



Province of the
EASTERN CAPE
EDUCATION

DIRECTORATE SENIOR CURRICULUM MANAGEMENT (SEN-FET)

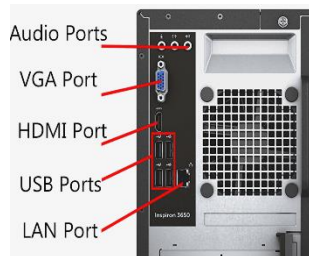
HOME SCHOOLING SELF-STUDY WORKSHEET ANSWER SHEET

SUBJECT	COMPUTER APPLICATIONS TECHNOLOGY	GRADE	12	DATE	13 to 17 July 2020
TOPIC	Hardware Provided by DBE	TERM 1 REVISION		TERM 2 CONTENT	✓

Level 1

1. What is data? (1)
Collection of unprocessed items ✓ such as text, numbers, images.
2. What is information? (1)
Processed items ✓ that conveys meaning
3. What is an ICT system? (7)
Diverse set of technology tools and resources ✓ used to communicate ✓, create ✓, disseminate ✓, store ✓ and manage ✓ information ✓
4. What is the function of an ICT system? (2)
Manage ✓ data and information ✓
5. List the main components of a general ICT system (5)
Hardware ✓
Software ✓
Data ✓
people ✓
procedures ✓
6. What is a computer? (4)
Programmable devices ✓ that stores ✓, retrieves ✓ and processes data ✓
7. List the four parts of a computer (4)
Input ✓
Processing ✓
Output ✓
Storage ✓
8. What is a port? (2)
A point at which a peripheral device attaches to ✓ or communicates with a computer ✓ so that the peripheral device can send data to or receive information from the computer

9. Study the picture below and describe, for each port/connector, what it is used for/which device can be connected to it. (9)



- a. Audio
 - Integrated line-out, microphone, and line-in ports ✓ that provide access to integrated audio ✓, when there is no sound cards on the computer
 - b. USB
 - Connects up to 127 different devices ✓ such as printer with single connector to computer ✓
 - c. HDMI
 - Connects computer to a display device ✓ using a digital cable ✓
 - d. VGA
 - Connects computer to a display device ✓ using an analogue cable ✓
 - e. LAN
 - Connects computer to a local network ✓ using a network cable ✓
10. What is the function of a port? (2)
It allows a peripheral device to connect to a computer ✓ and to send/receive data to ✓
11. What is an input device? (2)
Any hardware component ✓ that allows the entering of data and instructions into a computer ✓
12. Name two input devices that can be connected to a computer via USB (2)
Keyboard ✓, mouse ✓ (any two suitable devices)
13. List two types of computer input. (2)
Text, audio, video, ✓✓ (any two)
14. List two types of scanners (2)
Flatbed ✓, hand-held ✓
15. What is an output device? (2)
Any hardware component ✓ that allows you to enter data and instructions into a computer ✓
16. Name two common output devices (2)
Printer ✓, Data projector ✓, speaker, monitor (any 2 suitable output devices)
17. What is a Central Processing Unit (CPU)? (2)
The component of the computer that interprets ✓ and carries out the basic instructions ✓ that operate the computer
18. What is RAM? (4)
Hardware (Memory chips) ✓-that store data temporary ✓ and that can be read from ✓ and written ✓
19. What is ROM? (2)
Hardware ✓ that store permanent data and instructions ✓
20. What is the motherboard? (3)
The main board of the computer ✓ that houses the components of the computer ✓ and allows for communication between components ✓

