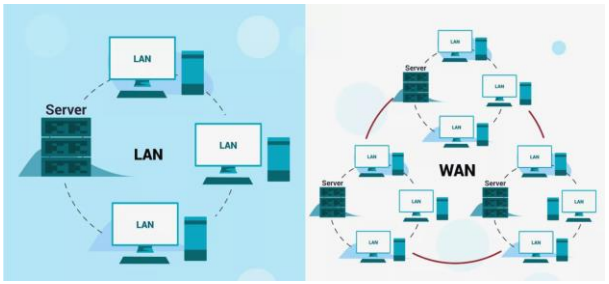
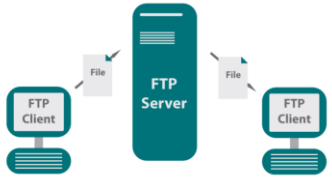
<table>
<tr><td>SUBJECT and GRADE</td><td colspan="2">CAT Grade 12</td></tr>
<tr><td>TERM 2</td><td colspan="2">Week 1</td></tr>
<tr><td>TOPIC</td><td colspan="2">Network technologies</td></tr>
<tr><td>AIMS OF LESSON</td><td colspan="2">Understanding Wide Area Networks and the Internet as an example</td></tr>
<tr><td rowspan="2">RESOURCES
(Indicate what will be used in the lesson e.g. textbook, Mind the Gap, etc)</td><td>Paper based resources</td><td>Digital resources</td></tr>
<tr><td>DBE Gr 12 Theory online textbook (page numbers in this document refers to this book)
Any other applicable and approved text book used in schools</td><td>YouTube video
Network types:
https://www.youtube.com/watch?v=4_zSIXb7tLQ
How does the Internet work?
https://www.youtube.com/watch?v=7_LPdttKXPc
https://www.youtube.com/watch?v=x3c1ih2NJEg</td></tr>
<tr><td>INTRODUCTION</td><td colspan="2">• Gr 11: LAN, WLAN, basic components of a network, