



Republic of Rwanda
Ministry of Education



RTB | RWANDA
TVET BOARD

RQF LEVEL 5



ALL TRADES

CCMIW502

Information and
Communication
Technology (ICT)

TRAINER'S MANUAL

April 2025



Republic of Rwanda
Ministry of Education



INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)



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LIST OF ABBREVIATIONS AND ACRONYMS

CBET:	Competence Base Education and Training
RQF:	Rwanda Qualification Framework
RTB:	Rwanda TVET Board
TVET:	Technical and Vocational Education and Training
TOC:	Table of content
ICT:	Information and Communication Technology
MS:	Microsoft
PAN:	Personal Area Network
LAN:	Local Area Network
MAN:	Metropolitan Area Network
WAN:	Wide Area Network
WLAN:	Wireless Local Area Network
SAN:	Storage Area Network
EPN:	Enterprise Private Network
VPN:	Virtual Private Network
ISP:	Internet Service Provider
NIC:	Network Interface Card

INTRODUCTION

This Trainer's Manual encompasses all methodologies necessary to guide you to properly deliver the module titled: **"CCMIW502– Information and Communication Technology (ICT)"**. Students undertaking this module shall be exposed with practical activities that will develop and nurture their competences. The writing process of this training manual embraced competency-based education and training (CBET) philosophy by providing practical opportunities reflecting real life situations.

The Trainer's Manual is subdivided into Learning Outcomes, each learning outcome has got various topics. You will start guiding a self-assessment exercise to help students rate themselves on their level of skills, knowledge and attitudes about the unit.

The Trainer's Manual will give you the information about the objectives, learning hours, didactic materials, proposed methodologies and crosscutting issues.

A discovery activity is followed to help students discover what they already know about the unit.

This manual will give you tips, methodologies and techniques about how to facilitate students to undertake different activities as proposed in their Trainee's Manuals. The activities in this training manual are prepared such that they give opportunities to students to work individually and in groups.

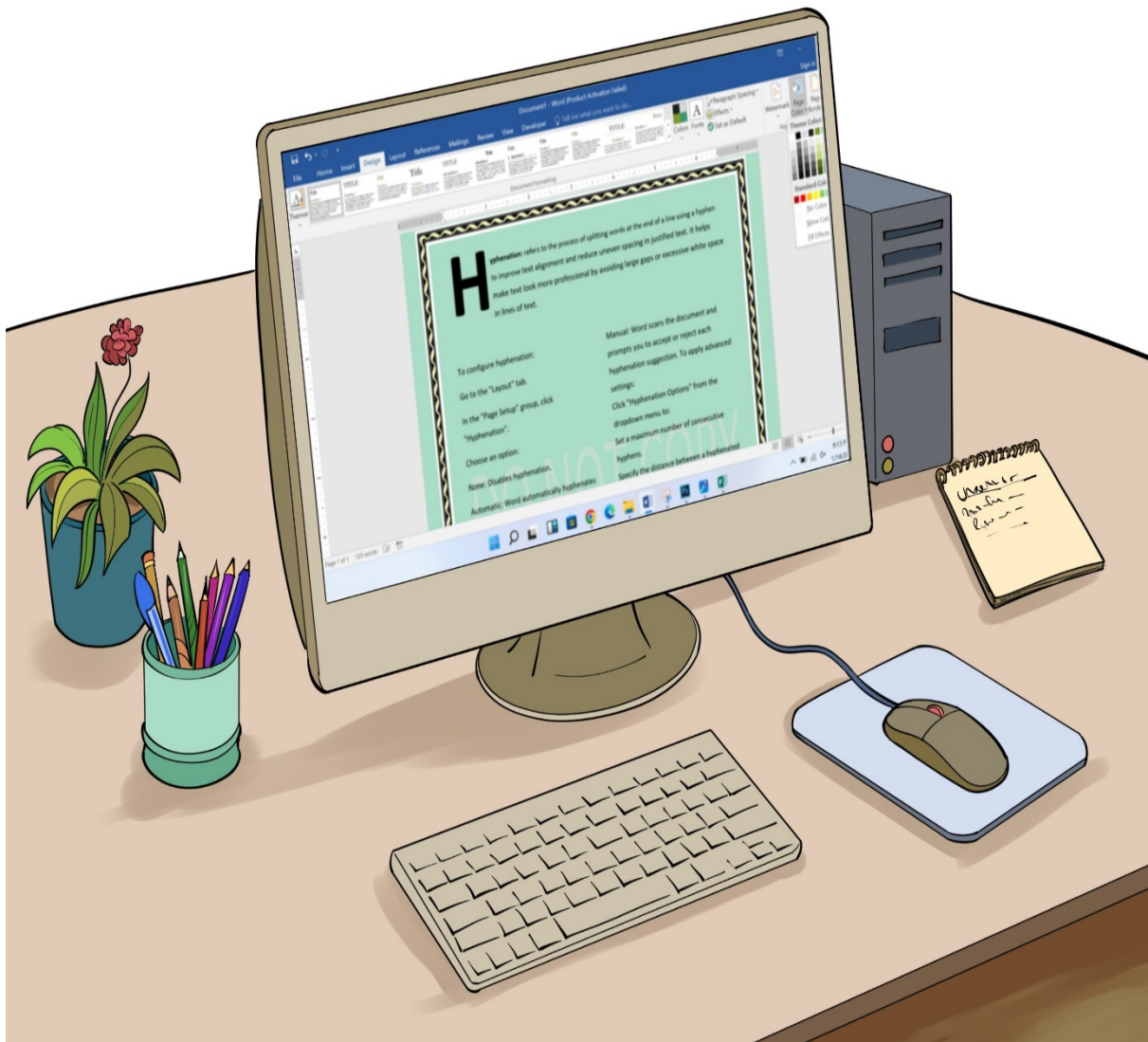
After going through all activities, you shall help students to undertake progressive assessments known as formative and finally facilitate them to do their self-reflection to identify your strengths, weaknesses and areas for improvements.

Remind them to read the point to remember section which provides the overall key points and takeaways of the unit.

Information and Communication Technology (ICT)

Learning Outcomes	Learning Hours	Topics
1. Prepare document Layout	10	1.1 Setup a document layout
		1.2 Insert and manage images in a document
		1.3 Create and manage references in a document
2. Apply basic computer operations	10	2.1 Convert files into different formats
		2.2 Use of storage media
		2.3 Connection of computer to the network
3. Manage data in MS Excel	10	3.1 Management of data types in MS Excel
		3.2 Application of Excel functions
		3.3 Perform data analysis and visualization in excel
		3.4. Application of data protection techniques in excel

LEARNING OUTCOME 1: PREPARE DOCUMENT LAYOUT



Learning outcome 1: Self-Assessment

1. Ask trainees to look at the unit illustration in their Trainee's Manuals and together discuss:
 - a. What does the illustration show?
 - b. What topics do you think will be covered under this unit based on the illustration?
2. After the discussion, inform students that this unit is intended to provide them with the knowledge, skills and attitudes required to prepare document layout, tell them that they will cover setting up a document layout, inserting and managing images in a document, creating and managing references in a document.
3. Ask trainees to fill out the self-assessment at the beginning of the unit in their Trainee's Manuals. Explain that:
 - a. The purpose of the self-assessment is to become familiar with the topics in the unit and for them to see what they know or do not know at the beginning.
 - b. There are no right or wrong ways to answer this assessment. It is for their own reference and self-reflection on the knowledge, skills and attitudes acquisition during the learning process.
 - c. They should think about themselves: do they think they have the knowledge, skills or attitudes to do this? How well?
 - d. They should read the statements across the top and put a check in column that best represents their level of knowledge, skills or attitudes.
 - e. At the end of the unit, they will do a self-reflection, which includes re-taking the self-assessment and identifying their strengths, areas of improvement and actions to be taken.



Key Competencies:

Knowledge	Skills	Attitudes
1. Describe page layout components	1. Adjust page layout	1. Pay attention to layout details.
2. Describe page background components	2. Apply page background	2. Maintain consistency in formatting styles.
3. Describe text formatting components	3. Apply advanced text formatting	3. Develop innovative ideas for designs
4. Identify steps for inserting pictures	4. Insert pictures	4. Be precise when applying tools
5. Identify steps for editing pictures	5. Edit picture	
6. Identify steps for creating table of contents	6. Create table of contents	
7. Define captions	7. Add captions	
8. Identify steps for adding citations and bibliography	8. Add citations and bibliography.	