21. What is a storage device? (3)
A device that records (writes) ✓ and/or retrieves (reads) items ✓ to and from storage media ✓
22. Storage is considered one part of a computer. (2)
Name the two storage components/devices inside a computer.
HDD/SSD ✓, DVD ✓
23. Name the port that can be used to connect the following to a desktop computer
- a. Monitor (1)
VGA ✓ or HDMI, DVI, DisplayPort, USB-C, Thunderbolt (any one)
- b. Printer (1)
USB ✓
24. What is a keyboard used for? (2)
To input ✓ data (text, characters) and other commands ✓ into a computer
25. List three factors to consider when buying a storage device (3)
Capacity ✓, Robustness ✓, Cost per GB ✓ (some learners may mention access speed, latency)
26. Name factors than one needs to consider when buying a keyboard? (2)
Connection type (wired/wireless) ✓, ergonomics ✓ or any other suitable such as Layout / special keys / mechanical / backlit / type (dvorak/querty) / price
27. What is a 3-D printer? (3)
A printer that uses a process called additive manufacturing ✓ to create an object ✓ one layer at a time ✓
28. State whether the following statements are true or false:
- a. An All-in-One computer contains a separate tower that contains the system unit (1)
False ✓
- b. An ICT system is made up of people, computer hardware, computer software and the ability to collect data and communicate results (1)
True ✓
- c. Data conveys meaning to users and information is a collection of unprocessed items such as number. (1)
False ✓
- d. A headset is a type of input device. (1)
True ✓
- e. A hybrid computer can be used as a tablet or a laptop (1)
True ✓
- f. A washing machine is an example of an embedded device (1)
True ✓
- g. A digital camera is an example of a dedicated device (1)
True ✓
- h. RAM is also known as secondary memory (1)
- i. The CPU fetches program or application's instructions from non-volatile memory (1)
True ✓
- j. A storage device can be categorised as an input and an output device (1)
True ✓

29. What is an embedded device? (4)
 A special purpose computing system ✓ that is enclosed by the object/functions as a component in a larger product ✓ and may or may not be able to connect to the Internet ✓, e.g. printer
30. Name two household devices that use embedded computer systems (2)
 Microwave ✓, washing machine ✓, fridge (any other suitable device)
31. Explain what the Gig economy is. (2)
 A labour market characterized by the prevalence of temporary, flexible jobs/short-term contracts or freelance work ✓ as opposed to permanent jobs ✓
32. What are the functions of the following computer hardware: (4)
- CPU (4)
 Controls most of the operations in computer ✓ and it fetches data and program instructions from RAM ✓, processes it (execution) ✓ and then sends back the results ✓
 - RAM (2)
 It stores data temporarily ✓ that is most likely needed by CPU for processing ✓
 - ROM (2)
 Stores information such as bootup instructions ✓ more permanently ✓
 - Graphics card (2)
 Hardware ✓ installed in a computer that is responsible for rendering the image on the computer's monitor ✓
 - Motherboard (2)
 It connects the different parts/components of a computer together ✓, such as CPU, RAM, etc. and allows communication between the parts ✓
33. In the context of computers, what is authentication? (2)
 The process of verifying authorized user(s) ✓ through confirming a user's identity ✓
34. Define the term 'ergonomics' (2)
 The science of refining the design of products ✓ to optimize them for human use ✓
35. List three factors that need to be considered with ergonomic design (3)
 Comfort ✓ (in terms of posture, sight, etc.), efficiency ✓ and safety ✓
36. List two factors to consider when buying a mouse (2)
 Connection type (wired/wireless) ✓, ergonomics ✓ (any other suitable factors)
37. Define the term 'Green computing' (2)
 Practices that involve reducing ✓ electricity and environmental waste ✓ when using computers or related technology/environmentally responsible use of computers and related technology
38. List four economic reasons for using computers. (4)
 Can save paper ✓, can perform most tasks more efficiently compared to doing it manually ✓, especially repetitive tasks, more accurate and reliable ✓, job creation ✓, economic growth ✓, innovation ✓ (any 4)
39. In the context of computers, what are 'instructions'? (3)
 Commands ✓, user-responses ✓ or programs (software) ✓
40. What is Bluetooth? (3)
 A wireless communication technology ✓ that uses short-range radio signals ✓ to transmit data between two Bluetooth-enabled devices/communicate with each other ✓

