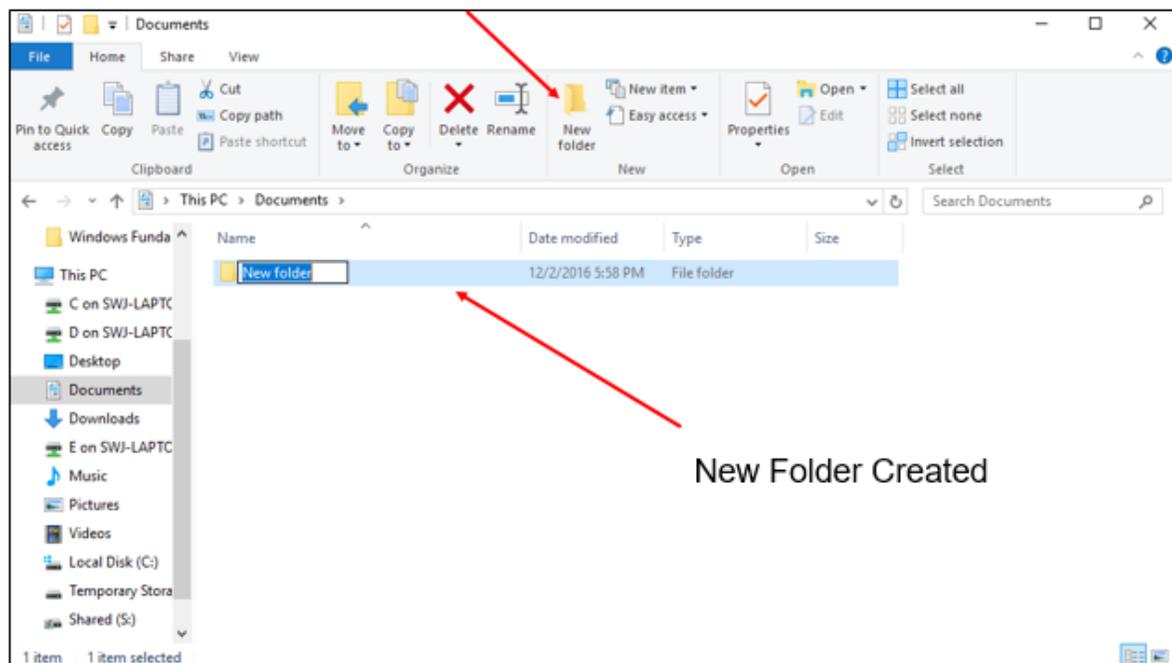


Figure 2.12- New Folder Creation

Exercise 2C: Create a folder using the File Explorer

This exercise shows you how to create a new folder using the File Explorer.

1. Open the File Explorer using the Icon  in the Task Bar.
2. Locate the “*This PC*” entry in the left panel of the File Explorer.
3. Click the left mouse button on the “*This PC*” entry. Several folders will appear in the contents section of the right panel.
4. Click the left mouse button on the “*Documents*” folder in the right panel.



5. Locate the “*New Folder*” tool in the “*New*” group in the “*Home*” ribbon.
6. Click the left mouse button on the “*New Folder*” tool once.
7. A new folder will appear in the Contents panel with the folder name of “*new folder*” highlighted.
8. Without touching the mouse, use the keyboard to enter “***your name***” (***your first and last name***) into the highlighted folder name field. (Highlighted text can be immediately replaced by just using the keyboard.)
9. Click the left mouse button twice to open the new folder’s icon and the “this folder is empty” message will appear indicating that there are no files or folders within the new folder.
10. Notice that the address line / path includes the “*your name*” folder after the “Documents” entry.

9. Weekly Quiz

Each Module will have a document containing a quiz covering the material presented in the lesson. The quiz document can be found in the current week’s folder within the “*Training resources > Windows Fundamental > Week 2*” Folder on the *Shared drive (S:)*

Use the File Explorer to locate the current Week’s quiz.

1. Select Shared Drive (S:)

2. Enter "Week X Quiz" (X = lesson number)

3. Open the file.

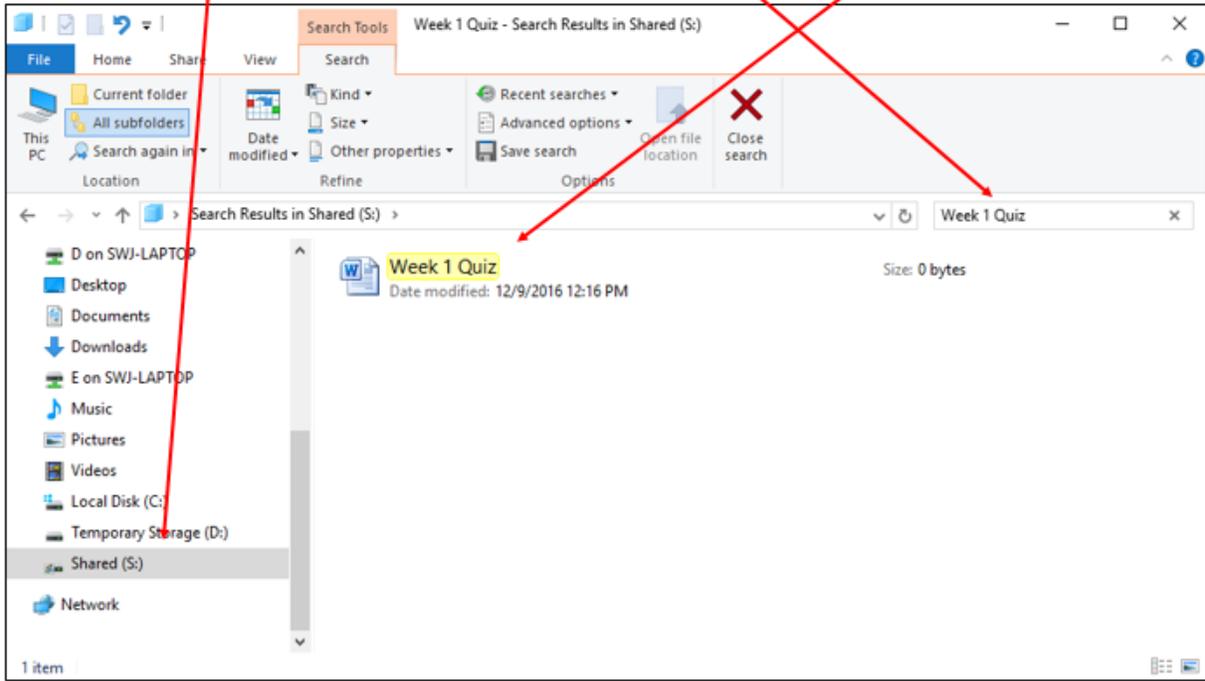


Figure 2-13 - Locate Weekly Quiz