Steps:



Discovery Activity



Task 1

1. Employ suitable methods such as individual work, pair-share, small group discussions, guided discussions, or large group discussions to facilitate trainees in sharing their understanding and prior knowledge of the concept "preparing document layout." Ensure that instructions are clear, all trainees are actively participating, and necessary materials or tools are provided and utilized effectively.
2. Direct the trainees to Task 1 in their manual to answer the questions provided.
3. Using an appropriate methodology such as question and answer in a large group, pair presentations or small group presentations, trainees share their answers to the class.
4. Encourage all trainees to share their views and findings.
5. After the presentations or sharing session, explain to the trainees that the purpose of this activity was not to provide correct answers but to give them an overview of what will be covered in the unit.
6. Introduce Topic 1.1: Setup a document layout

Topic 1.1: Set up a document layout

	Objectives: By the end of this topic, trainees will be able to: - Customize properly page dimensions and margins to enhance document readability and presentation. - Apply properly background styles and colors to improve visual appeal and branding. - Implement properly advanced formatting techniques to ensure professional and structured document layouts.
	Time Required: 4 hours
	Learning Methodology: Group Discussion, Trainer Guided, Videos, Brainstorming, Demonstration, Practical Exercises, Individual Work
	Materials, Tools and Equipment Needed: - Whiteboard, Blackboard, Projector, Computers, software, Internet - Markers, flipchart, chalk, Pens, Trainee and Trainer manuals
	Preparation: ☐ Prepare all necessary materials and tools required for the topic delivery ☐ Prepare computer laboratories to be ready for use
	Cross Cutting Issues: ✓ Ensure gender balance while forming groups, allocating tasks and during presentations. ✓ Take into consideration learners with special needs while assigning tasks ✓ Ensure safety measures for handling tools and equipment. ✓ Promote gender equality by challenging stereotypes, encouraging balanced participation from all genders
	Prerequisites: ✓ Prior skills in computer literacy



Activity 1: Problem-Solving



Task 2

1. Utilize an appropriate methodology, such as individual work, pair-share, small group discussions, guided discussions, or large group discussions, to help trainees analyze the scenario and respond to the questions in Task 2 of their trainee manual. Ensure that the instructions are clear, all trainees are engaged, and the necessary materials or tools are available and being used.
2. Using an appropriate approach, such as question-and-answer in a large group, pair presentations, or small group presentations, have the trainees share their answers with the class. Record their responses for reference and encourage everyone to contribute their views.
3. After the sharing session, refer trainees to Key facts 1.1, and discuss them together while harmonizing their responses provided in the sharing session and answer any questions that they may have.



Activity 2: Guided Practice



Task 3

1. Use a suitable approach, such as individual work, pair-share, small group discussions, guided discussions, or group discussions, to assist trainees to perform Task 3 in their trainee manuals. Ensure that instructions are clear, all trainees are actively engaged, and the required materials or tools are available and utilized effectively.
2. During the task, trainees should have some independence to apply the knowledge and skills learned in Activity 1. Your role is to guide them by asking probing questions like "Why?", "What?", and "How?" to help them arrive at well-informed answers.

3. While trainees are still performing the task, use this opportunity to discuss or address any cross-cutting issues that may arise such as gender, inclusivity, financial education among others. Also attitudes and behavior changes should be handled during this activity.
4. Using an appropriate methodology such as question and answer in a large group, pair presentations, or small group presentations, trainees share their answers to the class. Write their responses for reference. *Encourage all trainees to give their views.*
5. After the sharing session, refer trainees to Key facts 1.1, and discuss together while harmonizing their responses provided in the sharing session and answer any questions that they may have.



Activity 3: Application



Task 4

1. Inform the trainees that Task 4 connects them to the professional world. Instruct them to go to the school's computer lab and complete Task 4.
2. Using an appropriate methodology such as individual work or pairs trainees perform the task in the lab as a workplace and create an invitation card in MS word in order to demonstrate how to setup a document layout.
3. Provide additional guidance or instructions on their tasks, connecting what they have learned in the classroom to the activities they will perform in the workplace.
4. Inform the trainees that everyone will be assessed individually and later share the experiences they gained from task 4 with the class.
5. The sharing or presentation session will commence once all trainees have been assessed.
6. This activity requires trainees to work independently with limited support from the trainer. During the task, trainees should be given a high degree of independence to apply the knowledge, skills and attitudes acquired to real life situations. Your role is to set clear instructions, methodology and timeframe for performing the task and presentations.

7. Use the following Checklist for Assessing Trainees' Understanding but not limited to.

Assessment Criteria	Indicator	Observation		
		Yes	No	
1. Page Setup	1.1 A5 page size is selected			
	1.2 1-inch margins are applied			
	1.3 Portrait orientation is set			
2. Layout and formatting	2.1 Content is organized into columns			
	2.2 Section breaks are applied			
	2.3 Hyphenation is enabled			
	2.4 Indentation is adjusted			
	2.5 Paragraphs are adjusted			
	2.6 Line spacing (1.5) is respected			
3. Page background	3.1 A personalized watermark is added			
	3.2 Light blue accent color is applied			
	3.3 An art decorative border is included			
4. Text styling and emphasis	4.1 Bold, Arial font is used throughout the text			
	4.2 Text effects are applied			
	4.3 Shading is applied to highlight important details			
5. Professionalism and aesthetic appeal	5.1 The design is visually appealing			
	5.2 The invitation maintains clarity			

Topic 1.2: Insert and manage images in a document

	Objectives: By the end of the topic, trainees will be able to: a. Insert a picture properly within a document b. Apply picture styles properly to format images visual designs c. Arrange picture properly to create a professional document.
	Time Required: 2 hours
	Learning Methodology: • Learning Methodology: Group Discussion, Trainer Guided, Videos, Brainstorming, Demonstration, Practical Exercises, Individual Work
	Materials, Tools and Equipment Needed: • Whiteboard, Blackboard, Projector, Computers, software, Internet • Markers, flipchart, chalk, Pens, Trainee and Trainer manuals
	Preparation: ☐ Prepare all necessary materials and tools required for the topic delivery ☐ Prepare computer laboratories to be ready for use
	Cross Cutting Issues: ✓ Ensure gender balance while forming groups, allocating tasks and during presentations. ✓ Take into consideration learners with special needs while assigning tasks ✓ Ensure safety measures for handling tools and equipment. ✓ Promote gender equality by challenging stereotypes, encouraging balanced participation from all genders
	Prerequisites: ➤ Prior skills in computer literacy



Activity 1: Problem-Solving



Task 5

1. Utilize an appropriate methodology, such as individual work, pair-share, small group discussions, guided discussions, or large group discussions, to help trainees analyze the scenario and respond to the questions in Task 5 of their trainee manual. Ensure that the instructions are clear, all trainees are engaged, and the necessary materials or tools are available and being used.
2. Using an appropriate approach, such as question-and-answer in a large group, pair presentations, or small group presentations, have the trainees share their answers with the class. Record their responses for reference and encourage everyone to contribute their views.
3. After the sharing session, refer trainees to Key facts 1.2, and discuss them together while harmonizing their responses provided in the sharing session and answer any questions that they may have.



Activity 2: Guided Practice



Task 6

1. Use a suitable approach, such as individual work, pair-share, small group discussions, guided discussions, or group discussions, to assist trainees to perform Task 6 in their trainee manuals. Ensure that instructions are clear, all trainees are actively engaged, and the required materials or tools are available and utilized effectively.
2. During the task, trainees should have some independence to apply the knowledge and skills learned in Activity 1. Your role is to guide them by asking probing questions like "Why?", "What?", and "How?" to help them arrive at well-informed answers.
3. While trainees are still performing the task, use this opportunity to discuss or address any cross-cutting issues that may arise such as gender, inclusivity, financial education

among others. Also attitudes and behavior changes should be handled during this activity.

4. Using an appropriate methodology such as question and answer in a large group, pair presentations, or small group presentations, trainees share their answers to the class. Write their responses for reference. *Encourage all trainees to give their views.*
5. After the sharing session, refer trainees to Key facts 1.2, and discuss together while harmonizing their responses provided in the sharing session and answer any questions that they may have.



Activity 3: Application



Task 7

1. Inform the trainees that Task 7 connects them to the professional world. Instruct them to go to the school's computer lab and complete Task 7.
2. Using an appropriate methodology such as individual work or pairs trainees perform the task in the lab as a workplace and create an poster card in MS word in order to demonstrate how to work with pictures within a document.
3. Provide additional guidance or instructions on their tasks, connecting what they have learned in the classroom to the activities they will perform in the workplace.
4. Inform the trainees that everyone will be assessed individually and later share the experiences they gained from task 7 with the class.
5. The sharing or presentation session will commence once all trainees have been assessed.
6. This activity requires trainees to work independently with limited support from the trainer. During the task, trainees should be given a high degree of independence to apply the knowledge, skills and attitudes acquired to real life situations. Your role is to set clear instructions, methodology and timeframe for performing the task and presentations.

7. Use the following Checklist for Assessing Trainees' Understanding but not limited to.

Assessment Criteria	Indicator	Observation		
		Yes	No	
1. Insert picture	1.1 Change size of a picture is done			
	1.2 Compress a picture is done			
	1.3 Increase the Contrast is done			
2. Picture styles	2.1 Picture border is sated			
	2.2 Picture effects is done			
	2.3 Picture layout is sated			
3. Arrange picture	3.1 Position of picture is changed			
	3.2 Wrap text around a picture			
	3.3 Rotate a picture			

Topic 1.3: Create and manage references in a document

	Objectives: By the end of the topic, trainees will be able to: - Create a document properly formatted in-text citations and a bibliography using the referencing tools in Microsoft Word. - Demonstrate the ability to use built-in styles for references, such as APA or MLA, and modify at least one citation format to meet specific guidelines. - Generate a table of contents, list of figures, and bibliography for a sample document, ensuring all references are properly linked and updated automatically.
	Time Required 4 hours.
	Learning Methodology: Learning Methodology: Group Discussion, Trainer Guided, Videos, Brainstorming, Demonstration, Practical Exercises, Individual Work
	- Whiteboard, Blackboard, Projector, Computers, software, Internet - Markers, flipchart, chalk, Pens, Trainee and Trainer manuals
	Preparation: ☐ Avail all necessary materials to the topic such as books and internet ☐ Prepare computer laboratories
	Cross Cutting Issues: ✓ Ensure gender balance while forming groups, allocating tasks and during presentations. ✓ Take into consideration learners with special needs while assigning tasks ✓ Ensure safety measures for handling tools and equipment. ✓ Promote gender equality by challenging stereotypes, encouraging balanced participation from all genders
	Prerequisites: ➤ Prior skills in computer literacy



Activity 1: Problem-Solving



Task 8

1. Utilize an appropriate methodology, such as individual work, pair-share, small group discussions, guided discussions, or large group discussions, to help trainees analyze the scenario and respond to the questions in Task 8 of their trainee manual. Ensure that the instructions are clear, all trainees are engaged, and the necessary materials or tools are available and being used.
2. Using an appropriate approach, such as question-and-answer in a large group, pair presentations, or small group presentations, have the trainees share their answers with the class. Record their responses for reference and encourage everyone to contribute their views.
3. After the sharing session, refer trainees to Key facts 1.3, and discuss them together while harmonizing their responses provided in the sharing session and answer any questions that they may have.