41. Many devices today use biometric input for authentication. What is biometric input? (2)
Input that uses a biometric device✓ to authenticate a person's identity by verifying personal characteristics✓ (physical or behavioural), e.g. fingerprint
42. List three types of printers (3)
Laser✓, inkjet✓, 3D✓
43. What is Radio Frequency identification (RFID)? (3)
Technology that uses radio signals✓ to communicate with a tag✓ placed in or attached to an object, animal, or person✓
44. What is Near Field Communication (NFC)? (3)
NFC is based on RFID✓ and use close range radio signals✓ to transmit data between two NFC-enabled devices✓, e.g. credit card and card machine (POS)
45. Name the technology that can convert a scanned document into an editable document? (1)
Optical Character Recognition (OCR) ✓
46. List two uses of RFID tags (2)
Identify and trace lost animals, item inventory tracking, race timing in marathons, attendee tracking, access control, library systems, e-toll (any two suitable uses) ✓✓
47. Give one word or term for each of the following statements:
- a. An output device that produces text and graphic on a physical medium such as paper or other material. (1)
Printer✓
 - b. An input device that contains keys you press to enter data and information into a computer (1)
Keyboard✓
 - c. A pointing device that fits under the palm of your hand comfortably. (1)
Mouse✓
 - d. An input device that captures and converts a user's handwriting or drawings into a digital format, which users can upload or transfer to a computer (1)
Digital pen✓
 - e. A personal computer designed to be in a stationary location where all of its components on or under a desk or table (1)
Desktop✓
 - f. Any information that is processed by and sent out from a computer (1)
Output✓
 - g. A device that projects the text/images displaying on the computer screen on a larger screen so that the audience can see the text/images clearly. (1)
Data projector✓
 - h. To provide or give something to the computer, in other words, when a computer or device is receiving a command or signal from outer sources (1)
Input✓

Level 2

48. Explain the difference between data and information and provide an example of each (4)
 Data is raw, unprocessed items such as numbers ✓ and information is processed data that becomes meaningful ✓, e.g. the teacher enters marks into the computer ✓ and the average mark and pass percentage is calculated using the data (marks) to provide information on learner performance ✓.
49. Explain the difference between a VGA and HDMI connection (3)
 VGA is analogue ✓ and cables can have degrading quality within the cables and make picture quality poorer ✓ whilst HDMI uses a digital cable and produces better quality pictures ✓
50. Describe the role of the computer to transform data into information (4)
 The computer takes items entered/raw data such as numbers ✓, processes ✓ it using software such as spreadsheet programme ✓ that provides graphs providing information such as what was most, which are bigger or smaller, how many passed, etc. ✓
51. Generally, a computer has integrated graphics to render images on a screen. Explain why would one want to add a graphics card? (5)
 A graphics card has its own RAM ✓ + Graphics processing unit (GPU) ✓ that renders higher quality images ✓ and could increase overall performance of PC as it takes load off the CPU to process graphics and frees up computer's RAM ✓ It also comes with more features such as Virtual Reality capability ✓
52. Why does a computer need a motherboard? (3)
 The motherboard houses all the main components of the computer (RAM, CPU, etc.) ✓; provides the means for all the components to communicate ✓ and allows expansion of the system through other circuit boards that plugs into it such as Network cards that allows network connection ✓
53. Table the differences between ROM and RAM (4)

RAM		ROM
Volatile	✓	Non-volatile
Can read from and write to RAM	✓	Can only read from ROM
Stores data and instructions most likely to be used next by the CPU and contents change frequently	✓	Stores data and instructions more permanently, e.g. computer start-up instructions
Less secure than ROM	✓	More secure than RAM

54. Describe two differences between memory (RAM) and storage (e.g. hard disk) (2)
 RAM is volatile (loses contents when power is cut) whilst storage on hard disk is permanent ✓
 Storage has large capacity (e.g. 1 TB) whilst RAM has less capacity (e.g. 8 GB) ✓
55. Why would you prefer your computer to have many USB ports? (1)
 Enables user to use many USB devices simultaneously ✓
56. What is the advantage of using solid-state-drives (SSDs) over HDD in laptops? (2)
 SSD is smaller and lighter which contributes to mobility and weight of laptop ✓ and uses less electricity
57. Differentiate between a desktop computer and a laptop computer (3)
 A mobile computer is lightweight and portable ✓
 A mobile computer has a built-in keyboard and display/desktop has external keyboard and display ✓

