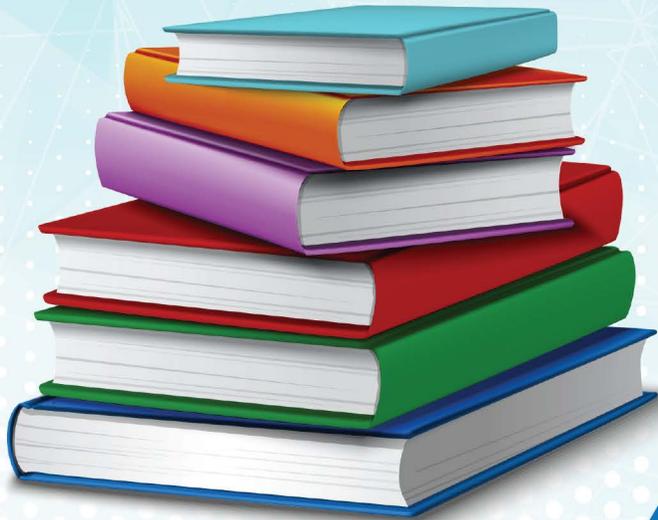




TVET LEVEL II



BASIC EDUCATION

ICT Essentials

TRAINEE MANUAL



Approved by:  Workforce
Development
Authority



USAID
FROM THE AMERICAN PEOPLE



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USE ESSENTIAL ICT SKILLS

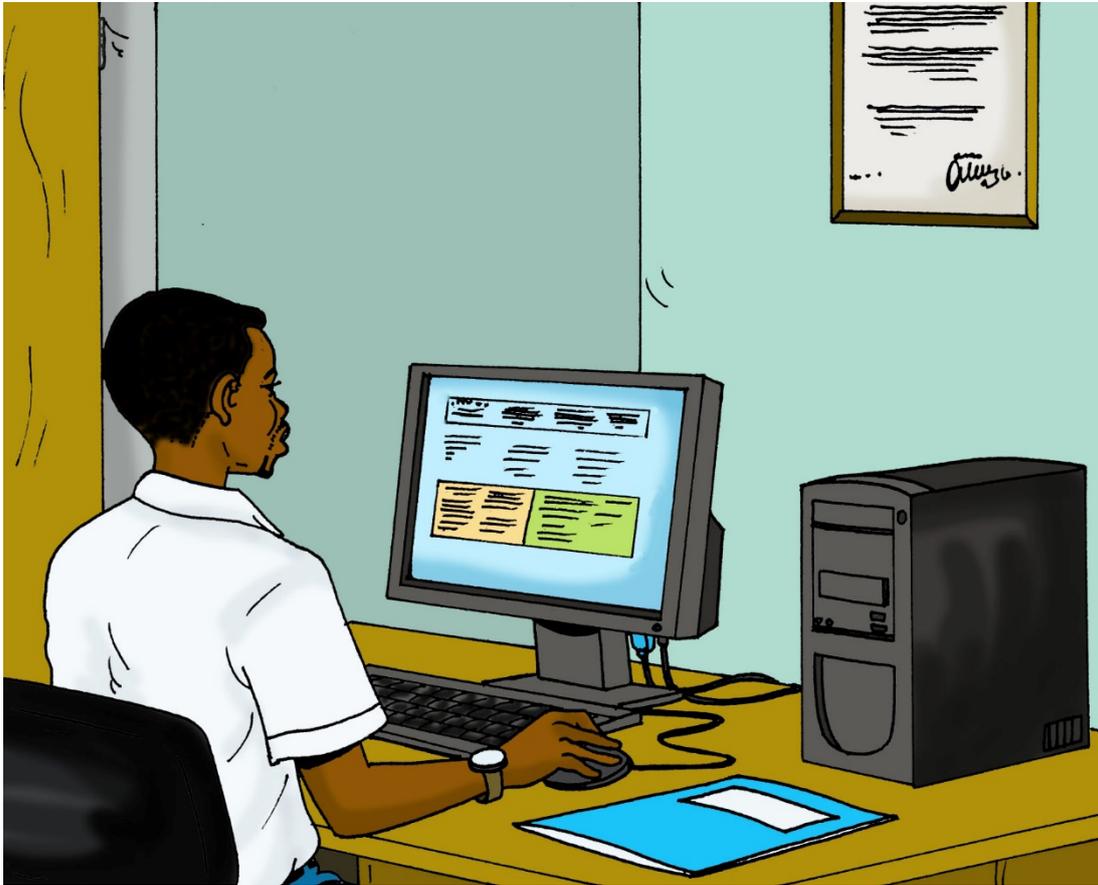
Unit 1: Utilization of computers

Unit 2: Use of mobile technology

Unit 3: Use of various ICT technologies in daily life

Unit 4: Maintenance of ICT equipment and consumables

Unit 1: Utilize computer



Topics

- 1.1 Description of the main components of a computer
- 1.2 Manipulating computer's desktop, files and disks
- 1.3 Using relevant application programs to accomplish tasks
- 1.4 Application of computer security mechanisms in order to prevent unauthorized access

Unit Summary:

This unit provides basic knowledge and skills needed to describe computer hardware, software and networking devices, install software, and use computer software. After this learning unit, you will be able to identify main components of computer, networking devices, as well as software installation in addition to using office applications and protecting computer data.

Self-Assessment: Unit 1

1. Look at the unit illustration. What do you see? What do you think this unit will be about? What topics might be covered?
2. There are no right or wrong answers to this survey. It is for your own use during this course. Read the knowledge, skill or attitude in the left column. Think about yourself: do you think you can do this? How well? Read the statements across the top. Put a check in the column that best represents your situation. At the end of this unit, we will take this survey again.

My experience	I don't have any experience doing this.	I know a little about this.	I have some experience doing this.	I have a lot of experience with this.	I am confident in my ability to do this.
Knowledge, skills and attitudes					
Describe computer hardware and software					
Identify computer hardware components					
Identify types of software					
Identify OS types and functions					
Describe file, folder, and file extension					
Identify types of storage disks					
Describe software such as word processing, spreadsheet programs, and mail programs					
Describe an Excel spreadsheet					

My experience	I don't have any experience doing this.	I know a little about this.	I have some experience doing this.	I have a lot of experience with this.	I am confident in my ability to do this.
Knowledge, skills and attitudes					
Describe PowerPoint slides					
Describe Outlook					
Describe an antivirus program					
Identify user privileges					
Describe backups and restore from backups					

Topic 1.1 Description of the main components of a computer

Key Competencies:

Knowledge	Skills	Attitudes
1. Describe computer components and network devices	1. Select computer components and network devices	1. Careful
2. Identify different types of computer hardware and software	2. Present computer hardware according to their functions	2. Methodical
3. Identify computer components and network devices according to their functions	3. Select network devices according to their functions	3. Confident

 **Getting Started: What do we know and where are we going?**  Topic 1.1
Task 1:

Look at the picture above and answer the following questions:

- What is a computer?
- What are computers used for?
- What are the main parts of a computer?
- What are “network devices” and what do they do?



Problem Solving Activity



Topic 1.1 Task 2:

Visit computer lab and do the following activities:

- Make a list of all computer components you can see in the lab.

- b. Identify and list all the hardware components you see in the lab.
- c. Identify and list all the devices that contain software that you can see in the lab.
- d. Identify and list all network devices you can see in the lab.

1.1 Key Facts

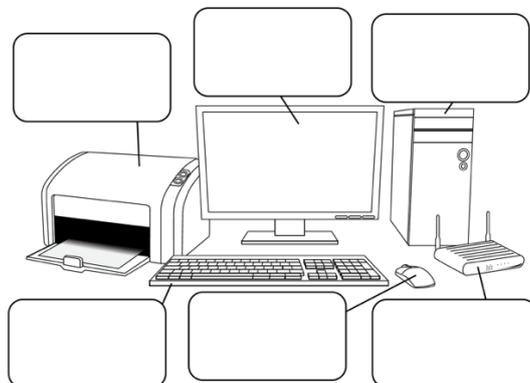
A computer system is made up of 4 main types of components:

1. Input devices (keyboard, mouse)
 2. Output devices (monitor, speakers)
 3. Memory and storage devices (CPU, RAM)
 4. Secondary storage (hard drive, CD/DVD drive)
- Computer hardware is all the physical parts of a computer system.
 - Computer software is the set of instructions and documents that tell a computer what to do.
 - An Operating System (OS) is the software that manages all other software and all the hardware on a computer.
 - A software application is software designed to carry out a specific task like word processing.
 - Network devices are hardware that are required for computers to communicate to one another.



Topic 1.1 Task 3.1:

Review the illustration and label each piece of hardware as: a) input devices; b) output devices; c) storage devices; d) network devices





Topic 1.1 Task 3.2:

Match the pictures to the labels of the internal computer components.



Guided Practice Activity



Topic 1.1 Task 4:

Referring to the cards and labels, use **1.2 Key Facts** (below) to review the internal components of a computer and what the parts do.