Activity 2: Guided Practice



Task 9

1. Use a suitable approach, such as individual work, pair-share, small group discussions, guided discussions, or group discussions, to assist trainees to perform Task 3 in their trainee manuals. Ensure that instructions are clear, all trainees are actively engaged, and the required materials or tools are available and utilized effectively.
2. During the task, trainees should have some independence to apply the knowledge and skills learned in Activity 1. Your role is to guide them by asking probing questions like "Why?", "What?", and "How?" to help them arrive at well-informed answers.
3. While trainees are still performing the task, use this opportunity to discuss or address any cross-cutting issues that may arise such as gender, inclusivity, financial education

among others. Also attitudes and behavior changes should be handled during this activity.

4. Using an appropriate methodology such as question and answer in a large group, pair presentations, or small group presentations, trainees share their answers to the class. Write their responses for reference. *Encourage all trainees to give their views.*
5. After the sharing session, refer trainees to Key facts 1.3, and discuss together while harmonizing their responses provided in the sharing session and answer any questions that they may have.



Activity 3: Application



Task 10

1. Inform the trainees that Task 10 connects them to the professional world. Instruct them to go to the school's computer lab and complete Task 10.
2. Using an appropriate methodology such as individual work or pairs trainees perform the task in the lab as a workplace and prepare an industrial attachment report in MS word in order to demonstrate how to add references in a document.
3. Provide additional guidance or instructions on their tasks, connecting what they have learned in the classroom to the activities they will perform in the workplace.
4. Inform the trainees that everyone will be assessed individually and later share the experiences they gained from task 10 with the class.
5. The sharing or presentation session will commence once all trainees have been assessed.
6. This activity requires trainees to work independently with limited support from the trainer. During the task, trainees should be given a high degree of independence to apply the knowledge, skills and attitudes acquired to real life situations. Your role is to set clear instructions, methodology and timeframe for performing the task and presentations.

7. Use the following Checklist for Assessing Trainees' Understanding but not limited to.

Assessment Criteria	Indicator	Observation		
		Yes	No	
1. Table of contents	1.1. Heading styles are applied			
	1.2. Sections and subsections are sated			
	1.3. Table of content is created			
2. Footnotes	2.1. Footnotes are applied on the page			
3. Citations and bibliography	3.1. Style is applied			
	3.2. New source is added			
	3.3. References are displayed at end of a document			



Formative Assessment

Multiple-Choice Questions (MCQs)

1. Which feature is used to adjust the space between lines of text in a paragraph?

- a. Paragraph Indentation
- b. Line Spacing
- c. Page Margins
- d. Font Effects

Answer: b) Line Spacing

2. What is the default paper orientation in Microsoft Word?

- a. Landscape
- b. Portrait
- c. Square
- d. Custom

Answer: b) Portrait

3. How can you add captions to a picture in Microsoft Word?

- a. Using the "Insert Caption" option under the References tab
- b. By clicking on "Wrap Text"
- c. Under the Page Layout tab

- d. Using the Picture Styles menu

Answer: a) Using the "Insert Caption" option under the References tab

4. What is the purpose of compressing a picture in Word?

- a. To change its color
- b. To reduce file size
- c. To add effects
- d. To crop the image

Answer: b) To reduce file size

5. Which tab contains the option to add page borders?

- a. Home
- b. Page Layout
- c. References
- d. Insert

Answer: b) Page Layout

True or False Questions

6. True/False

- a. Section breaks allow different formatting options within the same document.
(True/False)

Answer: True

- b. Watermarks cannot be customized in Microsoft Word. (True/False)

Answer: False

- c. Indenting a paragraph alters the line spacing of the entire document. (True/False)

Answer: False

7. Fill in the Blanks

- a. The feature used to change the position of a picture is called _____.

Answer: The feature used to change the position of a picture is called **Wrap Text**.

- b. Page borders are found under the _____ tab in Word.

Answer: Page borders are found under the **Design** tab in Word.

- c. Compressing a picture reduces its _____ size while maintaining visual quality.

Answer: Compressing a picture reduces its **file** size while maintaining visual quality.

Open Questions

8. Explain the significance of page margins, paper orientation, and page size in creating professional documents.

Page margins define the space between the content and the edges of the paper, ensuring readability and aesthetics. Paper orientation (portrait or landscape) determines how content is aligned and presented. Page size (e.g., A4, Letter) ensures the document fits the intended output medium, maintaining professionalism and consistency.

9. How do you add a watermark to a document? Provide examples of when watermarks are used.

To add a watermark:

- a. Go to the **Design** tab.
- b. Click **Watermark** and choose a pre-designed option or customize it.
- c. Use the **Custom Watermark** option to insert text or an image.

Watermarks are used for purposes such as marking a document as confidential, adding branding, or indicating drafts. For example, “Confidential” or “Draft” watermarks are common.

10. Compare and contrast "Indenting a paragraph" and "Paragraph and line spacing" in document formatting.

- a. **Indenting a Paragraph:** Refers to adjusting the starting point of a paragraph from the left or right margin. Used for block quotes or distinguishing sections.
- b. **Paragraph and Line Spacing:** Refers to the vertical space between lines of text or paragraphs. It affects document readability and structure.

Both improve document organization but serve different purposes.

11. Explain how to apply font effects and shading to text for emphasis.

- a. **Font Effects:** Highlight text and go to the **Font** group in the **Home** tab. Apply bold, italic, underline, strikethrough, or superscript/subscript for emphasis.
- b. **Shading:** Select text, go to the **Paragraph** group, and click **Shading** to add a background color.

These enhance text visibility and draw attention.

12. What are the steps to compress a picture in Word? Why is this feature important?

Steps:

1. Select the picture.

2. Go to the **Picture Format** tab.
3. Click **Compress Pictures**.
4. Choose compression options (e.g., remove cropped areas, adjust resolution).

Importance: Reduces file size, making documents easier to share and load without compromising quality.

13. Explain how to use "Wrap Text" to position a picture effectively in a document.

Steps:

1. Select the picture.
2. Go to the **Picture Format** tab.
3. Click **Wrap Text** and choose an option like **Tight**, **Square**, or **Behind Text**.

This ensures proper alignment with text and enhances the visual appeal of the document.

14. List and describe three types of picture effects that can be applied to images.

1. **Shadow:** Adds a shadow behind the image for depth.
2. **Reflection:** Creates a mirrored effect below the picture.
3. **Glow:** Adds a colored glow around the edges of the image.

These effects enhance the visual impact of pictures.

15. How do you create a table of contents in Microsoft Word? Mention any three benefits of using it.

Steps:

1. Use heading styles (e.g., Heading 1, Heading 2) for document titles and sections.
2. Go to the **References** tab.
3. Click **Table of Contents** and choose a format.

Benefits:

1. Improves document navigation.
2. Provides an organized structure.
3. Updates dynamically when headings change.

16. Write the steps to insert footnotes and manage citations in a Word document.

Steps to Insert Footnotes:

1. Place the cursor where the footnote is needed.
2. Go to the **References** tab.
3. Click **Insert Footnote**.

Steps to Manage Citations:

1. Go to the **References** tab.
2. Click **Insert Citation** and select a source or add a new one.
3. Use **Manage Sources** to edit or organize references.



Points to Remember

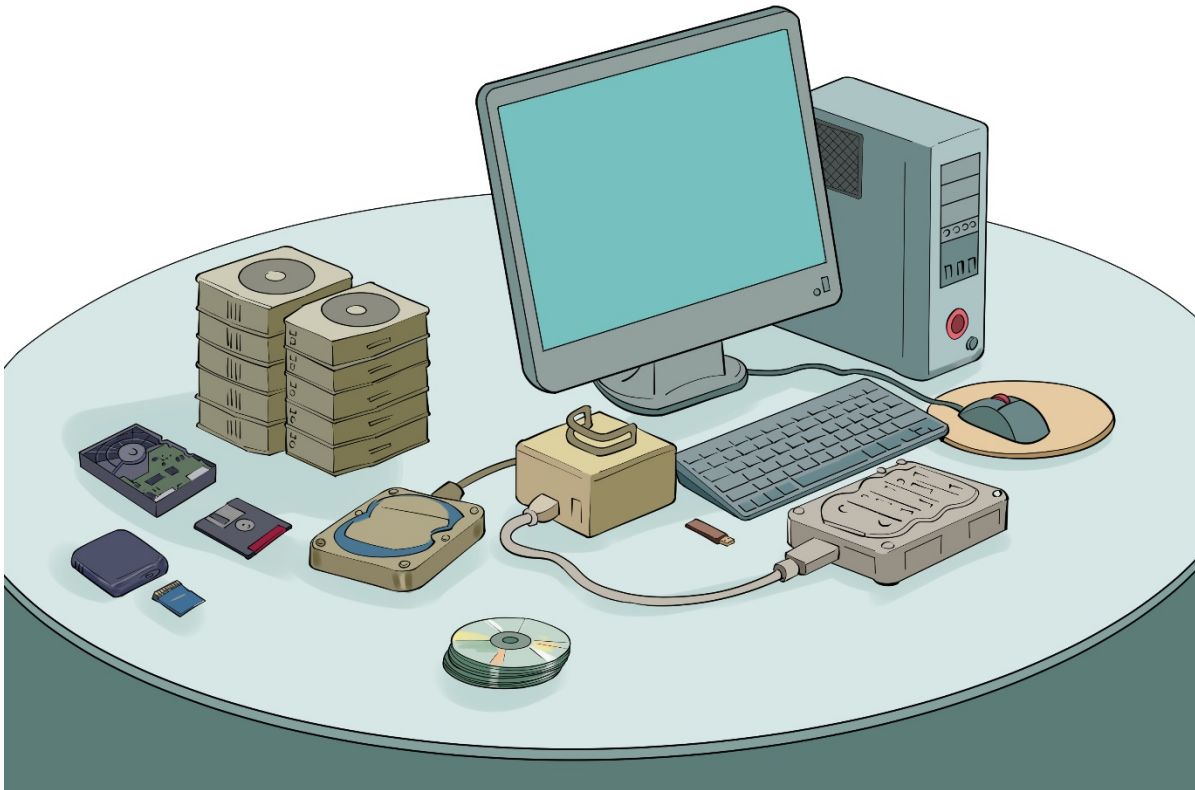
- **Page Layout:** Adjust margins, orientation, page size, and use section breaks for better document structure.
- **Page Background:** Enhance documents with watermarks, page colors, and borders for professional appeal.
- **Advanced Formatting:** Use fonts, colors, borders, shading, and spacing to improve text presentation and readability.
- **Picture Handling:** Insert and modify pictures by resizing, compressing, adjusting contrast, and applying styles.
- **Picture Arrangement:** Position images using text wrapping, alignment, and rotation to fit content seamlessly.
- **References and Captions:** Manage Table of contents, footnotes, citations, and captions to provide clear references and navigation.



