



Province of the
EASTERN CAPE
 EDUCATION

DIRECTORATE SENIOR CURRICULUM MANAGEMENT (SEN-FET)
HOME SCHOOLING SELF-STUDY WORKSHEET SOFTWARE

SUBJECT	COMPUTER APPLICATIONS TECHNOLOGY	GRADE	10	DATE	Term 1 to 4
TOPIC	(Networks, Internet and World Wide Web (WWW)) (Provided by DBE)	TERM 1 to 4 REVISION	✓ All software Gr 10		
TIME ALLOCATION	5 HOURS	<u>TIPS TO KEEP HEALTHY</u>			
INSTRUCTIONS	<ol style="list-style-type: none"> This is a Theory Worksheet: You will need a book to write your answers in and something to write with. Answer the following questions in your workbook. WHERE TO FIND THE ANSWERS: <ul style="list-style-type: none"> USE THE POWER POINT PROVIDED ALSO AVAILABLE ON OUR WEBSITE – GR 10 https://drive.google.com/file/d/1DGV0hX57TMpFJyJFmNW_a_ijaJ5rpACR/view?usp=sharing You may use your CAT textbook to find the answers or alternatively, you can use the free downloadable CAT textbook provided by the Department of Basic Education. See the link below to download this FROM OUR provincial CAT and IT website. THEORY COMPUTER APPLICATIONS TECHNOLOGY: https://sites.google.com/view/itandcatinec/cat-grade-10?authuser=0 	<ol style="list-style-type: none"> WASH YOUR HANDS thoroughly with soap and water for at least 20 seconds. Alternatively, use hand sanitizer with an alcohol content of at least 60%. PRACTICE SOCIAL DISTANCING – keep a distance of 1m away from other people. PRACTISE GOOD RESPIRATORY HYGIENE: cough or sneeze into your elbow or tissue and dispose of the tissue immediately after use. TRY NOT TO TOUCH YOUR FACE. The virus can be transferred from your hands to your nose, mouth and eyes. It can then enter your body and make you sick. STAY AT HOME. 			

Level 1 – Getting the basics → testing your knowledge

1. What is a network? (4)
2. What is the function of a network? (3)
3. What is a
 - a. personal area network (PAN) (3)
 - b. home area network (HAN)
 - c. Body area network (BAN) (3)
4. What is a network interface card (NIC)? (4)
5. What is the function of a
 - a. Modem? (3)
 - b. Switch? (2)
 - c. Router? (2)
6. What is media in the context of a network? (3)
7. List the two main types of network media (2)
8. What is a wireless access point (WAP)? (4)
9. What is the Internet? (3)
10. What is the World Wide Web (WWW)? (3)
11. List four services that the Internet offers (4)
12. What is an Internet Service Provider (ISP)? (3)
13. What are the following used for:
 - a. Search engine (3)
 - b. Browser (3)
 - c. Web server (5)
14. What is an IP-address? (1)
15. What is a hot spot? (2)
16. What is a firewall? (3)
17. What is digital communication? (3)
18. What is
 - a. Wi-Fi (3)
 - b. Bluetooth (4)
 - c. Cellular (3)
19. What is the function of a firewall? (3)
20. Name three cybercrimes (3)
21. In the context of the Internet, what is uploading and downloading? (2)
22. What is a
 - a. Website (4)
 - b. Webpage (2)
 - c. URL (3)
 - d. Hyperlink (2)
23. State whether the following statements are true or false
 - a. A wireless router is a device that performs the functions of a router as well as a wireless access point (1)
 - b. Some routers can perform the functions of a router and a modem (1)
 - c. The terms web and internet are interchangeable (1)