1.2 Key Facts

Definitions of internal computer components:

- **Central Processing Unit (CPU):** The primary component/processing chip that processes all the instructions the computer completes.
- **Hard drive:** Self-contained storage device that is able to read and write information.
- **Power supply unit:** The power supply unit in a computer converts the power from the wall outlet to the type of power needed by the computer.
- **Fan:** Hardware that keeps the computer cool by circulating air.
- **Network Interface Card:** Devices installed in a computer that connect a computer to a computer network.
- **RAM:** RAM stands for Random Access Memory, which is a type of temporary data storage on computers. Whenever your computer performs calculations, it temporarily stores the data in the RAM until it is needed.
- **Ports and Connectors:** Ports and connectors refer to the parts of computing devices available to connect input and output devices such as network devices, monitors, speakers, or other devices.



Guided Practice Activity



Topic 1.1 Task 5:

1. Review **1.3 Key Facts** and use the key facts and the guide at your computer station to install the software at your computer.
2. Record the steps you take to successfully install the software.
3. Write down what you did well, the steps you took, and where you had trouble with the instructions.

1.3 Key Facts

Installation and manipulation of software

Installing application software steps:

Install software from a CD or DVD:

Insert the software/program disc into your computer's disc drive.

Adapted from Dummies' "How to Install a Computer Program Article":

1. The AutoPlay dialog box appears.
2. Click the option to run Install or Setup.
3. Select a language.
4. Agree to the end-user license agreement, if requested.

Click to install the new program.



<ol style="list-style-type: none"> 5. Choose custom or advanced setting. 6. Specify where you want to install the program. 7. The Express option to let the installer set-up the program without further input from you. 8. As the installer program continues to run and display dialog boxes, click the Next or Continue button. 9. Click the Finish or Close button in the last step of the installer program to complete the process. 	
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------



Application Activity



Topic 1.1 Task 6:

1. With your group, read the following scenario:

Alice has a small business repairing computers. One day, a customer comes in with a computer problem, and he needs Alice's help! The customer was trying to install new software on his computer and the install was not working. Alice doesn't know much about software, but she knows that you do, so she asks you to help her by writing down the steps she should take to troubleshoot the customer's problem.

2. Using flipchart paper, write down the steps you need to take to help Alice troubleshoot her customer's problem.



Points to Remember

- Computers have input devices, output devices, primary and secondary storage, and network devices.
- To install software applications on a computer, you need to carefully follow the steps described in the software manual/follow the prompts on your computer.

¹ Hinton, M. J. (n.d.). *How to install a computer program*. Dummies. <https://www.dummies.com/software/for-seniors-how-to-install-a-new-computer-program/>



Formative Assessment

1. Which one belongs to network devices:
 - a. Computer screen
 - b. Modem
 - c. Mouse
 - d. Antivirus
 - e. None of the above

2. A network device connects a _____ to a _____.

Task 1: Install an operating system

Task 2: Install software

Topic 1.2: Manipulating computer's desktop, files and disks

Key Competencies

Knowledge	Skills	Attitudes
1. Identify the role of an operating system.	1. Install an operating system.	1. Attentive
2. Describe file, folder, and file extension.	2. Manipulate files and folders (creating a new folder, copy, move, delete and restore to recycle bin, save file)	2. Detail-Oriented
3. Identify types of hard disk storage.	3. Manage hard disks.	3. Diligent



Getting Started: What do we know and where are we going?



Topic 1.2 Task 1:

1. With the person next to you, brainstorm answers to the following questions:
 - a. What is an operating system?
 - b. What is a software application?
 - c. What are folders and files?
 - d. Why do we need files and folders?
 - e. What is hard disk?
 - f. Why would you partition a hard disk?



Problem Solving Activity



Topic 1.2 Task 2:

1. With your group, look at computer screen and sketch the following:
 - a. A folder icon

- b. A file icon
2. Your trainer will instruct you to review **1.4 Key Facts** or **1.5 Key Facts**, below. With your group, think about how you can best teach the other groups in your class these key facts. Your group may be asked to share. Be creative.



Guided Practice Activity



Topic 1.2 Task 3:

1. Refer to **1.4 Key Facts** and complete following tasks:
 - a. Create a folder and a file.
 - b. Save a document.
 - c. Copy a folder.
 - d. Delete temporary or permanent files.
 - e. Restore files or folders from the recycle bin.
 - f. Backup files or folders on the following media:
 - i. DVD
 - ii. Portable Hard Disk
 - iii. USB Flash drive

1.4 Key Facts

Manipulating Folders and Files

Creating a Folder or File

The easiest way to create a new folder or file is to use your mouse to right click on your desktop, then select “new” and then “folder” from the drop-down menu. You can also select “File Explorer” and select “New Folder.”

Saving a Folder or File

In order to save a file, click on the file menu and select “save” or “save as” from the dropdown.

1. Save As allows you to create a file name. You should name your file something that will help you remember its contents. To remember which

version is most recent, it is useful to save a file with the date in the name ("FileName_Jan31") or ("FileName_0131").

2. Save continues to save new content under the same file name.

Copying and Pasting a Folder

1. The easiest way to copy a folder is to right-click on the folder and select "copy."
2. Use the mouse to select where you want the folder to go, right-click, and select "paste."

Deleting a Folder or File

1. Select the folder or file that you would like to delete, right-click on it, and select "delete." This moves the folder or file to the recycle bin but does not permanently remove it from your computer.
2. To permanently delete folders or files from your computer, select the recycle bin and select "empty" or "delete." **Be careful! Taking this step permanently deletes your folders or files from your computer.**

Restoring a Folder or File from your Recycle Bin

If you need access to a file that you have placed in your recycle bin, you can select it and drag it to your desktop or right-click on it and select "restore."

Backing up a Folder or File

To back up a folder or file on external media (such as a hard drive, DVD, or flash drive):

1. Open the drive/DVD or other media by double-clicking on it.
2. Copy and paste or drag the folders or files you want to copy to the open drive DVD.
3. Wait until the folders or files finish copying. For DVDs, you may need to select "burn" to instruct the computer to write the folders or files onto the disk.



Topic 1.2 Task 4:

1. Referring to **1.5 Key Facts**, work together in small groups to:
 - a. Format a hard disk.
 - b. Partition a hard disk.

- c. Remembering what you learned in **Learning Outcome 1.2**, install a new operating system on the new disk partition.
- d. Delete a partition created.

1.5 Key Facts

Formatting, Creating, and Deleting Partitions

Why Partition a Hard Drive?

1. Partitioning a disk makes it easier to organize and manage your files.
2. It also can help you protect your files because it prevents all your files from being susceptible to a virus or malware at the same time.
3. If you do partition your drive, you need to remember to back up each partition separately.
4. Partitioning a hard drive also allows you to run different operating systems on the same computer.

What Does it Mean to Partition and Format a Drive?

Partitioning is the act of splitting your hard drive into sections.

Formatting is the act of encoding the hard drive to store the right kinds of data.

How to Partition a Hard Drive

1. Go to “File Explorer” and select the “Computer Management” tool.
2. Under the “Computer Management” tool you will see “Disk Management” as an option. Select “Disk Management.” Before going any further, you may need to make space for your partition by selecting “Shrink” or “Shrink Volume.” You can select the size (in MB) of the space you need available for your new partition and enter the information into the pop-up menu.
3. Select “New Simple Volume.” This will launch a Wizard that will walk you through the steps of creating the partition. You will need to name the partition by assigning it a letter, and then format the partition. For a file system, select “NTFS” from the format dropdown.
4. Select “Perform Quick Partition” and then follow the instructions.
5. Once completed, you should see your new drive in the “Disk Management” window.

Deleting a Hard Disk Partition

1. Before you delete a hard disk partition, make sure you have backed up **all data stored in that partition** to an external drive.

2. To delete a hard disk partition, select the partition that you want to delete, right-click, and select “Delete Volume.” A pop-up will appear asking you if you are sure you want to delete the volume. Click “Yes.”

You cannot delete the Primary Systems Partition, which is where the computer’s operating system is stored.



Application Activity



Topic 1.2 Task 5:

1. Use a computer and do the following tasks:
 - a. Create two folders and name them **Student** and **Teacher**.
 - b. Save the folders created on hard disk: **D**.
 - c. Create two Word documents and name them **Activity 1** and **Activity 2**; save them under the folders created above (so one document is in each folder, the student folder and the teacher folder).
 - d. Back-up the folders created on external media (hard drive, DVD, or USB).
 - e. Create a partition on the hard disk, with the new drive named: **B**, format the partition, and save the two folders created above with their files on: **B**.



Points to Remember

- Saving files with a date in the file name helps you to know which file is the most recent version.
- Always delete the old partitions.
- By deleting a partition on a hard disk, you will lose all data on that partition.
- If you are not sure of what you are doing, make sure you have a back-up of any important data.



Formative Assessment

Circle the best answer.

1. Which software below is an operating system?
 - a. Microsoft Word
 - b. Photoshop
 - c. Microsoft Windows 7
 - d. Illustrator

2. What is the difference between a computer folder and file?

3. Partitioning a hard disk allows to (select all that apply):
 - a. Increase disk space
 - b. Install multiple operating systems on the same computer
 - c. Proceed with formatting
 - d. Organize your files
 - e. Help to keep your data from getting corrupted
 - f. Encrypt files

4. **Task 1:** Create a folder, name it “my work,” and save it on the desktop.