Self-Reflection

1. Ask learners to re-take the self-assessment at the beginning of the unit. They should then fill in the table in their Trainee's Manual to Identify their areas of strength, areas for improvement and actions to take to improve.
2. Discuss trainees' results with them. Identify any areas that are giving many trainees difficulties and plan to give additional support as needed (ex. use class time before you begin the next learning outcome to go through commonly identified difficult concepts).

LEARNING OUTCOME 2: APPLY BASIC COMPUTER OPERATIONS



Learning outcome 1: Self-Assessment

1. Ask trainees to look at the unit illustration in their Trainee's Manuals and together discuss:
 - a. What devices can you identify in the image above?
 - b. What does the term "PDF" on the monitor refer to?
 - c. How are these devices interconnected?
2. After the discussion, explain to the students that this unit is designed to equip them with the knowledge, skills, and attitudes needed for conversion of data files, use of storage media, and connect computer to the network.
3. Ask trainees to fill out the self-assessment at the beginning of the unit in their Trainee's Manuals. Explain that:
 - a. The purpose of the self-assessment is to become familiar with the topics in the unit and for them to see what they know or do not know at the beginning.

- b. There are no right or wrong ways to answer this assessment. It is for their own reference and self-reflection on the knowledge, skills and attitudes acquisition during the learning process.
- c. They should think about themselves: do they think they have the knowledge, skills or attitudes to do this? How well?
- d. They read the statements across the top and put a check in column that best represents their level of knowledge, skills or attitudes.
- e. At the end of the unit, they will do a self-reflection, which includes re-taking the self-assessment and identifying their strengths, areas of improvement and actions to be taken.



Key Competencies:

Knowledge	Skills	Attitudes
1. Describe file conversion	1. Identify the unity of storage media	1. Pay attention to file compatibility during conversion.
2. Identify file formats	2. Convert a file from one format to another	2. Develop confidence in operating computers.
3. Identify storage media	3. Use a storage media	3. Have patience when troubleshooting issues.
4. Define computer network	4. Format a storage media	4. Provide secure network connections with proper configuration.
5. Describe the ways to connect a computer to the internet	5. Connect computer to the internet	5. Have caution when handling sensitive data.



Steps:



Discovery Activity



Task 11

1. Employ suitable methods such as individual work, pair-share, small group discussions, guided discussions, or large group discussions to facilitate trainees in analyzing the picture under task 11 and sharing their understanding and prior knowledge of the concept "basic computer operations". Ensure that instructions are clear, all trainees are actively participating, and necessary materials or tools are provided and utilized effectively.
2. Direct the trainees to Task 11 in their manual to respond to the questions.
3. Using an appropriate methodology such as question and answer in a large group, pair presentations or small group presentations, trainees share their answers to the class.
4. Encourage all trainees to share their views and findings.
5. After the presentations or sharing session, explain to the trainees that the purpose of this activity was not to provide correct answers but to give them an overview of what will be covered in the unit.
6. Introduce Topic 2.1: Converting of data Files.

Topic 2.1: Convert files into different formats

	Objectives: By the end of the topic, trainees will be able to: - Describe clearly different file formats and their corresponding file extensions. - Perform properly file conversions from one format to another. - Explain clearly the concept of file compression and its importance - Demonstrate properly the steps to compress a file.
	Time Required: 3 hours
	Learning Methodology: Group Discussion, Trainer Guided, Videos, Brainstorming, Demonstration, Practical Exercises, Individual Work
	Materials, Tools and Equipment Needed: - Whiteboard, Blackboard, Projector, Computers, software, Internet - Markers, flipchart, chalk, Pens, Trainee and Trainer manuals
	Preparation: ☐ Prepare all necessary material and tools required for the topic delivery ☐ Prepare computer laboratories to be ready for use
	Cross Cutting Issues: ✓ Ensure gender balance while forming groups, allocating tasks and during presentations. ✓ Take into consideration learners with special needs while assigning tasks ✓ Ensure safety measures for handling tools and equipment. ✓ Promote gender equality by challenging stereotypes, encouraging balanced participation from all genders
	Prerequisites: ✓ Prior skills in computer literacy



Activity 1: Problem-Solving



Task 12

1. Utilize an appropriate methodology, such as individual work, pair-share, small group discussions, guided discussions, or large group discussions, to help trainees analyze the picture of file formats and respond to the questions in Task 12 of their trainee manual. Ensure that the instructions are clear, all trainees are engaged, and the necessary materials or tools are available and being used.
2. Using an appropriate approach, such as question-and-answer in a large group, pair presentations, or small group presentations, have the trainees share their answers with the class. Record their responses for reference and encourage everyone to contribute their views.
3. After the sharing session, refer trainees to Key facts 2.1, and discuss them together while harmonizing their responses provided in the sharing session and answer any questions that they may have.



Activity 2: Guided Practice



Task 13

1. Use a suitable approach, such as individual work, pair-share, small group discussions, guided discussions, or group discussions, to assist trainees to perform Task 13 in their trainee manuals. Ensure that instructions are clear, all trainees are actively engaged, and the required materials or tools are available and utilized effectively.
2. During the task, trainees should have some independence to apply the knowledge and skills learned in Activity 1. Your role is to guide them by asking probing questions like "Why?", "What?", and "How?" to help them arrive at well-informed answers.
3. While trainees are still performing the task, use this opportunity to discuss or address any cross-cutting issues that may arise such as gender, inclusivity, financial education among others. Also attitudes and behavior changes should be handled during this activity.

- Using an appropriate methodology such as question and answer in a large group, pair presentations, or small group presentations, trainees share their answers to the class. Write their responses for reference. Encourage all trainees to give their views.
- After the sharing session, refer trainees to Key facts 2.1, and discuss together while harmonizing their responses provided in the sharing session and answer any questions that may have.



Activity 3: Application



Task 14

- Inform the trainees that Task 14 connects them to the professional world. Instruct them to go to the school's computer lab and complete Task 14.
- Using an appropriate methodology such as individual work or pairs trainees perform the task in the lab as a workplace and perform the task 14 in order to demonstrate how to convert data files.
- Provide additional guidance or instructions on their tasks, connecting what they have learned in the classroom to the activities they will perform in the workplace.
- Inform the trainees that everyone will be assessed individually and later share the experiences they gained from task 14 with the class.
- The sharing or presentation session will commence once all trainees have been assessed.
- This activity requires trainees to work independently with limited support from the trainer. During the task, trainees should be given a high degree of independence to apply the knowledge, skills and attitudes acquired to real life situations. Your role is to set clear instructions, methodology and timeframe for performing the task and presentations.
- Use the following Checklist for Assessing Trainees' Understanding but not limited to.**

Assessment Criteria	Indicator	Observation		
		Yes	No	
1. File Conversion	1.1. The excel spreadsheet is opened			
	1.2. The file is converted from excel to PDF			
	1.3. The file is saved to its appropriate name			
	1.4. The conversion meet the requirements			

Topic 2.2: Use of storage media

	Objectives: By the end of the topic, trainees will be able to: - Describe properly the different units of data storage - Identify properly different types of storage media - Format and erase data from storage media.
	Time Required: 3 hours
	• Learning Methodology: Group Discussion, Trainer Guided, Videos, Brainstorming, Demonstration, Practical Exercises, Individual Work
	Materials, Tools and Equipment Needed: - Whiteboard, Blackboard, Projector, Computers, software, Internet - Markers, flipchart, chalk, Pens, Trainee and Trainer manuals
	Preparation: ☐ Prepare all necessary material and tools required for the topic delivery ☐ Prepare computer laboratories to be ready for use
	Cross Cutting Issues: ✓ Ensure gender balance while forming groups, allocating tasks and during presentations. ✓ Take into consideration learners with special needs while assigning tasks ✓ Ensure safety measures for handling tools and equipment. ✓ Promote gender equality by challenging stereotypes, encouraging balanced participation from all genders
	Prerequisites: ➤ Prior skills in computer literacy



Activity 1: Problem-Solving



Task 15

1. Utilize an appropriate methodology, such as individual work, pair-share, small group discussions, guided discussions, or large group discussions, to help trainees analyze the scenario and respond to the questions in Task 15 of their trainee manual. Ensure that the instructions are clear, all trainees are engaged, and the necessary materials or tools are available and being used.
2. Using an appropriate approach, such as question-and-answer in a large group, pair presentations, or small group presentations, have the trainees share their answers with the class. Record their responses for reference and encourage everyone to contribute their views.
3. After the sharing session, refer trainees to Key facts 2.2, and discuss them together while harmonizing their responses provided in the sharing session and answer any questions that they may have.