In a mobile computer, the motherboard and HDD/SSD resides underneath the keyboard/desktop has a system unit where motherboard and HDD/SSD resides or with all-in-one resides behind the display ✓

58. Name two disadvantages of a Wi-Fi mouse over a wired mouse (2)
Wi-Fi mouse receives power from batteries which require replacement ✓
Wi-Fi mouse requires receiver (dongle) which, when damaged or lost renders the mouse unusable ✓
59. Name two advantages of a wired keyboard over a Bluetooth keyboard (2)
Wired keyboard receives power from computer whilst Bluetooth keyboard needs batteries which need replacement ✓
No pairing is needed – wired can be used without pairing ✓ (accept cheaper)
60. Why is ROM considered to be more secure data storage than RAM? (2)
It is non-volatile – does not lose data/instructions when power is cut ✓ and the data/instructions are not likely to be overwritten as it is read-only ✓
61. Classify the following input as data, instruction(s) or information
- a. Test marks entered into a spreadsheet (1)
data ✓
 - b. Pass and fail rates of the test represented in a graph (1)
information ✓
 - c. Text entered into a word processor using a keyboard (1)
data ✓
 - d. Double-clicking the Word processor icon on the desktop (1)
instruction ✓
 - e. The till slip received after grocery purchase (1)
information ✓
 - f. Entering a web-address in a browser (1)
instruction ✓
62. Describe how storage and memory interact (4)
The CPU fetches data/instructions stored on the hard ✓ disk and loads the data/instructions into RAM for use by the CPU ✓. Once data/instructions in RAM is no longer required, it is dumped/saved to the hard disk ✓. Data/instructions are constantly being swapped between hard disk and RAM ✓
63. Describe two uses of QR codes. (2)
Provides quick access to information such as medical information ✓, open a location, map or a webpage ✓, posted next to paintings or museum items to display information about the item, on grocery items to display ingredients/nutritional information (any two suitable uses)
64. Many people prefer a laptop computer as it is lightweight and portable. Name two other advantages that a laptop has when compared to a desktop computer. (2)
It has a battery and can run on battery power when not connected to electricity ✓ saves space ✓
65. Your school needs to dispose of old computers and computer parts. Suggest to the principal how it should be done. (2)
Contact refurbishing firm – they may pay something for the old computers to refurbish them or use the part to refurbish other computers ✓
Contact a recycling firm to dispose of them in an environmentally responsible way ✓
66. Describe the difference between a storage device and storage media (4)
Storage media are used to store ✓ data or instructions for future use ✓ (the part that holds the data)