5. **Task 2:** Burn the folder onto a DVD.

Topic 1.3: Using relevant application programs to accomplish tasks

Key Competencies:

Knowledge	Skills	Attitudes
1. Use Microsoft Word.	1. Create a document, edit and format document, and print Microsoft word document.	1. Teamwork
2. Use an Excel spreadsheet.	2. Create a workbook, enter, sort, and filter data, format and create a simple formula.	2. Innovative
3. Use PowerPoint slides.	3. Create PowerPoint slides, integrate content, and transition effectively.	3. Persistent
4. Identify different objects of MS access database.	4. Design database sets using MS access.	4. Attention to detail



Getting Started: What do we know and where are we going?



Topic 1.3 Task 1:

1. With the person next to you, think about the following scenario:

Imagine calling for an ambulance. It arrives at your doorstep in 15 minutes. What hardware and software systems do you think could be behind the scenes, supporting this rapid response?

2. With the larger group, brainstorm what other services might rely on computer systems.



Topic 1.3 Task 2:

A computer is composed of two main parts: hardware and software. There are two types of software: systems software and application software.

1. Turn to the person next to you. With your partner, read through and try to answer the questions below:
 - a. What is the difference between systems software and application software?
 - b. Can you think of examples of application software?
 - c. Do you use any application software on a regular basis? Do you think there are some application software or software suites that are commonly used?
2. Be prepared to share your responses.
3. Review the table of knowledge, skills, and attitudes with your trainer.



Problem Solving Activity



Topic 1.3 Task 3:

1. Your trainer will instruct you to form small groups. Each group is to select a group name.
2. With your group, rotate through each of the workstations your trainer has set-up (if there are many, make sure to go to one workstation for Microsoft Word, one for Microsoft Excel, and one for Microsoft PowerPoint). Note: You do **not** have to visit the workstations in the order listed below.
3. With your group, complete the following checklists:

Microsoft Word:

- Identify the ribbon
- Using the ribbon, save a document with the name of your group
- Write “this is our word document”
- Make the text **bold**
- Move the text to the centre of the document
- Insert a table
- Insert a footer
- Print the word document

Microsoft Excel:

- Identify the ribbon
- Using the ribbon, save a document with the name of your group
- Input the following text in the first column, with each word appearing on one row:
beans, chicken, rice
- Input the following numbers in the second column, with each number appearing on one row: 200, 500, 100
- Bold the column headings
- Turn the first column red
- Insert a row between “beans” and “chicken” and name that row “Beef”

Columns and rows should appear as:

Beans	200
Chicken	500
Rice	100

Microsoft PowerPoint:

- Identify the ribbon
- Using the ribbon, save a document with the name of your group
- Type your group name into the title slide
- Add a new slide
- Click on the slide to add a SmartArt graphic (see below, the arrow with text dropping down)



- Select the first graphic and insert it into the slide



Guided Practice Activity



Topic 1.3 Task 4:

1. You will work in small groups to learn more about Microsoft Excel. Microsoft Excel can be used for calculations, including arithmetic. Most of these functions can be completed using symbols you are accustomed to: = + -
2. Open Microsoft Excel and save the workbook as “Bookstore Management.” Rename the first sheet “Book List.”
3. Read the scenario below:

You are a bookseller and your inventory is kept in an excel file called “Book List.” Daily, you update the list to add books received from the warehouse and remove books sold. Today, you received a shipment of Disciples. You must update your inventory with this shipment and also record a sale of Good News.

4. Enter the table below into the Book List sheet.

Title	Book writer	Publish date	Price /unit	Qty offered	Total price
Good News	Peter Roger	12/09/1989	2000	4	8,000
Disciples	Kayihura Bernard	03/07/2001	1000	2	2,000
The Secret	Mbarute Faustin	06/09/1783	5000	1	5,000
Human kindness	Kush Bushima	09/01/2003	3000	10	30000
Total					

5. Perform the following calculations:

- a. Add the total number of books you have. To do so, go to the “total” row and to the column titled “Qty Offered” and do the following steps:
 - i. Type =Sum into the cell
 - ii. A box will appear. Using this box, select the entire “Qty offered” column *but do not select the text/title of the column*.
 - iii. Hit enter. Once you have completed this task, someone in your group should raise their hand to report the answer.
- b. Once your trainer tells you to continue, complete the remaining tasks:
 - i. Navigate to the row for Disciples and add 4 books by typing 6 into the cell (the new information will replace the 2 that was there). What happened to the total number of books?
 - ii. Navigate to the row for Good News and delete a book by typing 3 into the cell (the new information will replace the 4 that was there).
- c. Create a new worksheet by going to the bottom of the sheet and adding a new sheet. They should call the new sheet “Customer List.”



Application Activity



Topic 1.3 Task 5:

1. In small groups, read the scenario below:

With your small group, you are planning to apply for a loan to start a business. In order to apply for the loan, you need to present the following documents:

- A Microsoft Excel file that details your start-up costs
- A Microsoft PowerPoint presentation that includes:
 - The name of your business
 - The co-founders of your business
 - What you will sell
 - Who your customers will be
 - What you need in start-up costs
 - What you already have that you and your co-founders can invest
 - The loan amount you are requesting
- A Microsoft Word document structured as a letter to the loan officer

2. Work with your group to create the loan application package described above. Save each file in your loan application package using your business name.

3. Remember that you have a lot to do in a short amount of time. Do not get too detailed!



Points to Remember

- Microsoft Word is useful for presenting written information.
- Microsoft PowerPoint is useful for sharing visual information.
- Microsoft Excel is useful for managing numerical information.
- Each of these software applications is powerful and can do a lot more.
- To develop expertise in any of them, you need to use them a lot.



Formative Assessment

Circle the best answer.

1. Text-styling feature of MS word is:

- a. Word Color
 - b. Word Font
 - c. Word Art
2. Which items are placed at the end of a document?
- a. Footer
 - b. Foot note
 - c. End note
 - d. Header
3. What is the intersection of a column and a row on a worksheet?
- a. Column
 - b. Value
 - c. Address
 - d. Cell
4. Statistical calculations and preparation of tables and graphs can be done using:
- a. Adobe Photoshop
 - b. Excel
 - c. Notepad
 - d. PowerPoint
5. How is a slide show started on PowerPoint?
- a. Click on go
 - b. Turn on transition
 - c. Click on the slide show icon
 - d. All of the above

Topic 1.4: Application of computer security mechanisms in order to prevent unauthorized access

Key Competencies:

Knowledge	Skills	Attitudes
1. Understand antivirus software.	1. Update and install antivirus software.	1. Respectful
2. Identify user privileges.	2. Create user authentication and provide user privileges.	2. Methodical
3. Describe back-up and restoration.	3. Back-up and restore data.	3. Self-confidence



Getting Started: What do we know and where are we going?



Topic 1.4 Task 1:

1. Turn to the person next to you and discuss the questions below:
 - a. What is computer security?
 - b. Why do we need computer security?



Problem Solving Activity



Topic 1.4 Task 2:

1. In small groups, review **1.6 Key Facts** and respond to the questions:
 - a. Why is computer security important?
 - b. List types of computer security threats.
 - c. What are best practices to maintain computer security?
2. Select a volunteer from your group to write your group's responses on the board.

1.6 Key Facts

Computer Security Basics

What is Computer Security?

1. **Computer security**, sometimes referred to as **cybersecurity**, is the process of protecting computers and the information on them from theft or damage.
2. This includes managing access to hardware as well as protecting them from vulnerabilities caused through network access, such as exposure to viruses, hacking, or programs that may cause information or processes to be stolen, disrupted, or held hostage.²

Common Security Threats

1. **Viruses**: Computer viruses are pieces of code that, once on a computer, will self-replicate. Viruses may corrupt data or systems on a computer. Viruses can be transmitted via networks through email, through browser links, and through external drives such as flash/thumb drives, or CDs or DVDs.
2. **Malware**: Malware is similar to viruses, but malware includes code that can transmit sensitive information such as passwords, bank account numbers, or even keyboard keystrokes. Malware can be transmitted the same way that computer viruses are transmitted.
3. **Theft**: Computers devices are valuable.

Best Practices for Effective Computer Security

1. Ensure that computers are protected with a username and strong password to prevent unauthorized access. A strong password is one that cannot easily be guessed, and contains both lowercase and uppercase letters, as well as numbers and symbols.
2. Ensure that all computers are running known and updated antivirus software, and that the software used protects against malware. There are many types of effective and free antivirus software packages.
3. Do not use the same password for each website or device
4. Log off/turn off computers or devices when not in use
5. Protect computers and devices by using locks on devices (there are special locks that fit into ports to keep computers safe), or doors (to computer labs or other spaces).