Activity 2: Guided Practice



Task 16

1. Use a suitable approach, such as individual work, pair-share, small group discussions, guided discussions, or group discussions, to assist trainees in answering the questions under Task 16 in their trainee manuals. Ensure that instructions are clear, all trainees are actively engaged, and the required materials or tools are available and utilized effectively.
2. During the task, trainees should have some independence to apply the knowledge and skills learned in Activity 1. Your role is to guide them by asking probing questions like "Why?", "What?", and "How?" to help them arrive at well-informed answers.
3. While trainees are still performing the task, use this opportunity to discuss or address any cross-cutting issues that may arise such as gender, inclusivity, financial education among others. Also attitudes and behavior changes should be handled during this activity.

4. Using an appropriate methodology such as question and answer in a large group, pair presentations, or small group presentations, trainees share their answers to the class. Write their responses for reference. *Encourage all trainees to give their views.*
5. After the sharing session, refer trainees to Key facts 2.2, and discuss together while harmonizing their responses provided in the sharing session and answer any questions that they may have



Activity 3: Application



Task 17

1. Inform the trainees that Task 17 connects them to the professional world. Instruct them to go to the school's computer lab and complete Task 17.
2. Using an appropriate methodology such as individual work or pairs, trainees perform the task in the lab as a workplace and perform backup activities in order to demonstrate how to use storage media.
3. Provide additional guidance or instructions on their tasks, connecting what they have learned in the classroom to the activities they will perform in the workplace.
4. Inform the trainees that everyone will be assessed individually and later share the experiences they gained from task 4 with the class.
5. The sharing or presentation session will commence once all trainees have been assessed.
6. This activity requires trainees to work independently with limited support from the trainer. During the task, trainees should be given a high degree of independence to apply the knowledge, skills and attitudes acquired to real life situations. Your role is to set clear instructions, methodology and timeframe for performing the task and presentations.
7. **Use the following Checklist for Assessing Trainees' Understanding but not limited to.**

Assessment Criteria	Indicator	Observation	
		Yes	No
1. Use of storage	1.1 The capacity of storage is assessed		
	1.2 The backup is done		
	1.3 The storage device(s) is(are) formatted		
	1.4 The recovery procedures are mentioned		

Topic 2.3: Connection of computer to the network

	Objectives: By the end of the topic, trainees will be able to: - Describe properly a computer network and its common types - Compare correctly common types of networks based on size and their uses. - Classify correctly common types of networks based on their primary purpose - Connect a computer to both fixed and mobile internet.
	Time Required 4 hours
	Learning Methodology: Group Discussion, Trainer Guided, Videos, Brainstorming, Demonstration, Practical Exercises, Individual Work
	Materials, Tools and Equipment Needed: - Whiteboard, Blackboard, Projector, Computers, software, Internet - Markers, flipchart, chalk, Pens, Trainee and Trainer manuals
	Preparation: ☐ Prepare all necessary material and tools required for the topic delivery ☐ Prepare computer laboratories to be ready for use
	Cross Cutting Issues: ✓ Ensure gender balance while forming groups, allocating tasks and during presentations. ✓ Take into consideration learners with special needs while assigning tasks ✓ Ensure safety measures for handling tools and equipment. ✓ Promote gender equality by challenging stereotypes, encouraging balanced participation from all genders
	Prerequisites: ➤ Prior skills in computer literacy



Activity 1: Problem-Solving



Task 18

1. Utilize an appropriate methodology, such as individual work, pair-share, small group discussions, guided discussions, or large group discussions, to help trainees analyze the scenario and respond to the questions in Task 18 of their trainee manual. Ensure that the instructions are clear, all trainees are engaged, and the necessary materials or tools are available and being used.
2. Using an appropriate approach, such as question-and-answer in a large group, pair presentations, or small group presentations, have the trainees share their answers with the class. Record their responses for reference and encourage everyone to contribute their views.
3. After the sharing session, refer trainees to Key facts 2.3, and discuss them together while harmonizing their responses provided in the sharing session and answer any questions that they may have.



Activity 2: Guided Practice



Task 19

1. Use a suitable approach, such as individual work, pair-share, small group discussions, guided discussions, or group discussions, to assist trainees to perform Task 19 in their trainee manuals. Ensure that instructions are clear, all trainees are actively engaged, and the required materials or tools are available and utilized effectively.
2. During the task, trainees should have some independence to apply the knowledge and skills learned in Activity 1. Your role is to guide them by asking probing questions like "Why?", "What?", and "How?" to help them arrive at well-informed answers.
3. While trainees are still performing the task, use this opportunity to discuss or address any cross-cutting issues that may arise such as gender, inclusivity, financial education among others. Also attitudes and behavior changes should be handled during this activity.

4. Using an appropriate methodology such as question and answer in a large group, pair presentations, or small group presentations, trainees share their answers to the class. Write their responses for reference. Encourage all trainees to give their views.
5. After the sharing session, refer trainees to Key facts 2.3, and discuss together while harmonizing their responses provided in the sharing session and answer any questions that they may have



Activity 3: Application



Task 20

1. Inform the trainees that Task 20 connects them to the professional world. Instruct them to go to the school's computer lab and complete Task 20.
2. Using an appropriate methodology such as individual work or pairs trainees perform the task in the lab as a workplace and create an WLAN in order to demonstrate how to a computer to the internet.
3. Provide additional guidance or instructions on their tasks, connecting what they have learned in the classroom to the activities they will perform in the workplace.
4. Inform the trainees that everyone will be assessed individually and later share the experiences they gained from task 20 with the class.
5. The sharing or presentation session will commence once all trainees have been assessed.
6. This activity requires trainees to work independently with limited support from the trainer. During the task, trainees should be given a high degree of independence to apply the knowledge, skills and attitudes acquired to real life situations. Your role is to set clear instructions, methodology and timeframe for performing the task and presentations.

7. Use the following Checklist for Assessing Trainees' Understanding but not limited to.

Assessment Criteria	Indicator	Observation		
		Yes	No	
1. Wireless Local Area Network (WLAN)	1.1 Computers for housekeeping are connected.			
	1.2 The reception computer is connected.			
	1.3 The administrative computer is connected.			
	1.4 The internet is available.			



Formative Assessment

1. Which of the following best defines a computer network?

- a. A group of connected printers
- b. A system of interconnected computers that share resources
- c. A computer without internet access
- d. A set of computer programs installed on a device

Answer: b

2. Which type of network is best suited for connecting devices in a small office?

- a. N
- b. LAN
- c. MAN
- d. WLAN

Answer: b

3. What does VPN stand for?

- a. Virtual Protected Network
- b. Virtual Private Network
- c. Verified Public Network
- d. Virtual Proxy Network

Answer: b

4. Which of the following is a disadvantage of computer networks?

- a. Enhanced communication

- b. Centralized data management
- c. Vulnerability to cyberattacks
- d. Shared resources

Answer: c

5. **Which type of internet connection is mobile and allows connectivity on the go?**

- a. Fixed internet
- b. Satellite internet
- c. Fiber-optic internet
- d. Mobile internet

Answer: d

6. A **LAN** connects devices within a ____.

- a. City
- b. Limited area
- c. Country
- d. Multiple cities

Answer: b) Limited area

7. A **WLAN** relies on ____ to connect devices

- a. Ethernet cables
- b. Fiber-optic cables
- c. Satellites
- d. Wireless signals

Answer: d) Wireless signals

8. **Define a computer network and describe its main features.**

Answer:

A computer network is a system of interconnected devices, such as computers, printers, and servers, that share resources and communicate with each other. Main features include resource sharing, communication, scalability, and reliability.