- d. A domain name is a text-based name that corresponds to the IP-address of the server that hosts a website (1)
- e. All webpages from a website have the same URL (1)
- f. A search engine delivers a webpage to your computer (1)
24. Provide one word/term/concept for each of the following descriptions
- Software used to access websites and web pages and that interprets HTML code and allows you to see HTML document as an electronic, readable document (1)
 - Hardware that allows a computer to connect to a network via a port (1)
 - A web address that is unique to each resource on the web (1)
 - Hardware/software combination that protects network resources from outside intruders (1)
 - A computer where files are stored which can be accessed via the internet using HTTP (1)
 - Device that connects to the ISP to provide Internet services to a computer (1)
 - Used with a browser to look for specific information on the web (1)
 - A software service on the Internet that connects that makes it much easier for people to get information, share and communicate (1)
 - A group of two or more connected computers or devices connected to a central communication device that are confined to a small geographical such as a small office or home (1)
 - Any criminal activity that involves a computer, networked device or a network (1)
 - Digital communication protocol that defines how a network uses radio signals to communicate with a tag (transponder) placed in or attached to an object, person or animal (1)
 - Digital communication protocol that defines how a network use close-range radio signals to communicate between two devices or objects, e.g. contactless credit card (1)
25. List two physical network transmission media (2)
26. List three wireless network transmission media (2)
27. Backup is regarded as the no 1 security measure for data. What is a backup? (4)
28. Explain what 4G/5G refers to and how it is used to establish internet connection (4)
29. Explain what Wi-Fi refers to and how it is used to establish internet connection (4)
30. Study the following graphics and answer the questions that follow
- What type of device is A (2)
 - What type of transmission media is used between device A and the other devices. Provide the type as well as an example (2)
 - What would the function(s) of device A be? (3)
 - Device A is labelled LTE (4G). Explain what LTE(4G) refers to (3)
 - What would device A require to connect to provide data and connect the Internet (1)
31. To be able to use the Internet, one would need an internet service provider. Describe two roles of the service provider. (3)



Level 2 – Demonstrate your understanding and apply what you have learned

32. What can be shared over network? (3)
33. 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 (2)
- a. Edge, Opera, Google, Chrome, Firefox (2)
 - b. Router, modem, switch, Fibre Optic, NIC, Hub, (2)
 - c. Cellular, Wi-Fi, Fibre optic cable, broadcast radio, satellite (2)
 - d. VoIP, FTP, email, email lists, Plug-in (2)
34. Why would one want to use a network? (5)
35. Explain the relationship between the Internet and the World Wide Web (WWW)? (2)
36. Describe the relationship between a website and a webpage? (4)
37. Why would people want to use the WWW? (2)

38. Study the following graphic of a home network (HAN) and answer the questions that follow:
- a. Why does the HAN use a router and a modem? (4)
 - b. How does the laptop and the tablet communicate with the router?
 - c. When working on the PC, how would one be able to print documents?
 - d. Explain how the network and computing devices could be protected from unauthorised intrusions (4)
 - e. What type of media would connect the modem to the Internet? Provide an example (2)



39. Explain what the minimum requirements would be for a person with a personal computer to access the Internet (3)
40. Most devices and computers today are equipped with Bluetooth. Describe three uses of Bluetooth technology (3)
41. Discuss three advantages of Bluetooth technology (2)
42. Discuss two disadvantages of Bluetooth technology (3)
43. A mobile phone can connect to the Internet via cellular technology or through Wi-Fi. Briefly explain the difference between these two technologies by explaining under which circumstance you will use each of these. (4)
44. Categorise each of the following wireless communications by ticking the description that applies to each (7)

Wireless Communication	Radio signals	Cellular radio	High-speed connection	Short range	Medium range	Long range	Hot spot tech
Wi-Fi							
Bluetooth							
Cellular							

45. Describe a simple, wireless way for one computer to connect to the Internet (3)
46. Why would you want to connect to a wireless network on your smartphone instead of using your mobile data plan? (3)

47. What other items, besides webpages, can a search engine find on the web? Name two (2)
48. Explain how the use of a HAN could benefit a family (3)
49. Provide the search text that you will use in a search engine to find the admission criteria for your school (2)
50. Study the following advertisement and answer the questions that follow:



Lenovo Ideapad Convertible Touch 4G
 + Huawei R218h Mobile Wi-Fi Router 150Mbps
 10GB Data

Device Features:

- Intel® Core i3 Processor
- 4GB Ram, 256GB Solid State Drive
- WiFi - Bluetooth - Web Cam - Lenovo Active Pen 2
- Windows 10 - 14" HD Screen

More Data
 10GB 5GB Data PM (Anytime) + 5GB Night Owl (12am-5am)

- a. How much primary memory does the computer have? (1)
- b. What is the size of the local disk? (1)
- c. What type of computer is advertised? Motivate your answer (2)
- d. What input device is shown in the picture and what is the function of this input device (3)
- e. List two forms of output identifiable in the advertisement (2)
- f. The computer device comes with a Wi-Fi router. Explain how the Wi-Fi router is used in this context. (4)
- g. Besides Wi-Fi, what other network protocol is mentioned in the advertisement. What for and how would one be able to use it? (4)
51. You have a Wi-Fi network and a data plan allowing unlimited data at home. When working at home and you are in range of your Wi-Fi, your computer is connected to your Wi-Fi network. Away from home, you use a wireless modem that plugs into an USB port of your computer. Every time you plug in this wireless USB modem, the following message is displayed:

Download over metered connections

To help prevent extra charges, keep this off so device software (drivers, info, and apps) for new devices won't download while you're on metered Internet connections.

Explain the message in the context of the situation described above Move to L2. (2)

Level 3 – Are you ready to analyse, evaluate, think critically and solve problems?

52. Study the following graphic of a home network (HAN) and answer the questions that follow:

- a. If the network's internet connection is interrupted (e.g. loadshedding), which device will still be able to access the Internet. Motivate your answer. (3)



53. Cyberthieves can steal your Wireless HAN's data.

- a. Describe ways in which they can steal the data (1)
- b. Suggest one way to improve the HAN's security (1)

54. Connecting wirelessly to a public hot spot at a coffee shop can be convenient and practical, but also risky. Provide two guidelines to follow to lower risks (2)

55. Bluebugging occurs when cybercriminals exploit Bluetooth devices that have been paired. Suggest two actions to prevent Bluebugging. (2)

56. Study the data plans that provides Internet access using an ISP and answer the questions that follow

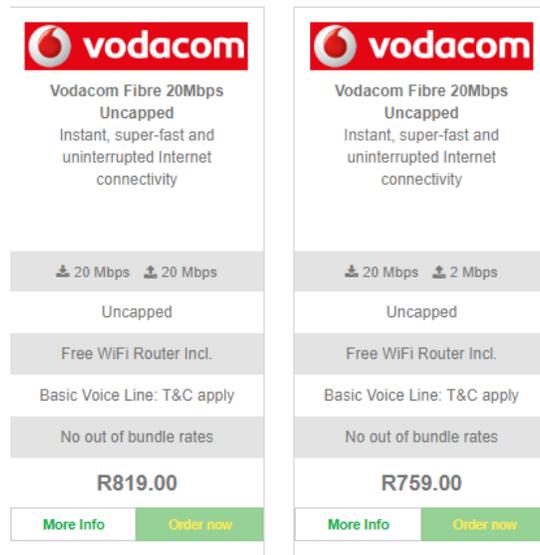
Advert A	
	<p>Hisense H218 Black Box Router 150Mbps 4G or Huawei R219h Mobile Wi-Fi Router 150Mbps Connects up to 10 devices 40GB Data 20GB Data PM (Anytime) + 20GB Night Owl (12am-5am)</p> <hr/> <p>Device Features:</p> <ul style="list-style-type: none"> • LTE Cat4 • Windows, Linux, .MAC • 2300mAh • Connect up to 10 Devices <p style="text-align: center;">Huawei R219 Mobile Wi-Fi Router 150 Mps</p> <ul style="list-style-type: none"> • Connect up to 10 Users • 2000 mAh Battery • DL/UL: 150/50Mbps <hr/> <p style="text-align: center;">R289 PMx24</p>
Advert B	