² Abousen, D. (n.d.). *Computer security*. Carnegie Mellon University. [https://www.contrib.andrew.cmu.edu/~dabousen/Default%20-%20Copy%20\(4\).html#:~:text=Computer%20security%2C%20also%20known%20as,of%20the%20services%20they%20provide](https://www.contrib.andrew.cmu.edu/~dabousen/Default%20-%20Copy%20(4).html#:~:text=Computer%20security%2C%20also%20known%20as,of%20the%20services%20they%20provide)



Guided Practice Activity



Topic 1.4 Task 2:

1. In small groups, work together to accomplish the following tasks:
 - a. Create a computer username and password
 - b. Update the computer's antivirus software
 - c. Back-up and restore a PC



Application Activity



Topic 1.4 Task 3:

1. Read the following scenario:

Your friend knows that you are learning about computers. He uses a computer for his business, to record sales, to keep track of customers, and to market his kiosk. He recently lost a lot of data because his computer was not protected and not backed up. He asks you to help him set up his computer so that he does not lose important information again.

2. Complete the following tasks:
 - a. Protect his computer against viruses (by installing antivirus software).
 - b. Create a username and password for the computer.
 - c. Update the antivirus software.
 - d. Back-up and restore his PC applications and data.



Points to Remember

- Create passwords to limit access to computers or devices.
- Always install antivirus software and keep the software updated.
- It's important to regularly back-up data so that you can restore it if a virus or malware corrupts your computer, software, or files.



Formative Assessment

Choose the Correct Answer

1. Which of these is the best way to protect data?
 - a. Install and update antivirus
 - b. Create a list of files that you have on your computer
 - c. Take screenshots of your files

2. True or False:
 - a. Creating a computer username and password is effective for managing physical security of computers and devices.

 - b. Creating a computer username and password is an effective way of managing authorized access to computers and devices.

3. What should you do when creating a strong password? Choose the *best* answer.
 - a. Write it down
 - b. Use the same password for all computers and devices
 - c. Share it with someone else
 - d. Make sure that the password includes one uppercase letter, one lowercase letter, a number, and a symbol.



Self-Reflection

1. You have come to the end of the unit. You are going to do the survey you did at the beginning of the unit again to help you do self-assessment of your knowledge, skills and attitudes.

Again, there are no right or wrong answers to this survey. It is for your own use to gauge your knowledge, skills, and attitudes after the unit. Read the Knowledge, Skill, or Attitude in the left column. Think about yourself: do you think you can do this? How well? Read the statements across the top. Put a check in column that best represents your situation.

My experience	I don't have any experience doing this.	I know a little about this.	I have some experience doing this.	I have a lot of experience with this.	I am confident in my ability to do this.
Knowledge, skills and attitudes					
Describe computer hardware and software					
Identify computer hardware components					
Identify types of software					
Identify OS types and functions					
Describe file, folder, and file extension					
Identify types of storage disks					
Describe software such as word processing, spreadsheet programs, and mail programs					

My experience	I don't have any experience doing this.	I know a little about this.	I have some experience doing this.	I have a lot of experience with this.	I am confident in my ability to do this.
Knowledge, skills and attitudes					
Describe an Excel spreadsheet					
Describe PowerPoint slides					
Describe Outlook					
Describe an antivirus program					
Identify user privileges.					
Describe backups and restore from backups					

2. Complete the table below by identifying areas from the unit where you have improved and where you need improvement along with the actions/strategies you will use to help you improve when receiving and interpreting information in the workplace.

Areas of strength	Areas for improvement	Actions to take to improve
1.	1.	1.
2.	2.	2.

Unit 2: Using mobile technology



3

³ User: hatalar205. (2015, February 9). *Black-android-phone*. Wikimedia Commons. <https://commons.wikimedia.org/wiki/File:Black-android-phone.svg>
Open Clip Art Library: Public domain

Topics

2.1 Android and iOS devices - main buttons and ports

2.2 Setting up a smartphone

2.3 Using apps on Android and iOS devices

Unit Summary:

This unit provides basic knowledge and skills needed to use mobile technology. At the end of this unit, trainees will be able to use the main buttons and ports according to their functions, set-up a smartphone according to the manufacturer instructions and guidelines and use apps in Android and iOS devices according to the user manual.

Self-Assessment: Unit 2

1. Look at the illustration above. What do you see? What do you think this unit will be about? What topics might be covered?
2. Fill in the self-assessment below.

There are no right or wrong answers to this survey. It is for your own use during this course. Read the knowledge, skill, or attitude in the left column. Think about yourself: do you think you can do this? How well? Read the statements across the top. Put a check in column that best represents your situation. At the end of this unit, we will take this survey again.

My experience	I don't have any experience doing this.	I know a little about this.	I have some experience doing this.	I have a lot of experience with this.	I am confident in my ability to do this.
Knowledge, skills and attitudes					
Identify the physical components of a smartphone and their functions					
Manipulate mobile phone buttons					
Use smartphone settings					
Describe smartphone applications					
Apply smartphone security					
Install apps from the Google Play store					
Use mobile applications					

Topic 2.1: Android and iOS devices - main buttons and ports

Key Competencies:

Knowledge	Skills	Attitudes
1. Describe mobile phone components.	1. Manipulate mobile phone buttons.	1. Respectful
2. Identify mobile buttons and ports.	2. Use mobile phone buttons and ports.	2. Methodical
3. Classify phone categories.	3. Use new mobile phone technologies.	3. Confident



4



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Getting Started: What do we know and where are we going?



Topic 2.1 Task 1:

1. Look at the pictures above and answer the following questions:
 - a. What is a telephone?

 - b. What are telephones used for?

⁴ User: hatalar205. (2015, February 9). *Black-android-phone*. Wikimedia Commons. <https://commons.wikimedia.org/wiki/File:Black-android-phone.svg>
Open Clip Art Library: Public domain

⁵ Kabat, K. (2009, February 4). *Office phone* [Photograph]. Flickr. <https://www.flickr.com/photos/barteko/6127853053>
License: <https://creativecommons.org/licenses/by-nd/2.0/legalcode>

c. What is the difference between a fixed line phone and a mobile phone?

2. Be prepared to share what you have discussed with the larger group.



Problem Solving Activity



Topic 2.1 Task 2:

1. Look at the picture below and complete the following tasks:

- a. What is the back view of the mobile phone?
- b. What is the front view of the mobile phone?
- c. What are the ports of the mobile phone?
- d. List the keys and buttons found on mobile phones.



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2. Once your trainer instructs you to, refer to **2.1 Key Facts**, below, to help you answer any remaining questions.

3. Be prepared to share your group's answers.

⁶ Bäck, M. (2008, July 20). *Sony Ericsson C902 (Swift Black), front and back* [Photograph]. Wikimedia Commons. [https://commons.wikimedia.org/wiki/File:Sony_Ericsson_C902_\(Swift_Black\),_front_and_back.jpg](https://commons.wikimedia.org/wiki/File:Sony_Ericsson_C902_(Swift_Black),_front_and_back.jpg)

2.1 Key Facts: Keys, Buttons and Ports

Front View:



Back View:



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⁷ Sprint. (n.d.). *Samsung Galaxy S7 edge user guide*. https://www.sprint.com/content/dam/sprint/commerce/devices/samsung/samsung_galaxy_s7_edge/documents/samsung-galaxy-s7-edge-user-guide.pdf



Guided Practice Activity



Topic 2.1 Task 3:

1. In small groups, use the labels and pictures your trainer will pass around and match them to the keys, buttons, and ports on the phone.
2. Work together to identify the functions of each key, button, and port.
3. Be prepared to share your responses with the rest of the class.



Application Activity



Topic 2.1 Task 4:

1. Read the challenge below:

Your brother just bought a new mobile phone but does not know how to use it. Based on what you have learned in class, you need to think of a way to teach him what the buttons, keys, and ports on the phone do. Your brother gets bored easily, so work with your partners to see if you can think of a fun way to apply what you have learned. Can you come up with a song or skit that labels and identifies the function for each key, button, or port?

2. Work together in your groups to come up with a song, skit, play, or other fun way of labelling and identifying all the functions of each key, button, and port. Be creative.
3. Your group will have 2-3 minutes at the end of class to present in front of the classroom.



Points to Remember

- Use keys, buttons, and ports as described in the user manual.
- Be careful not to misuse buttons, keys, and ports, or you could damage them.

 **Formative Assessment**

Circle the best answer.

1. Which key or button is on the front of a mobile phone?
 - a. Active key
 - b. Back key
 - c. Flash
 - d. Back camera
 - e. All are correct

2. What port is used to charge the battery of a cell phone?
 - a. Active key
 - b. Back key
 - c. USB charger/Accessory port
 - d. Front camera

3. In order to turn a mobile device on or off you must use which of the following:
 - a. Power/Lock key
 - b. Status light
 - c. Volume keys
 - d. Back camera
 - e. Flash

Topic 2.2: Setting up a smartphone

Key Competencies:

Knowledge	Skills	Attitudes
1. Understand mobile phone connectivity.	1. Connect mobile phone to data/wi-fi.	1. Attentive
2. Understand mobile phone security.	2. Apply mobile phone security settings.	2. Methodical
3. Understand mobile phone applications.	3. Install mobile phone applications.	3. Curious



Getting Started: What do we know and where are we going?