- A storage device records (reads) and/or retrieves (writes) items ✓ to and from storage media ✓.
67. Motivate why and SSD is an improvement over HDD. (4)
Uses less power ✓
Faster load time ✓
No moving parts – more durable ✓
Light-weight and smaller ✓
68. Using an example, explain what multi-level authentication is (4)
An authentication method in which a computer user is granted access only after successfully presenting two or more pieces of evidence (or factors) to an authentication mechanism ✓:
knowledge (something the user and only the user knows, e.g. password), possession (something the user and only the user has, e.g. OTP sent to mobile phone), and inherence (something the user and only the user is).
Example: When accessing a bank account via the computer to do a transaction, a password is required (1st layer of authentication) ✓, then certain characters of a secure code are required (2nd level) ✓ and if a transaction is performed, the app sends a verification code (OTP) to a mobile phone that the person must enter to complete the transaction (3rd level) ✓
69. A RFID tag is used in a retail store to ensure that customers do not remove an item from the store without paying. Explain how the RFID tag is used in this context (4)
The RFID tag that is attached to the store item ✓ contains a memory chip with data ✓
When the tag is not removed after paying, and the client exits, the RFID reader ✓, placed at the exit, reads the data using radio waves which can set off an alarm ✓
70. Near-Field Communication (NFC) and Radio Frequency Identification (RFID) are two technologies that contain data.
a. Describe two similarities between NFC and RFID? (2)
Both use RFID technology ✓
Both process data or information from another NFC or RFID tag ✓
b. What is the difference between NFC and RFID? (any two ✓✓) (2)
Range – NFC requires devices to touch or be in very close range (<10 cm)
RFID requires tag (passive or active), antenna and RFID reader
NFC requires smart tags/chips in both devices
RFID is one-way communication – data flows from tag to reader
NFC can be set up for one or two-way communication (NFC device such as a smartphone functions both as a reader and a tag or transmitter) - both must be NFC enabled
71. Describe the two components used with RFID technology (4)
The RFID tag ✓ – contains a memory chip ✓ and antenna that contains the information to be transmitted via radio waves
RFID reader ✓ (transceiver), through an antenna detects and reads/pulls the information from the tag and transfers the information to a computing device ✓

Level 3

72. For each of the following, choose the item in the list that does not logically belong in the list and explain why it does not belong:

- a. Hard disc, Optical disc, RAM, SSD, USB Flash Drive, Memory card (2)
RAM ✓ – primary memory whilst others are storage ✓
- b. Touch screen, digital camera, flash drive, keyboard, webcam (2)
Keyboard ✓ – input only ✓
- c. Smart watch, mobile phone, desktop computer, microwave oven, GPS device (2)
Desktop computer ✓ – not embedded device whilst others are embedded devices ✓
- d. Tablet, laptop computer, desktop computer, hybrid/convertible computer (2)
Tablet ✓ – embedded device whilst other are not ✓ OR
Desktop computer ✓ – not portable whilst others are portable ✓
- e. SSD, memory card, hard disk, USB flash drive (2)
Hard disk ✓ – magnetic storage whilst others use flash technology ✓
- f. Scanner, keyboard, , printer, mouse, microphone (2)
Printer ✓ – output only whilst other are either I/O or input ✓

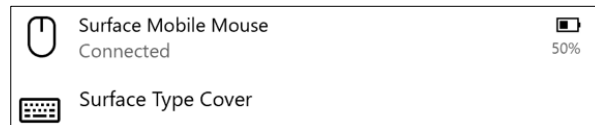
73. You have a printer connected to your computer via a USB port. You want to print but nothing happens. Suggest some actions that you could take to establish the problem. (3)

Check if USB cable is well connected ✓

Check if correct printer is selected ✓

Plug printer into another USB port to check if port is working ✓ (or any other suitable actions)

74. A computer shows the following information about the installed mouse and keyboard:



- a. Is the mouse a wired or wireless mouse? Explain your answer. (2)
Wireless ✓ – uses battery ✓ /indicated as mobile
- b. The keyboard is indicated as a Type Cover. What is a Type Cover? (1)
A keyboard that can be attached/detached to/from the device ✓
- c. What type of computer is suggested by the above information? Explain your answer. (2)
Hybrid/convertible computer ✓ - the keyboard can be detached to use as tablet ✓

75. You need to log onto your computer. When you enter your username and password, an error message appears stating that your username or password is incorrect. What are your next steps to solve the problem? (3)

Check username ✓

Check if CAPS lock is not on ✓




Re-type password carefully ✓

Check if password has expired ✓ (any three suitable actions)

76. You and your friend must complete an assignment that must be handed in the next day. As your friend does not have a computer and will be going to his/her home after school, taking your laptop and staying the night so the two of you could complete the assignment. When you arrive at your friend's home (which is very far away from your own home), you realised that you forgot the laptop's charger at home. Fortunately, the battery is half full. What steps/precautions would you take to ensure that you will be able to finish your assignment before the battery dies. (2)
- Set power settings to power can be saved ✓
 - Ensure that battery saver option is turned on ✓
 - Do not connect to Internet unnecessary ✓
 - Do not use unnecessary, e.g. playing games ✓ (any two suitable actions)
77. Your uncle has given you a monitor for your computer. When you attempt to connect it, you notice that it requires a VGA port whilst your computer only has a HDMI port. How can you solve the problem? (1)
- Find an adaptor that can convert HDMI to VGA ✓