<p>Fibre to the Home</p>  <p>Frogfoot <small>Just connect</small></p> <p>20Mbps Download speed</p> <p>&</p> <p>20Mbps Upload speed</p> <p>Uncapped</p> <p>R 819.00 PM</p> <p>Free Installation + No Activation Charge + Vodafone Router Included</p>	<p> 20Mbps Download Speed</p> <hr/> <p> 20Mbps Upload Speed</p> <hr/> <p> Uncapped</p> <hr/> <p> Router included</p>
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Advert C

	<p>Nokia FastMile 5G Gateway 1 Router 300Gbps <small>5G</small></p> <p>Connects up to 64 devices</p> <p>200GB Data 100GB Data PM (Anytime) + 100GB Night Owl (12am-5am)</p> <p>Device Features:</p> <ul style="list-style-type: none"> • Fully self-contained, full featured indoor residential gateway • Carrier aggregation across supported 4G/5G bands • 5G New Radio (NR) WAN connection with 11 dBi high gain antenna • Wi-Fi (3x3 802.11b/g/n, 4x4 802.11ac MU-MIMO) LAN <p> More Data</p> <hr/> <p>R699 <small>PMx36</small></p>
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- a. Explain the difference between the router in Advert A and the router in Advert B? (8)
- b. What additional device may one require for Advert B, if one wants to connect to the Internet? Explain your answer. (2)
- c. The company explained that they will install one device and that no additional hardware will be required. Why not? Motivate your answer (2)
- d. Why can the router in Advert C connect up to 64 devices as opposed to the one in Advert A that can only connect up to 10 devices (6)
- e. Advert C states 200 GB data. What will happen if your data usage exceeds 200 GB? (2)
- f. Advert A refers to 4G and advert C refers to 5G. What is the difference? (3)
- g. Explain the difference between download and upload as indicated in Advert B (2)
- h. Study the two advertisements below. Why is the one more expensive than the other one? (1)



The following activity can be used for extension and can be combined with spreadsheet content:

57. You want to sign up for Internet access using a plan provided by an internet service provider (ISP). To choose a plan, you need to understand what your data needs are. The following table provide approximate data usage for various activities. Study the table and answer the questions that follow:

Activity	Quantity	Approx. data usage
Send and receive email messages (with no attachments)	100 messages	3-6 MB
Post on online social networks (text only)	100 posts	25-50 MB
Upload or download photos	50 photos	50 MB
Send and receive email messages (with attachments)	100 messages	0,75-1 GB
Visit webpages	200 visits	1 GB
Talk with others using VoIP (without video)	1 hour	1,25 GB
Listen to streaming music	1 hour	1-2 GB
Play online games	1 hour	1,75 GB
Watch smaller, standard-quality streaming video	1 hour	2-5 GB
Download apps, games, music, e-books	25 downloads	3 GB
Talk with others using VoIP (with video)	1 hour	5-7,5 GB
Watch HD streaming video	1 hour	5-20 GB

You analysed your monthly usage as indicated below:

Activity	Quantity
Send and receive email messages (with no attachments)	200 messages
Post on online social networks (text only)	100 posts
Upload or download photos	75 photos
Send and receive email messages (with attachments)	150 messages
Visit webpages	300 visits
Talk with others using VoIP (without video)	12 hours
Listen to streaming music	30 hours
Play online games	20 hours

Watch smaller, standard-quality streaming video	5 hours
Download apps, games, music, e-books	30 downloads
Talk with others using VoIP (with video)	20 hours
Watch HD streaming video	4 hours

- a. How much data will you use if your online activities are limited to email usage and visiting websites only.
- b. Use a **spreadsheet** to calculate the amount of data you are likely to use in 1 month (30 days). The answer must be rounded to the nearest GB
- c. Based on your online activities and your data needs, the sales agent recommends Plan C. However, you find it too expensive. Suggest activities that you can cut down on to save data so that you can buy a cheaper plan. Motivate your suggestions.
- d. Use the advert provided below and choose an Internet plan that will suit your needs. Motivate your answer.
- e. Explain why 100 email messages with attachments consume more data than email messages without attachments
- f. Why did the sales agent initially suggest a plan with a 40 MB line?
- g. Cutting on the activities you listed, would a 20 MB line be sufficient?