Topic 2.2 Task 1:

1. Volunteer one thing you know about the difference between mobile feature phones, smart mobile phones (smartphones), fixed or landline phones.
2. Try not to repeat something someone else has already said.
3. Review the learning outcome and the table of knowledge, skills, and attitudes.



Problem Solving Activity



Topic 2.2 Task 2:

1. Working in small groups, review **2.2 Key Facts**.
2. Together with your group, using **2.2 Key Facts**, try to complete the following tasks:
 - a. Install a SIM card.
 - b. Remove and replace the mobile phone battery (if model allows).
 - c. Connect to wi-fi.
 - d. Set security options.

2.2 Key Facts: Smartphone Basics

Installing a SIM Card

- Starting with the phone off, locate the port (either on the side of the phone or back of the phone)
- Identify the SIM Card slot as a standard, nano, or micro SIM Card
- Place the correct SIM Card in the slot
- Power on the phone and follow prompts to connect to Wifi or data

Replacing a Battery

- Determine if the phone has a removable battery by checking the back and side for a port
- If there is a removable battery, then power off the phone, open the door, and remove the battery
- Install a new battery
- Most new smartphones do not have replaceable batteries

Connect to Wifi

- Press “home” and then the “apps” button
- Under “wireless and networks,” make sure Wifi is turned on
- Wait for your smartphone to detect local Wifi networks
- Select the network to which you would like to connect
- Follow prompts to enter a Wifi password (if required)

Set security options

- Open your phone's Settings app and tap “security.” If you don't see “security,” find “security and location.” You should be able to adjust the following settings:
 - **Screen lock:** This allows you to lock your phone with a PIN, pattern or password
 - **Device admin:** This allow you to manage or remove apps that have access to your phone
 - **Show Passwords:** This allows you to manage complex and strong passwords on your phone



Guided Practice Activity



Topic 2.2 Task 3:

1. Navigate to the App Store or to the Google Store, depending on the type of smartphone your group is using.
2. Download and open Gmail.
3. Using Gmail:
 - a. Create a new account with your group's name. Write your group's email address on the board.
 - b. Draft an email using appropriate email format (subject line, salutation, content, etc).
 - c. Send the email to another group whose email address is on the board.
4. Let your trainer know once your group has both sent and received an email.



Application Activity



Topic 2.2 Task 4:

1. With your partner, read the following scenario and complete the tasks below:

Karine is a businessperson and she often orders goods online, using a smartphone to send a message to her supplier. However, her smartphone crashed, and she wants a technician to help her do the following:

- a. Insert a new SIM card and install a new battery.
- b. Protect her smartphone from unauthorized access.
- c. Connect to the internet.
- d. Share a document with her colleagues.
- e. Protect her smartphone with strong password.

- f. Download and install Gmail on her smartphone.



Points to Remember

- When you are installing a SIM card or battery, make sure your phone is turned off.
- Make sure your phone has a strong password to prevent unauthorized access.
- Download apps from the App Store or Google Store.
- Manage App settings using your smartphone's security settings.



Formative Assessment

1. Circle one of the basic components of Smartphone:
 - a. SIM card
 - b. Game application
 - c. Music application
 - d. Speakers

2. Which is relevant to smartphone security?
 - a. Install android Operating system
 - b. Clean the smartphone screen
 - c. Change application icons
 - d. Create password

3. When you want to connect your smartphone to the internet without using data, you should switch on:
 - a. Airplane Mode
 - b. Bluetooth tendering
 - c. Wi-Fi
 - d. Mobile data

4. When you want to download new application to install, which one of the following should you select?

- a. E-mail
- b. Music
- c. YouTube
- d. App Store/Google Store

Topic 2.3: Using apps on Android and iOS devices

Key Competencies:

Knowledge	Skills	Attitudes
1. Describe mobile applications.	1. Use various applications.	1. Teamwork
2. Describe the App store.	2. Install Apps from the App/Google store.	2. Innovative



Getting Started: What do we know and where are we going?



Topic 2.3 Task 1:

1. Work together in small groups to respond to the following questions:
 - a. What is a mobile application?
 - b. What kinds of mobile applications are there?
2. Be prepared to share your response with the rest of the class.
3. With your class, review the table of knowledge, skills, and attitudes.



Problem Solving Activity



Topic 2.3 Task 2:

1. Form groups of 4-5 trainees each. Your trainer will assign you to one of the groups on the list below.
2. Using the mobile phones and flipchart paper, your group needs to come up with a “sales pitch” for each app on your group’s list.
3. The sales pitch should describe the function of the app and why that app is the *best* app that someone would want to download.
4. Your group will present your pitch, and the class will select the best app based on the pitches!

Name	Function and Sales Pitch (why this is the best app)
Group A	
Internet Browser	
Reminders	
Calendar	
Camera	
Group B	
Clock	
Maps	
Message	
Photo/Video Gallery	
Group C	
Settings	
Music	
Notes	
Sound Recorder/Voice Memo	



Guided Practice Activity



Topic 2.3 Task 3:

1. Form groups of 4 – 5 trainees each. Your trainer will give each group a mobile phone. Your group should complete the following tasks:
 - a. Come up with a group name and create a Gmail address using that group name.
 - b. Share your group's name and email address with your trainer to write on the board.

- c. Save all the other group's emails to your phone contact list.
- d. If wi-fi is accessible outside the classroom: Walk outside and complete the following:
 - Open Google maps
 - Drop a pin into Google maps
 - Send your pin to the other groups via email
- e. If wi-fi is not accessible outside the classroom: Complete the following indoors:
 - Open Google maps
 - Drop a pin into Google maps
 - Send your pin to the other groups via email



Application Activity



Topic 2.3 Task 4:

1. Form groups of 4-5 trainees each, and read the following scenario:

BB Company is selling organic vegetables to hotels in Kigali. One of the hotels asks you to travel to BB Company's headquarters and conduct field visits to ensure their vegetables are grown without pesticides. You know you will be offline while visiting their headquarters, so you prepare your mobile phone with the apps you will need.

2. With your group, make a list of apps you will need to download to prepare your phone.
3. Be prepared to share the list of apps you selected with the rest of the class and explain why you selected those apps.



Points to Remember

- Each app has a purpose.
- Some apps work offline and some do not – before expecting that an app will work offline, be sure to check that it does.



Formative Assessment

Circle the best answer:

1. Which application is appropriate to send a message?
 - a. Calendar
 - b. Photos
 - c. Maps
 - d. Message

2. When you want to see the location of any country, which application can you use?
 - a. Calendar
 - b. Photos
 - c. Maps
 - d. Message

3. You may want to remember the date for doing any task, which application can help you?
 - a. Reminders
 - b. iBooks
 - c. News
 - d. Safari

Task 1: Use Smartphone calculator to perform arithmetic operations.

Task 2: Take pictures for any prescribed events.

Task 3: Install PowerPoint from the App Store/Google Store.



Self-Reflection

1. You have come to the end of the unit. You are going to do the survey you did at the beginning of the unit again to help you do self-assessment of your knowledge, skills and attitudes.

Again, there are no right or wrong answers to this survey. It is for your own use to gauge your knowledge, skills, and attitudes after the unit. Read the Knowledge, Skill, or Attitude in the left column. Think about yourself: do you think you can do this? How well? Read the statements across the top. Put a check in column that best represents your situation.

My experience	I don't have any experience doing this.	I know a little about this.	I have some experience doing this.	I have a lot of experience with this.	I am confident in my ability to do this.
Knowledge, skills, and attitudes					
Identify the physical components of a smartphone and their functions					
Manipulate mobile phone buttons					
Use smartphone settings					
Describe smartphone applications					
Apply smartphone security					
Install apps from the Google Play store					
Use mobile applications					

2. Complete the table below by identifying areas from the unit where you have improved and where you need improvement along with the actions/strategies you will use to help you improve when receiving and interpreting information in the workplace.

Areas of strength	Areas for improvement	Actions to take to improve
1.	1.	1.
2.	2.	2.

Unit 3: Use various ICT technologies in daily life

Topics

- 3.1 Use of electronic systems to handle financial transactions
- 3.2 Use of emerging technologies in world of entertainment
- 3.3 Use of online or ICT dependent public services

Unit Summary

This unit provides basic knowledge and skills and attitudes needed to use various ICT technologies in daily life at the end of this unit, learners will be able to utilize electronic systems to handle financial transactions based on their types, use of emerging technologies in world of entertainment in accordance with required protocol and use online or ICT dependent public services as per applied rules and regulations

Learning Unit 3 Self-Assessment

1. Look at the illustration. What do you see? What do you think this unit will be about? What topics might be covered?
2. Fill out the assessment.

There are no right or wrong answers to this survey. It is for your own use during this course. Read the knowledge, skill, or attitude in the left column. Think about yourself: do you think you can do this? How well? Read the statements across the top. Put a check in column that best represents your situation. At the end of this unit, we will take this survey again.