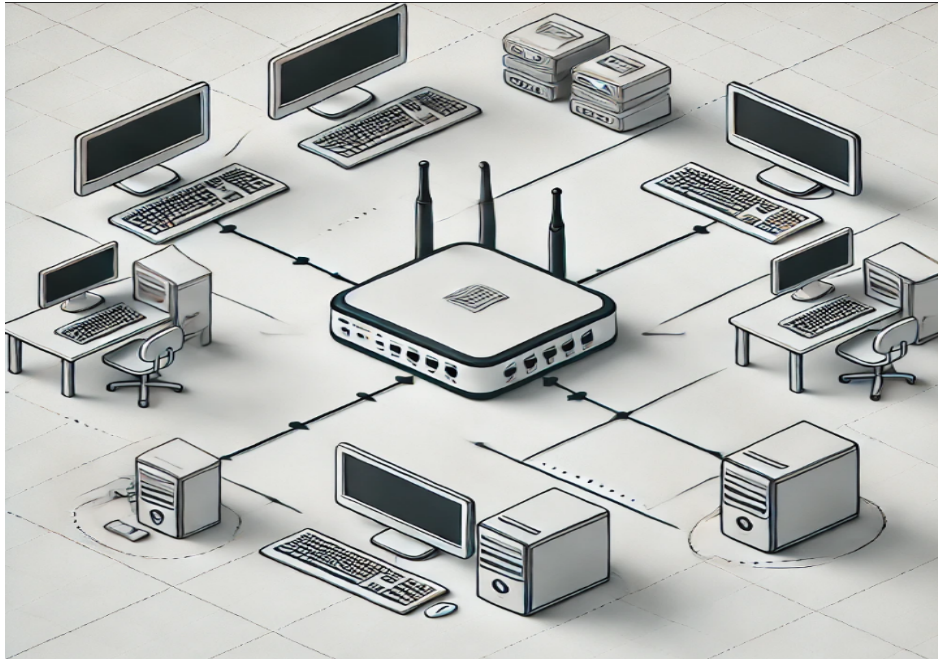
9. **Compare and contrast LAN and WAN, providing an example of where each might be used.**

Answer:

- a. **LAN (Local Area Network):** Operates within a limited area, such as a home or office. Example: Networking computers and printers in a small office.
 - b. **WAN (Wide Area Network):** Covers a broad geographical area, connecting multiple LANs. Example: The internet or a multinational company's network.
10. **What are the key advantages and disadvantages of using a WLAN in a hotel setting?**
- Answer:**
- a. **Advantages:** Easy guest access, mobility, and reduced wiring costs.
 - b. **Disadvantages:** Vulnerable to unauthorized access and slower speeds if overloaded.
11. **Explain the importance of VPNs for secure communication in a business environment.**
- Answer:**
- VPNs encrypt data and create secure connections over the internet, protecting sensitive business information from unauthorized access and ensuring privacy in remote communications.
12. **Describe the process of connecting a computer to the internet using both fixed and mobile internet.**
- Answer:**
- a. **Fixed Internet:** Connect the computer to a router using an Ethernet cable or Wi-Fi.
 - b. **Mobile Internet:** Use a mobile hotspot or tethering feature from a smartphone to provide connectivity.
13. **Set up a basic WLAN on your laptop or mobile device, and test its ability to connect multiple devices simultaneously.**
- Answer:**
- a. Enable the hotspot feature or create a wireless network on the laptop/mobile device.
 - b. Connect other devices by entering the network name and password.
 - c. Test simultaneous connections by accessing the internet or sharing files.

14. Create a diagram showing the connections between devices in a LAN for a small office with three computers and a shared printer.

Answer:



Points to Remember

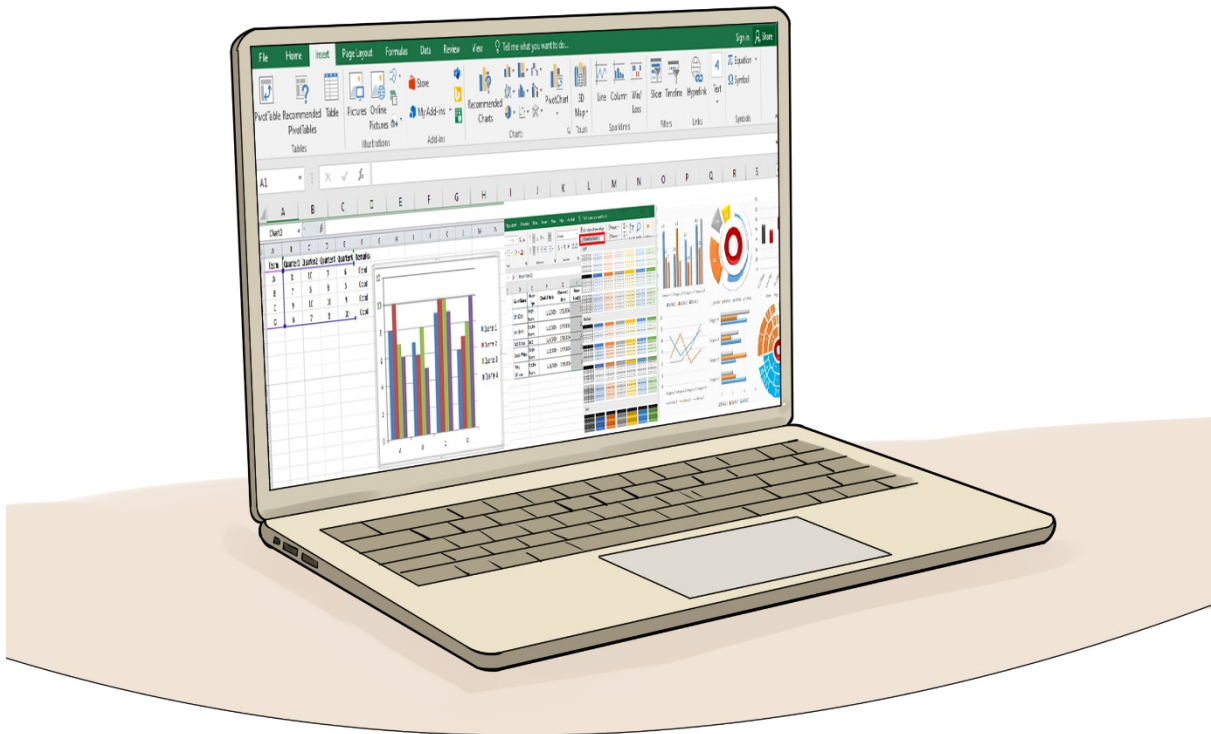
- Common file formats and their extensions, along with tools for converting files (e.g., files to PDF, PDF to Word/Excel/PPT).
- File compression (saving storage space) and the steps to compress files effectively.
- Types of storage media (offline vs. online), storage capacities (bytes, KB, MB, etc.)
- The types of networks based on size are PAN, LAN, WAN.
- The types of networks based on usage are SAN (data storage), EPN (private enterprise use), and VPN (secure remote access).
- Two types of internets are broadband and mobile internet options for connecting devices efficiently.



Self-Reflection

1. Ask learners to re-take the self-assessment at the beginning of the unit. They should then fill in the table in their Trainee's Manual to Identify their areas of strength, areas for improvement and actions to take to improve.
2. Discuss trainees' results with them. Identify any areas that are giving many trainees difficulties and plan to give additional support as needed (ex. use class time before you begin the next learning outcome to go through commonly identified difficult concepts).

LEARNING OUTCOME 3: MANAGE DATA IN MS EXCEL



Learning outcome 1: Self-Assessment

1. Ask trainees to look at the unit illustration in their Trainee's Manuals and together discuss:
 - a. What do you see on the above illustration?
 - b. What do you think is the purpose of the highlighted tools like sorting, filtering, and chart creation in Excel?
 - c. How might these help in managing data?
2. After the discussion, explain to the students that this unit is designed to equip them with the knowledge, skills, and attitudes needed to manage data types in MS Excel, apply Excel

functions, perform data analysis and visualization, and application of data protection techniques.

3. Ask trainees to fill out the self-assessment at the beginning of the unit in their Trainee's Manuals. Explain that:
 - a. The purpose of the self-assessment is to become familiar with the topics in the unit and for them to see what they know or do not know at the beginning.
 - b. There are no right or wrong ways to answer this assessment. It is for their own reference and self-reflection on the knowledge, skills and attitudes acquisition during the learning process.
 - c. They should think about themselves: do they think they have the knowledge, skills or attitudes to do this? How well?
 - d. They read the statements across the top and put a check in column that best represents their level of knowledge, skills or attitudes.
 - e. At the end of the unit, they will do a self-reflection, which includes re-taking the self-assessment and identifying their strengths, areas of improvement and actions to be taken.



Key Competencies:

Knowledge	Skills	Attitudes
1. Explain the types of data in excel.	1. Sort data	1. Pay attention to appropriate data type usage.
2. Describe data protection principles	2. Remove duplicates in dataset	2. Have consistency in formatting and formulas.
3. Identify Excel functions	3. Perform data validation	3. Pay attention to data accuracy.
4. Describe the ways to protect data in excel	4. Apply Excel functions	4. Be analytical when interpreting results
5. Identify data validation techniques	5. Check errors in data	5. Provide clear visualizations using charts and tables

Knowledge	Skills	Attitudes
	6. Manage large dataset	
	7. Apply data protection principles.	
	8. Implement data visualization	



Steps:



Discovery Activity



Task 21

1. Employ suitable methods such as individual work, pair-share, small group discussions, guided discussions, or large group discussions to facilitate trainees in analyzing the picture under task 21 and sharing their understanding and prior knowledge of the concept "Management of data in MS Excel." Ensure that instructions are clear, all trainees are actively participating, and necessary materials or tools are provided and utilized effectively.
2. Direct the trainees to Task 21 in their manual to respond to the questions.
3. Using an appropriate methodology such as question and answer in a large group, pair presentations or small group presentations, trainees share their answers to the class.
4. Encourage all trainees to share their views and findings.
5. After the presentations or sharing session, explain to the trainees that the purpose of this activity was not to provide correct answers but to give them an overview of what will be covered in the unit.
6. Introduce Topic 3.1: Management of data types in MS Excel

Topic 3.1: Management of data types in MS Excel

	Objectives: By the end of the topic, trainees will be able to: a. Describe different data types and their default formats when entered into cells. b. Implement properly data validation rules to ensure accuracy and consistency in data entry. c. Create appropriate data validation rules in MS Excel
	Time Required: 2 hours
	Learning Methodology: Group Discussion, Trainer Guided, Videos, Brainstorming, Demonstration, Practical Exercises, Individual Work
	Materials, Tools and Equipment Needed: • Whiteboard, Blackboard, Projector, Computers, software, Internet • Markers, flipchart, chalk, Pens, Trainee and Trainer manuals
	Preparation: ☐ Prepare all necessary material and tools required for the topic delivery ☐ Prepare computer laboratories to be ready for use
	Cross Cutting Issues: ✓ Ensure gender balance while forming groups, allocating tasks and during presentations. ✓ Take into consideration learners with special needs while assigning tasks ✓ Ensure safety measures for handling tools and equipment. ✓ Promote gender equality by challenging stereotypes, encouraging balanced participation from all genders
	Prerequisites: ✓ Prior skills in computer literacy



Activity 1: Problem-Solving



Task 22

1. Utilize an appropriate methodology, such as individual work, pair-share, small group discussions, guided discussions, or large group discussions, to help trainees analyze the scenario and respond to the questions in Task 22 of their trainee manual. Ensure that the instructions are clear, all trainees are engaged, and the necessary materials or tools are available and being used.
2. Using an appropriate approach, such as question-and-answer in a large group, pair presentations, or small group presentations, have the trainees share their answers with the class. Record their responses for reference and encourage everyone to contribute their views.
3. After the sharing session, refer trainees to Key facts 3.1, and discuss them together while harmonizing their responses provided in the sharing session and answer any questions that they may have.