78. Drag and drop the following pictures of computing devices into the block that **best** describes the device in the picture

(5)

<p>Multi-purpose device</p>	
<p>Mobile device</p>	
<p>Embedded device</p>	
<p>Wearable device</p>	
<p>Mobile embedded device</p>	
<p>Dedicated device</p>	

Note: Printer and digital camera may be switched around

79. Your friend got a motorbike for his birthday and is starting a delivery service using his motorbike. He needs a computing device that will be able to, among others, do the following:

- i. Enter and save the client's details
- ii. Take a photo to confirm delivery
- iii. Use an application that will direct him to the place of delivery
- iv. Use the device for school purposes as well because he has no money to buy two devices.

Suggest a suitable computing device and motivate your suggestion.

(3)

A tablet ✓

Can be used as to take photos, use google maps/download GPS app, use software applications such as word processor or spreadsheet to enter and store client details as well as to use for school

purposes

✓✓ for suitable, complete motivation

80. Your friend bought a small hybrid computer and a Wi-Fi mouse to use with it. The device has only one USB port. When he/she wants to access information on a USB flash drive, he/she ran into trouble. Suggest two solutions to solve the problem. (2)

Get a Bluetooth mouse ✓

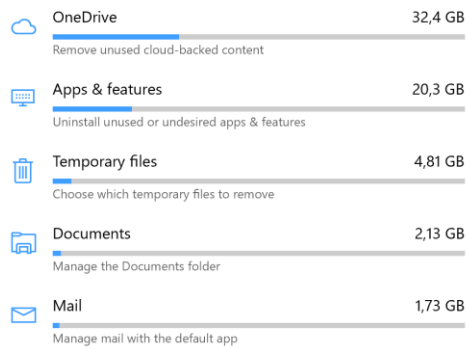
Get a docking device or multiple port USB device ✓

Unplug Wi-Fi dongle and use touch pad or touch screen instead of mouse ✓ (any two suitable actions)

81. Your friend shows you the following screen capture from her system's storage capacity. Her computer has a 256 GB SSD. Study the information provided and answer the questions that follow:
Local Disk (C:) - 238 GB



This is how your storage is used and how you can free up space.



- a. How much space (GB) does the disk have in total? (1)
256 GB ✓
- b. Your friend has a 1 TB SSD. How much GB is one TB? (1)
1024 GB (±1000 GB) ✓
- c. How much space is used by user data? (1)
61,37 GB ✓
- d. Estimate how much space is used in total (1)
±100 GB (read from bar/graph)
- e. The local disk indicates 238 GB instead of 256 GB. Explain why. (1)
SSD technology uses about 7% of storage space as reserved space for 'over provisioning' ✓ to ensure superior performance and endurance
82. Your computer does not synchronise with Bluetooth devices. What are your next steps? (2)
Verify the Bluetooth device is turned on ✓
Verify the Bluetooth functionality on your computer is enabled ✓
Verify the computer or device has been paired properly ✓
Make sure the Bluetooth device is charged ✓ (any two suitable actions)

83. Read the following, watch the videos and answer the questions that follow:



As creepy as it sounds, webcam hacking is a real danger, and peeping Toms could be watching your every move, in the privacy of your own home. ... Your webcam, smartphone camera, and home surveillance system can all be used to spy on you

<https://youtu.be/muZpR2qjwAQ>

- a. Provide some simple suggestions to prevent possible webcam spying (1)
Stick a piece of paper on top of the 'eye' ✓
- b. Discuss: How acceptable it is to use built-in webcams and microphones to monitor online exams? **Open-ended – provide marks for reasoning**