My experience	I don't have any experience doing this.	I know a little about this.	I have some experience doing this.	I have a lot of experience with this.	I am confident in my ability to do this.
Knowledge, skills and attitudes					
Describe electronic transfer transactions					
Describe automatic teller machine (ATM)					
Describe credit cards and debit cards					
Identify OS types and their functionality					
Identify different types of money transfers					
Use a visa card					
Transfer electronic money					
Describe entertainment technology					
Know the steps to upload videos, photos, and music					
Describe Photoshop, Illustrator, and Adobe InDesign					

My experience	I don't have any experience doing this.	I know a little about this.	I have some experience doing this.	I have a lot of experience with this.	I am confident in my ability to do this.
Knowledge, skills and attitudes					
Burn entertainment onto a CD					
Identify user privileges					
Describe software backup and software restore					
Describe online service applications					
Description of management information systems (MIS)					
Use online service applications					

Topic 3.1: Use of electronic systems to handle financial transactions

Key Competencies:

Knowledge	Skills	Attitudes
1. Describe electronic funds transfer transactions.	1. Transfer electronic money.	1. Careful
2. Describe automated teller machine (ATM).	2. Use automated teller machine (ATM).	2. Methodical
3. Characterize credit cards and debit card.	3. Use Visa and Mastercard debit and credit cards.	3. Confident
4. Identify different types of money transfer services.	4. Use different types of money transfer services.	4. Careful



Getting Started: What do we know and where are we going?



Topic 3.1 Task 1:



1. Look at the pictures above.
 - a. What are the differences between the two pictures?
 - b. What is electronic money?



Problem Solving Activity



Topic 3.1 Task 2:

1. Read and answer the following questions:
 - a. What is a business transaction?
 - b. How is an automated teller machine (ATM) used?
 - c. How is mobile money used?
 - d. List mobile money services commonly used in Rwanda.



Guided Practice Activity



Topic 3.1 Task 3:

1. Working in small groups, talk through the steps necessary to complete the following tasks on a smartphone (Note: you will not be able to complete the transactions):
 - a. Send money to a recipient
 - b. Withdraw money
 - c. Buy airtime
 - d. Pay a water bill
 - e. Change your mobile money PIN
 - f. Check your mobile money balance



Guided Practice Activity



Topic 3.1 Task 3:

1. Your trainer will take you on a trip to visit a bank. Before going, review **3.1 Key Facts**, below. You will also watch a video with your class beforehand.

3.1 Key Facts

Withdraw Money Using an ATM card

1. You need a debit or credit card and a personal identification number to withdraw money from an automated teller machine, or ATM.
2. In some cases, you'll also have to pay fees to get your money.
3. Although ATM transactions are commonplace, they do pose a few risks.

Getting Ready

If you didn't get a debit card or ATM card when you opened your bank account, you can request one by contacting your bank. Also, contact your bank if you don't have a PIN or have forgotten it.

Withdrawing Money

Not all ATMs are identical, but the general method is the same.

1. Insert the card in the slot provided, holding it in the position shown on a diagram on the machine.
2. Some ATMs read your card immediately, meaning you can pull it out before entering your transactions. Other ATMs require you to keep the card in the machine for the duration of your transaction.
3. You might also have the option of choosing a language. After you enter your PIN, follow the directions on the screen

Step-by-Step Instructions:

Adapted from elearnmarkets' "How to Withdraw Money from ATM Machine?" article.

1. Step 1: Insert ATM Card:

Insert your ATM Card in the ATM machine slot as marked in the diagram.

2. Step 2: Select Language:

Select your language: Kinyarwanda, English, or French.

3. Step 3: Enter ATM Pin

Use the Keypad to enter your 4-digit ATM Pin Number. Do not ever share your ATM Pin with anyone. Ensure that nobody is watching you, while you enter the Pin. Be careful while entering the Pin, as a wrong PIN may lead to the blockage of the ATM card.

4. Step 4: Select the Type of Transaction:

On the ATM screen, you will be able to see different types of transaction options such as Deposit, Transfer, Withdrawal of Money etc. For cash withdrawal, you will have to select the Withdrawal Option.

5. Step 5: Select the Type of Account:

After selecting the withdrawal option, the screen will display different account types—select your account type.

6. Step 6: Enter the withdrawal amount:

Now, enter your withdrawal amount. Make sure that you do not enter a withdrawal amount more than the balance in your account. Now press enter.

7. Step 7: Collect the Cash:

Now collect the cash from the lower slot of the machine.

8. Step 8: Take a printed receipt, if needed:

After you collect the cash, you will get an option to request a printed receipt of the transaction. If you want a printed receipt, click yes and close the transaction.

Withdrawals from an ATM debits the amount from your existing bank account (*either savings or checking*), so when you wish to withdraw, ensure that you have sufficient balance in the account.⁸



Application Activity



Topic 3.1 Task 4:

1. Read the scenario below and complete the tasks:

Dairy Milk, which is a small company in Butamwa, buys milk from the local people (producers) and distributes it to buyers. The local people are paid by mobile money and some of them access their money using ATM cards. The accountant of the dairy is now on leave. You are requested by Dairy Milk to support the company in performing the following tasks:

- a. Register a new user.
- b. Pay the company's electricity fees.
- c. Register a producer for mobile money.

⁸ Elearnmarkets. (2016, February 4). *How to withdraw money from ATM machine - 9 steps to use ATM.* <https://www.elearnmarkets.com/blog/how-to-withdraw-money-from-atm-machine/>

- d. Deposit money in the new producer's account.
- e. Check the company's balance.



Points to Remember

- When you are withdrawing or depositing money using an ATM card or mobile money services make sure that you keep your PIN number secret and that there is no person or camera that can view your PIN number.
- Pay attention when you are sending money through mobile money services and ensure that you are sending money to the correct number of the recipient. You will not be able to reclaim your money if you send it to the wrong account.
- Change your pin immediately if you think the number may have been compromised.



Formative Assessment

Circle the best answer.

1. Which of the following options can be completed only with electronic money?
 - a. Pay by check
 - b. Pay by cash
 - c. Pay utility (electricity or water) bill
 - d. Pay by mobile money

2. Mobile money can be used to:
 - a. Transfer funds
 - b. Open a bank account
 - c. Deposit funds
 - d. All of the above

3. Aline is planning to withdraw cash from an ATM. Her friend wants to go with her. What information should Aline keep secret from her friend?

Topic 3.2: Use of emerging technologies in world of entertainment

Key Competencies:

Knowledge	Skills	Attitudes
1. Describe entertainment technology.	1. Utilizing entertainment software to be able to burn CDs.	1. Attention to detail
2. Know the steps to upload videos, photos, and music.	2. Uploading videos, photos, and music.	2. Disciplined
3. Describe video editing software.	3. Use Movie Maker.	3. Methodical



Getting Started: What do we know and where are we going?



Topic 3.2 Task 1:



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1. Think about the above picture:
 - a. What do you see in the picture?
 - b. What is entertainment technology?
 - c. What role does entertainment technology play in our daily lives?



Problem Solving Activity

⁹ Image from Pixabay.com; License: <https://pixabay.com/service/license/>



Topic 3.2 Task 2:

1. Your trainer will pass out a printed paper with a list of Online and Social Media and a list of Type of Online Content. Work with your group to match the Type of Online Content to the right type of Online and Social Media. Many online and social media platforms will allow you to share multiple types of online content, so do not be surprised if you see something more than once!



Guided Practice Activity



Topic 3.2 Task 3:

1. Under the guidance of your trainer, take music and video DVDs and do the following tasks:
 - a. Upload music and video on YouTube
 - b. Burn video on CD /DVD

3.2 Key Facts

Uploading videos to YouTube

From Google Support's "Upload videos" help page:

You can upload videos to YouTube in a few easy steps. Use the instructions below to upload your videos from a computer or from a mobile device.

Computer Android, iPhone & iPad

Upload videos in YouTube Studio

1. Sign in to YouTube.
2. At the top right, select Create a video or post  > Upload video.
3. Select the file you'd like to upload.

If you close the upload experience before you finish choosing your settings, your video will be saved as a draft on your Videos page.¹⁰



Topic 3.2 Task 4:

¹⁰ Google Help. (n.d.). *Upload videos*. <https://support.google.com/youtube/answer/57407?co=GENIE.Platform%3DDesktop&hl=en>

1. Your trainer will pass out a DVD with a video on it. Turn to **3.3 Key Facts** below and refer to it while completing the following tasks:
 - a. Import a video into Movie Maker
 - b. Add pictures
 - c. Add an audio clip
 - d. Insert a narration
 - e. Change the duration of photo clip length time
 - f. Save the project

3.3 Key Facts

Editing Video Using Movie Maker on Windows 7

Adapted from MovieMaker.com's "How to Use Movie Maker | Step-by-Step Guide for Beginners (2020)" article:

How to Import files to Windows Movie Maker:

- Open Windows Movie Maker and go into main interface
- Click home tab and then click "add videos" from the "add group"

How to Add Audio:

- Adding Audio
 - Click "add music" button under Home tab
- Adding Narration
 - Click "record narration" button under the add group

How to add Video or Photos:

- Video and Photos
 - Use the "add videos and photos button"

How to Change the Duration of a Video Clip:

- Select "Duration" from the Video Tools Menu and enter a new duration

Saving your Final Video:

- Click "save movie" under the Home Menu

- If saving to a specific location, select that location from the drop-down.¹¹



Application Activity



Topic 3.2 Task 5:

1. Read the scenario below:

Peter is a graphic designer in Nyamirambo and has a client who wants to have a video on DVD to show at a wedding. The client already has the video and photos, but they would like Peter to add text with their wedding date and wedding location, as well as background music added to the video.