Activity 2: Guided Practice



Task 23

1. Use a suitable approach, such as individual work, pair-share, small group discussions, guided discussions, or group discussions, to assist trainees to perform Task 23 in their trainee manuals. Ensure that instructions are clear, all trainees are actively engaged, and the required materials or tools are available and utilized effectively.
2. During the task, trainees should have some independence to apply the knowledge and skills learned in Activity 1. Your role is to guide them by asking probing questions like "Why?", "What?", and "How?" to help them arrive at well-informed answers.
3. While trainees are still performing the task, use this opportunity to discuss or address any cross-cutting issues that may arise such as gender, inclusivity, financial education

among others. Also attitudes and behavior changes should be handled during this activity.

4. Using an appropriate methodology such as question and answer in a large group, pair presentations, or small group presentations, trainees share their answers to the class. Write their responses for reference. Encourage all trainees to give their views.
5. After the sharing session, refer trainees to Key facts 3.1, and discuss together while harmonizing their responses provided in the sharing session and answer any questions that they may have.



Activity 3: Application



Task 24

1. Inform the trainees that Task 24 connects them to the professional world. Instruct them to go to the school's computer lab and complete Task 24.
2. Using an appropriate methodology such as individual work or pairs trainees perform the task in the lab as a workplace and perform data manipulations in order to demonstrate how to manage data in MS Excel.
3. Provide additional guidance or instructions on their tasks, connecting what they have learned in the classroom to the activities they will perform in the workplace.
4. Inform the trainees that everyone will be assessed individually and later share the experiences they gained from task 24 with the class.
5. The sharing or presentation session will commence once all trainees have been assessed.
6. This activity requires trainees to work independently with limited support from the trainer. During the task, trainees should be given a high degree of independence to apply the knowledge, skills and attitudes acquired to real life situations. Your role is to set clear instructions, methodology and timeframe for performing the task and presentations.

8. Use the following Checklist for Assessing Trainees' Understanding but not limited to.

Assessment Criteria	Indicator	Observation		
		Yes	No	
1. Data Management	1.1. The table is sorted by room type in alphabetical order			
	1.2 The billing amount is sorted from the highest to lowest.			
	1.3 Sorting steps are indicated			
	1.4 Remove duplicate entries for John Doe in the table			
	1.5 Validation (for specific rooms) is created			
	1.6 Steps for restricting entries to room types are shown			

Topic 3.2: Application of Excel functions

	Objectives: By the end of the topic, trainees will be able to: - Apply properly basic functions in a spreadsheet, including SUM, AVERAGE, MAX, MIN, COUNT, and RANK, to perform calculations and analyze data. - Correct properly errors in spreadsheet data using built-in error-checking tools, ensuring data integrity and reliability. - Apply correctly the IF function to build logical statements and solve conditional problems in spreadsheets.
	Time Required: 3 hours
	• Learning Methodology: Group Discussion, Trainer Guided, Videos, Brainstorming, Demonstration, Practical Exercises, Individual Work
	Materials, Tools and Equipment Needed: - Whiteboard, Blackboard, Projector, Computers, software, Internet - Markers, flipchart, chalk, Pens, Trainee and Trainer manuals
	Preparation: ☐ Prepare all necessary material and tools required for the topic delivery ☐ Prepare computer laboratories to be ready for use
	Cross Cutting Issues: ✓ Ensure gender balance while forming groups, allocating tasks and during presentations. ✓ Take into consideration learners with special needs while assigning tasks ✓ Ensure safety measures for handling tools and equipment. ✓ Promote gender equality by challenging stereotypes, encouraging balanced participation from all genders
	Prerequisites: ➤ Prior skills in computer literacy



Activity 1: Problem-Solving



Task 25

1. Utilize an appropriate methodology, such as individual work, pair-share, small group discussions, guided discussions, or large group discussions, to help trainees analyze the scenario and respond to the questions in Task 25 of their trainee manual. Ensure that the instructions are clear, all trainees are engaged, and the necessary materials or tools are available and being used.
2. Using an appropriate approach, such as question-and-answer in a large group, pair presentations, or small group presentations, have the trainees share their answers with the class. Record their responses for reference and encourage everyone to contribute their views.
3. After the sharing session, refer trainees to Key facts 3.2, and discuss them together while harmonizing their responses provided in the sharing session and answer any questions that they may have.



Activity 2: Guided Practice



Task 26

1. Using an appropriate methodology such as individual work, pair-share, small group discussions, guided discussions or large group discussion, guide trainees to perform the task provided under task 26 in their trainee manuals. *Make sure instructions are understood, all the trainees are actively participating, and necessary materials/tools are provided and being used.*
2. During the task, trainees should be given degree of independence to apply the knowledge and skills acquired in activity 1. Your role is to guide them by using probing questions such as *Why? What? How?* to enable them to come to informed responses.
3. While trainees are still performing the task, use this opportunity to discuss or address any cross-cutting issues that may arise such as gender, inclusivity, financial education

among others. Also attitudes and behavior changes should be handled during this activity.

4. Using an appropriate methodology such as question and answer in a large group, pair presentations, or small group presentations, trainees share their answers to the class. Write their responses for reference. *Encourage all trainees to give their views.*
5. After the sharing session, refer trainees to Key facts 3.2, and discuss together while harmonizing their responses provided in the sharing session and answer any questions that they may have.



Activity 3: Application



Task 27

1. Inform the trainees that Task 27 connects them to the professional world. Instruct them to go to the school's computer lab and complete Task 27.
2. Using an appropriate methodology such as individual work or pairs trainees perform the task in the lab as a workplace and perform calculations in order to demonstrate how to use MS Excel functions.
3. Provide additional guidance or instructions on their tasks, connecting what they have learned in the classroom to the activities they will perform in the workplace.
4. Inform the trainees that everyone will be assessed individually and later share the experiences they gained from task 27 with the class.
5. The sharing or presentation session will commence once all trainees have been assessed.
6. This activity requires trainees to work independently with limited support from the trainer. During the task, trainees should be given a high degree of independence to apply the knowledge, skills and attitudes acquired to real life situations. Your role is to set clear instructions, methodology and timeframe for performing the task and presentations.

7. Use the following Checklist for Assessing Trainees' Understanding but not limited to.

Assessment Criteria	Indicator	Observation		
		Yes	No	
1. Apply Excel basic functions	1.1 Total revenue generated from room rates using the SUM function			
	1.2 Average room rate using the AVERAGE function is founded.			
	1.3 The max and min is founded to room rates			
	1.4 Count of number of bookings using count function			
	1.5 Rank is founded using rank function			
	1.6 Reference in a cell is mentioned			
	1.7 The room are classified with the highest revenue			

Topic 3.3: Perform data analysis and visualization in excel

	Objectives: By the end of the topic, trainees will be able to: - Create and customize properly various types of charts to effectively visualize data. - Apply properly table styles using conditional formatting to highlight key insights. - Apply correctly cell styles to improve the appearance and readability of data in a spreadsheet.
	 Time Required 2 hours.
	 Learning Methodology: Group Discussion, Trainer Guided, Videos, Brainstorming, Demonstration, Practical Exercises, Individual Work

**Materials, Tools and Equipment Needed:**

- Whiteboard, Blackboard, Projector, Computers, software, Internet
- Markers, flipchart, chalk, Pens, Trainee and Trainer manuals

**Preparation:**

- ☐ Prepare all necessary material and tools required for the topic delivery
- ☐ Prepare computer laboratories to be ready for use

**Cross Cutting Issues:**

- ✓ Ensure gender balance while forming groups, allocating tasks and during presentations.
- ✓ Take into consideration learners with special needs while assigning tasks
- ✓ Ensure safety measures for handling tools and equipment.
- ✓ Promote gender equality by challenging stereotypes, encouraging balanced participation from all genders

**Prerequisites:**

- Prior skills in computer literacy

**Activity 1: Problem-Solving****Task 28**

1. Utilize an appropriate methodology, such as individual work, pair-share, small group discussions, guided discussions, or large group discussions, to guide trainees analyze the scenario and respond to the questions in Task 28 of their trainee manual. Ensure that the instructions are clear, all trainees are engaged, and the necessary materials or tools are available and being used.
2. Using an appropriate approach, such as question-and-answer in a large group, pair presentations, or small group presentations, have the trainees share their answers with the class. Record their responses for reference and encourage everyone to contribute their views.

3. After the sharing session, refer trainees to Key facts 3.3, and discuss them together while harmonizing their responses provided in the sharing session and answer any questions that they may have.