To help Peter out, complete the following tasks:

- Import the video into movie maker
- Add the selected pictures
- Add the correct background music
- Insert text with the wedding date and location
- Save the project



Points to Remember

- Different types of social media platforms are used for sharing different online content.
- Video editing software allows for changing and producing video content.

¹¹ User: Bella. (2020, August 12). *How to use movie maker | Step-by-step guide for beginners (2020)*. Movie Maker. <https://moviemaker.minitool.com/moviemaker/use-movie-maker.html>



Formative Assessment

1. Choose the correct steps to upload a video. (Hint: there may be more than one.)
 - a. Sign into a YouTube channel.
 - b. Record a new video or select an existing one to upload.
 - c. Change the column colour.
 - d. Choose music from a YouTube file.

2. The **last step** to upload a video on YouTube is to:
 - a. Tap the camera  at the top of the home page from any navigation page.
 - b. Record a new video or select an existing one to upload.
 - c. Tap the video camera icon and begin recording.
 - d. Tap Upload.

Topic 3.3: Use of online or ICT dependent public services

Key Competencies:

Knowledge	Skills	Attitudes
1. Describe online service applications.	1. Use online service application.	1. Teamwork
2. Identify e-learning education opportunities.	2. Use Irembo application.	2. Innovative
3. Describe management information systems (MIS).	3. Use management information systems (MIS).	3. Motivated



Getting Started: What do we know and where are we going?



Topic 3.3 Task 1:

1. Discuss the following questions:
 - a. What are public online services?
 - b. What are they used for?



Problem Solving Activity



Topic 3.3 Task 2:

1. In the computer lab, your instructor will have you use a browser to go to irembo.gov.rw or to rra.gov.rw.
2. Referring to **3.4 Key Facts**, determine the types of services that you are available on each platform.
3. When called on, provide your responses to the trainer.

3.4 Key Facts

Electronic Forms Available Online

- Government E-Services
 - The Government of Rwanda makes many online services available through the Irembo platform (irembo.gov.rw).
 - You can use Irembo to review forms and access e-services for National Police, National Identity, and the Housing Authority, among many other services.
- The Rwanda Revenue Authority provides e-services through rra.gov.rw.
- The Rwanda Development Board provides e-services through rdb.rw/e-services/
- Rwanda Polytechnic provides e-services, including student information, information about schools, curriculum, and classrooms through the TVET MIS: <https://mis.rp.ac.rw/>



Guided Practice Activity



Topic 3.3 Task 3:

1. In the computer lab, your instructor will have you use a browser to go to irembo.gov.rw in small groups to complete the following tasks:
 - a. Apply for a Birth certificate
 - b. Apply for a Certificate of Celibacy
2. Work with your small group to complete the steps necessary to fill out these online applications, but **do not** submit the applications.



Application Activity



Topic 3.3 Task 4:

1. Your trainer will place you in small groups. Working with your group, read the scenario below and complete the tasks:

Your friend Kalisa would like you to help him to find a TVET school near his house in Kamonyi. He would like to find a program in agriculture and food processing and then learn more about the curriculum offered for both agriculture and food processing.

Using the TVET MIS, complete the following tasks:

- a. Using the “schools” button, search for schools in Kamonyi that offer agriculture and food processing courses.
- b. Using the “curriculum” button, review the agriculture and food processing curriculum.
- c. Make a recommendation to your class for what school Kalisa should attend and what courses he should take.



Points to Remember

- Many services that the public requires are available online through irembo.gov.rw, rra.gov.rw, rdb.rw/e-services/.
- Rwanda Polytechnic’s TVET MIS provides useful information for TVET students at <https://mis.rp.ac.rw/>.
- When looking for a public service, it is useful to check online to see if you can access the service you require through these e-service platforms.



Formative Assessment

Identify the statements below as either True or False:

1. The government provides many e-services through the Irembo platform.
2. The TVET MIS includes forms such as application for a birth certificate.
3. The TVET MIS includes search information for TVET schools and IPRCs.
4. The Irembo platform allows for online payments through mobile money.



Self-Reflection

1. You have come to the end of the unit. You are going to do the survey you did at the beginning of the unit again to help you do self-assessment of your knowledge, skills and attitudes.

Again, there are no right or wrong answers to this survey. It is for your own use to gauge your knowledge, skills, and attitudes after the unit. Read the Knowledge, Skill, or Attitude in the left column. Think about yourself: Do you think you can do this? How well? Read the statements across the top. Put a check in column that best represents your situation.

My experience	I don't have any experience doing this.	I know a little about this.	I have some experience doing this.	I have a lot of experience with this.	I am confident in my ability to do this.
Knowledge, skills and attitudes					
Describe electronic transfer transactions					
Describe automatic teller machine (ATM)					
Describe credit cards and debit cards					
Identify OS types and their functionality					
Identify different types of money transfers					
Use a visa card					

My experience	I don't have any experience doing this.	I know a little about this.	I have some experience doing this.	I have a lot of experience with this.	I am confident in my ability to do this.
Knowledge, skills and attitudes					
Transfer electronic money					
Describe entertainment technology					
Know the steps to upload videos, photos, and music					
Describe Photoshop, Illustrator, and Adobe InDesign					
Burn entertainment onto a CD					
Identify user privileges					
Describe software backup and software restore					
Describe online service applications					
Description of management information systems (MIS)					
Use online service applications					

2. Complete the table below by identifying areas from the unit where you have improved and where you need improvement along with the actions/strategies you will use to help you improve when receiving and interpreting information in the workplace.

Areas of strength	Areas for improvement	Actions to take to improve
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1.	1.	1.
2.	2.	2.

Unit 4: Maintain ICT equipment, tools, and consumables

Topics

- 4.1 Cleaning and maintaining ICT equipment and tools
- 4.2 Maintaining and replacing consumables and supplies according to organizational procedures

Unit Summary:

This unit describes the skills, knowledge, and attitudes needed to maintain ICT equipment, tools and consumables. At the end of this unit, trainees will be able to clean and maintain ICT equipment and tools according to manufacturer's specifications and organizational manuals and maintain and replace consumables and supplies according to organizational procedures.

Self-Assessment: Unit 4

1. Look at the illustration. What is happening? What do you think this unit will be about? What topics might be covered?
2. Fill in the self-assessment below.

There are no right or wrong ways to answer this survey. It is for your own use during this course. The trainer will read a skill that is listed in the left column. Think about yourself: do you think you can do this? How well? Read the statements across the top. Put a check in column that best represents your situation. At the end of this unit, we'll take this survey again.

My experience	I don't have any experience doing this	I know a little about this	I have some experience doing this	I have a lot of experience with this	I am confident in my ability to do this
Knowledge, skills and attitudes					
Describe software updates					
Identify maintenance principals					
Describe software licensing					
Update antivirus software					
Apply curative and preventive maintenance					
Purchase an antivirus software online					
Identify external computer peripheral materials					
Describe external peripherals consumables					
Describe computer drivers					

My experience	I don't have any experience doing this	I know a little about this	I have some experience doing this	I have a lot of experience with this	I am confident in my ability to do this
Knowledge, skills and attitudes					
Use printer, photocopier and UPS					
Replace cartridge					
Install computer drivers					

Topic 4.1. Cleaning and maintaining ICT equipment and tools

Key Competencies:

Knowledge	Skills	Attitudes
1. Describe software updates.	1. Update antivirus software.	1. Respectful
2. Identify maintenance principals.	2. Apply curative and preventive maintenance.	2. Methodical
3. Describe software licensing.	3. Purchase an antivirus software online.	3. Self-confident

Getting Started: What do we know and where are we going?



Topic 4.1 Task 1:

1. Together with your group, imagine that your school's computer is broken.
2. Brainstorm responses to the following questions:
 - a. What type of work would be needed to fix it?
 - b. How does it relate to the topic?
 - c. What is maintenance (in general)?
 - d. What kind of maintenance might be required for ICT equipment?
3. Be prepared to share your group's response with the class.



Problem Solving Activity



Topic 4.1 Task 2:

1. Review **4.1 Key Facts** and ask any questions that you might have about the types of maintenance.
2. You will work with a partner to develop a maintenance guidebook by filling out the table below as you complete the routine maintenance tasks:

Task	Materials Needed	Steps Required to Perform Maintenance	Type of Maintenance (preventative, predictive, curative)
Clean the Computer			
Clean the keyboard			
Clean the mouse			
Clean the router/switches			

4.1 Key Facts

Types of Maintenance

- Preventative: Maintenance performed regularly to lessen the likelihood of equipment failing.
- Predictive: Conducted to help determine the condition of the equipment and estimate when curative maintenance should be performed.
- Curative: Repair of defective or damaged equipment.



Guided Practice Activity



Topic 4.1 Task 3:

1. Review **4.2 Key Facts** and ask any questions you may have on types of maintenance or how to use the tools.
2. Working in pairs, complete the following tasks, adding notes to your maintenance guidebook:
 - a. Open the case of a computer (using an antistatic wrist strap/mat)!
 - b. Measure the voltage of a circuit using the digital multimeter tool.

- c. Use the loopback adaptor to test the functionality of the computer ports.

Task	Materials Needed	Steps Required to Perform Maintenance	Type of Maintenance (preventative, predictive, curative)
Open a computer case			
Measure voltage			
Use loopback adaptor			

4.2 Key Facts

ICT Maintenance Tools



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Antistatic Mat

Antistatic wrist bands and mats:

These are important because they prevent electrostatic discharge (ESD) while working on a computer. This is important because ESD can damage computers. In the absence of ESD tools, be sure to:

- Turn off the computer before working on it
- Rest the computer on an unpainted metal surface
- Stand while working on the computer
- Disconnect all cables and cords from the computer
- Remove all jewelry, including wedding rings/bands
- Do not work on computers during an electrical storm

¹² User: Toniperis. (2013, July 15). *Anti static mat* [Photograph]. Wikimedia Commons. https://commons.wikimedia.org/wiki/File:Anti_static_mat.png
License: <https://creativecommons.org/licenses/by-sa/3.0/legalcode>

Digital Multimeter:

A digital multimeter is a device that tests the integrity of circuits and the electricity in computer components.

Loopback Adapter:

A loopback adapter tests the basic functionality of computer ports.

CAUTION: Never use a standard vacuum cleaner inside a computer case. The plastic parts of the vacuum cleaner can build up static electricity and discharge to the components. Use only vacuums that are approved for electronic components.



Application Activity



Topic 4.1 Task 4:

1. Working in pairs, read the scenario below and complete the following tasks:

You are a computer technician and have been hired to provide routine maintenance at a computer lab. On your first day of work, you learn that the computer lab was operating without a computer technician for a long time. That means you need to think about the preventative, predictive, and curative maintenance you might need to do to ensure all computers are functioning.

You decide to:

- a. Update antivirus software.
- b. Clean computers and peripherals.
- c. Clean inside all computers.
- d. Test that all computers are functioning as they should be, using a digital multi-meter tool and a loopback adapter.



Points to Remember

- It is critical to minimize ESD while working on computers. To do this:
 - Use ESD tools whenever possible.
 - Never use a standard vacuum cleaner on a computer.
 - Turn off computers and disconnect all cables before cleaning computers.



Formative Assessment

Choose the correct answer:

1. Which response below is a type of computer maintenance?

- a. Curative maintenance
- b. Electrostatic Discharge
- c. General precautions
- d. Power connectivity

2. Choose the correct word to fill in the blank space below:

_____ Software is a program or set of programs that are designed to prevent, search, detect, and remove software viruses as well as other malicious software.

- a. Programming
- b. Software
- c. Illustrator
- d. Photoshop
- e. Antivirus

3. For the following statements, determine if each is either True or False:

- a. Using a compressor air canister is amongst the list of computer cleaning equipment.
- b. Computers are used to clean keyboards.
- c. The first step to clean a computer is to power off the computer.
- d. Prepare tools, materials, and equipment is the last step of computer cleaning.
- e. Before cleaning a computer, plug all accessories into the computer.
- f. Updating antivirus software is preventative maintenance.

Topic 4.2: Maintaining and replacing consumables and supplies according to organizational procedures

Key Competencies:

Knowledge	Skills	Attitudes
1. Identify external computer peripherals.	1. Use computer accessories.	1. 1.Detail Oriented
2. Describe external peripheral consumables.	2. Replace cartridges for appropriate equipment.	2. Innovative
3. Describe computer drivers.	3. Install computer drivers.	3. Motivated



Getting Started: What do we know and where are we going?



Topic 4.2 Task 1:

1. Brainstorm answers to the following questions:
 - a. What is a peripheral?
 - b. What are printer consumables?
 - c. List different copier consumables.



Problem Solving Activity



Topic 4.2 Task 2:

1. Working in groups, complete the following tasks:
 - a. Brainstorm a list of computer peripherals.
 - b. Brainstorm the functions of the computer peripherals they listed.
 - c. Describe which (if any) of the items are consumables.



Guided Practice Activity



Topic 4.2 Task 3:

1. Working in small groups, complete the following tasks:
 - a. Use a printer to print 2 copies of a document.
 - b. Connect a laptop to a projector.
 - c. Use a photocopier to photocopy two copies.
 - d. Install a printer driver.
 - e. Replace the toner and paper on the photocopier.



Application Activity



Topic 4.2 Task 4:

1. Working in pairs, read the scenario below and complete the tasks:

The Head of Education of a secondary school has been called by the Director of Education to attend a meeting. The Director of Education asked The Head of Education to print two copies and make photocopies of a document to be used in the meeting. When the Head of Education was starting to print, an error message displayed on the computer screen.

You are called to complete the following tasks:

- a. Identify the problem.
- b. Install a printer driver.
- c. Replace the old cartridge with a new one.
- d. Print two copies.
- e. Photocopy two copies.



Points to Remember

- When changing anything on a printer or photocopier, follow the prompts.
- Make sure to keep extra toner, printer cartridges, and paper stocked.



Formative Assessment

1. Determine if the following devices are peripherals by writing True or False:

- a. Printer
- b. Scanner
- c. Projector
- d. Photocopier
- e. UPS/true
- f. System unit
- g. Microprocessor
- h. Internal hard disk

2. True or False: Cartridges are a type of printer consumable.

3. Fill the correct word in the sentence below:

.....is a program that determines how a computer will communicate with a peripheral device.

- a. Photocopier
- b. UPS
- c. Software driver
- d. System unit
- e. Microprocessor



Self-Reflection

1. You have come to the end of the unit. You are going to do the survey you did at the beginning of the unit again to help you do self-assessment of your knowledge, skills and attitudes.

Again, there are no right or wrong answers to this survey. It is for your own use to gauge your knowledge, skills, and attitudes after the unit. Read the Knowledge, Skill, or Attitude in the left column. Think about yourself: do you think you can do this? How well? Read the statements across the top. Put a check in column that best represents your situation.

My experience	I don't have any experience doing this	I know a little about this	I have some experience doing this	I have a lot of experience with this	I am confident in my ability to do this
Knowledge, skills, and attitudes					
Describe software updates					
Identify maintenance principals					
Describe software licensing					
Update antivirus software					
Apply curative and preventive maintenance					
Purchase an antivirus software online					
Identify external computer peripheral materials					
Describe external peripherals consumables					

My experience	I don't have any experience doing this	I know a little about this	I have some experience doing this	I have a lot of experience with this	I am confident in my ability to do this
Knowledge, skills, and attitudes					
Describe computer drivers					
Use printer, photocopier and UPS					
Replace cartridge					
Install computer drivers					

2. Complete the table below by identifying areas from the unit where you have improved and where you need improvement along with the actions/strategies you will use to help you improve when receiving and interpreting information in the workplace.

Areas of strength	Areas for improvement	Actions to take to improve
1.	1.	1.
2.	2.	2.

REFERENCES

- Abousen, D. (n.d.). *Computer security*. Carnegie Mellon University. [https://www.contrib.andrew.cmu.edu/~dabousen/Default%20-%20Copy%20\(4\).html#:~:text=Computer%20security%2C%20also%20known%20as,of%20the%20services%20they%20provide](https://www.contrib.andrew.cmu.edu/~dabousen/Default%20-%20Copy%20(4).html#:~:text=Computer%20security%2C%20also%20known%20as,of%20the%20services%20they%20provide)
- Elearnmarkets. (2016, February 4). *How to withdraw money from ATM machine - 9 steps to use ATM*. <https://www.elearnmarkets.com/blog/how-to-withdraw-money-from-atm-machine/>
- Google Help. (n.d.). *Upload videos*. <https://support.google.com/youtube/answer/57407?co=GENIE.Platform%3DDesktop&hl=en>
- Hinton, M. J. (n.d.). *How to install a computer program*. Dummies. <https://www.dummies.com/software/for-seniors-how-to-install-a-new-computer-program/>
- Kabat, K. (2009, February 4). *Office phone* [Photograph]. Flickr. <https://www.flickr.com/photos/barteko/6127853053>
License: <https://creativecommons.org/licenses/by-nd/2.0/legalcode>
- Sprint. (n.d.). *Samsung Galaxy S7 edge user guide*. https://www.sprint.com/content/dam/sprint/commerce/devices/samsung/samsung_galaxy_s7_edge/documents/samsung-galaxy-s7-edge-user-guide.pdf
- User: Bella. (2020, August 12). *How to use movie maker | Step-by-step guide for beginners (2020)*. Movie Maker. <https://moviemaker.minitool.com/moviemaker/use-movie-maker.html>
- User: hatalar205. (2015, February 9). *Black-android-phone*. Wikimedia Commons. <https://commons.wikimedia.org/wiki/File:Black-android-phone.svg>
Open Clip Art Library: Public domain

User: Toniperis. (2013, July 15). *Anti static mat* [Photograph]. Wikimedia

Commons. https://commons.wikimedia.org/wiki/File:Anti_static_mat.png

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