Activity 2: Guided Practice



Task 29

1. Use a suitable approach, such as individual work, pair-share, small group discussions, guided discussions, or group discussions, to assist trainees to perform Task 29 in their trainee manuals. Ensure that instructions are clear, all trainees are actively engaged, and the required materials or tools are available and utilized effectively.
2. During the task, trainees should have some independence to apply the knowledge and skills learned in Activity 1. Your role is to guide them by asking probing questions like "Why?", "What?", and "How?" to help them arrive at well-informed answers.
3. While trainees are still performing the task, use this opportunity to discuss or address any cross-cutting issues that may arise such as gender, inclusivity, financial education among others. Also attitudes and behavior changes should be handled during this activity.
4. Using an appropriate methodology such as question and answer in a large group, pair presentations, or small group presentations, trainees share their answers to the class. Write their responses for reference. Encourage all trainees to give their views.
5. After the sharing session, refer trainees to Key facts 3.3, and discuss together while harmonizing their responses provided in the sharing session and answer any questions that they may have.

Activity 3: Application

Task 30

1. Inform the trainees that Task 30 connects them to the professional world. Instruct them to go to the school's computer lab and complete Task 30.
2. Using an appropriate methodology such as individual work or pairs trainees perform the task in the lab as a workplace and design charts in MS Excel in order to demonstrate Data analysis and visualization.
3. Provide additional guidance or instructions on their tasks, connecting what they have learned in the classroom to the activities they will perform in the workplace.
4. Inform the trainees that everyone will be assessed individually and later share the experiences they gained from task 30 with the class.
5. The sharing or presentation session will commence once all trainees have been assessed.
6. This activity requires trainees to work independently with limited support from the trainer. During the task, trainees should be given a high degree of independence to apply the knowledge, skills and attitudes acquired to real life situations. Your role is to set clear instructions, methodology and timeframe for performing the task and presentations.
7. **Use the following Checklist for Assessing Trainees' Understanding but not limited to.**

Assessment Criteria	Indicator	Observation		
		Yes	No	
1. Data visualisation	1.1 The chart is created for each room type			
	1.2 The data in table are formatted			
	1.3 Cell styles is done on headers			
	1.4 Conditional formatting is used to highlight the highest and lowest room rates			

Topic 3.4: Application of data protection techniques in excel

	Objectives: By the end of the topic, trainees will be able to: - Describe properly key data protection principles and their importance in safeguarding sensitive information in Excel files. - Protect correctly specific cells and worksheets in Excel to prevent unauthorized editing or accidental changes. - Apply properly workbook-level protection methods to restrict access and enhance the overall security of Excel data.
	Time Required 3 hours.
	Learning Methodology: Group Discussion, Trainer Guided, Videos, Brainstorming, Demonstration, Practical Exercises, Individual Work
	Materials, Tools and Equipment Needed: - Whiteboard, Blackboard, Projector, Computers, software, Internet - Markers, flipchart, chalk, Pens, Trainee and Trainer manuals
	Preparation: ☐ Prepare all necessary material and tools required for the topic delivery ☐ Prepare computer laboratories to be ready for use
	Cross Cutting Issues: ✓ Ensure gender balance while forming groups, allocating tasks and during presentations. ✓ Take into consideration learners with special needs while assigning tasks ✓ Ensure safety measures for handling tools and equipment. ✓ Promote gender equality by challenging stereotypes, encouraging balanced participation from all genders
	Prerequisites: ➤ Prior skills in computer literacy



Activity 1: Problem-Solving



Task 31

1. Utilize an appropriate methodology, such as individual work, pair-share, small group discussions, guided discussions, or large group discussions, to guide trainees analyze the scenario and respond to the questions in Task 31 of their trainee manual. Ensure that the instructions are clear, all trainees are engaged, and the necessary materials or tools are available and being used.
2. Using an appropriate approach, such as question-and-answer in a large group, pair presentations, or small group presentations, have the trainees share their answers with the class. Record their responses for reference and encourage everyone to contribute their views.
3. After the sharing session, refer trainees to Key facts 3.4, and discuss them together while harmonizing their responses provided in the sharing session and answer any questions that they may have.



Activity 2: Guided Practice



Task 32

1. Using an appropriate methodology such as individual work, pair-share, small group discussions, guided discussions or large group discussion, guide trainees to perform the task provided under task 32 in their trainee manuals. *Make sure instructions are understood, all the trainees are actively participating, and necessary materials/tools are provided and being used.*
2. During the task, trainees should be given degree of independence to apply the knowledge and skills acquired in activity 1. Your role is to guide them by using probing questions such as *Why? What? How?* to enable them to come to informed responses.
3. While trainees are still performing the task, use this opportunity to discuss or address any cross-cutting issues that may arise such as gender, inclusivity, financial education

among others. Also attitudes and behavior changes should be handled during this activity.

4. Using an appropriate methodology such as question and answer in a large group, pair presentations, or small group presentations, trainees share their answers to the class. Write their responses for reference. *Encourage all trainees to give their views.*
5. After the sharing session, refer trainees to Key facts 3.4, and discuss together while harmonizing their responses provided in the sharing session and answer any questions that they may have.



Activity 3: Application



Task 33

1. Inform the trainees that Task 33 connects them to the professional world. Instruct them to go to the school's computer lab and complete Task 33.
2. Using an appropriate methodology such as individual work or pairs trainees perform the task in the lab as a workplace and protect workbook in order to demonstrate how to protect data in MS Excel.
3. Provide additional guidance or instructions on their tasks, connecting what they have learned in the classroom to the activities they will perform in the workplace.
4. Inform the trainees that everyone will be assessed individually and later share the experiences they gained from task 33 with the class.
5. The sharing or presentation session will commence once all trainees have been assessed.
6. This activity requires trainees to work independently with limited support from the trainer. During the task, trainees should be given a high degree of independence to apply the knowledge, skills and attitudes acquired to real life situations. Your role is to set clear instructions, methodology and timeframe for performing the task and presentations.

7. Use the following Checklist for Assessing Trainees' Understanding but not limited to.

Assessment Criteria	Indicator	Observation		
		Yes	No	
1. Data analysis	1.1 The table is retyped			
	1.2 The data is accurate			
	1.3 The workbook is protected			



Formative Assessment

1. Which of the following is the default format for a cell when data is entered in Excel?

- a. Text
- b. General
- c. Number
- d. Currency

Answer: b) General

2. Which Excel function is used to find the largest value in a range of cells?

- a. SUM
- b. MAX
- c. COUNT
- d. AVERAGE

Answer: b) MAX

3. What is the purpose of using data validation rules in Excel?

- a. To format the data automatically
- b. To prevent incorrect data entry
- c. To sort the data in ascending order
- d. To find and replace data

Answer: b) To prevent incorrect data entry

4. What type of data format is typically used for displaying monetary values in Excel?

- a. Currency
- b. Date
- c. Number
- d. Text

Answer: a) Currency

5. **How can you protect an entire workbook in Excel?**

- a. By locking specific cells
- b. By encrypting it with a password
- c. By using conditional formatting
- d. By formatting as a table

Answer: b) By encrypting it with a password

6. **Which function would you use to calculate the total sum of a range of numbers in Excel?**

- a. AVERAGE
- b. COUNT
- c. SUM
- d. MIN

Answer: c) SUM

7. Explain how data types in Excel can affect how you enter and format data in cells. Provide examples of different data types and their default formats.

- a. **Text:** Default format aligns text to the left. Example: "Hello".
- b. **Number:** Default format aligns numbers to the right without commas or decimals. Example: 123.
- c. **Date:** Automatically converts valid date entries into a specific date format. Example: "12/25/2024".
- d. **Currency:** Displays numbers with a currency symbol and two decimal places. Example: "\$123.45".

Proper data type usage ensures correct calculations and data presentation.

8. Describe the process of protecting a worksheet in Excel. What are the steps to lock cells, and how does this help in preventing unauthorized changes to sensitive data?

To protect a worksheet:

- a. **Step 1:** Select the cells you want to keep editable (optional) and go to **Format Cells > Protection > Uncheck "Locked"**.
- b. **Step 2:** Go to the **Review** tab and click **Protect Sheet**.
- c. **Step 3:** Set a password (optional) and choose permissions for users.

This prevents unauthorized changes by restricting editing to specific cells or areas while protecting sensitive data.

9. How do you create a chart in Excel, and why is it important to use charts for visualizing data? Provide an example of a situation where using a chart would be beneficial.

To create a chart in Excel:

- a. Select the data range.
- b. Go to the **Insert** tab and choose a chart type (e.g., Bar, Line, Pie).
- c. Customize the chart with titles, labels, and colors as needed.

Importance of charts:

Charts simplify complex data, making trends and comparisons easier to understand.

Example:

A sales manager can use a bar chart to compare monthly sales across different regions, helping identify high- and low-performing areas quickly.



Points to Remember

- **Data protection principles** ensure confidentiality, integrity, availability, and accountability of sensitive data.
- **Protect a cell** by locking specific cells to prevent unauthorized changes to sensitive data.
- **Protect a worksheet** to prevent modifications to the structure or content by unauthorized users.
- **Protect a workbook** by applying a password to restrict access and prevent unauthorized changes to the entire file.
- These protections maintain data security, ensuring only authorized users can access or modify sensitive information.



Self-Reflection

1. Ask learners to re-take the self-assessment at the beginning of the unit. They should then fill in the table in their Trainee's Manual to Identify their areas of strength, areas for improvement and actions to take to improve.
2. Discuss trainees' results with them. Identify any areas that are giving many trainees difficulties and plan to give additional support as needed (ex. use class time before you begin the next learning outcome to go through commonly identified difficult concepts)

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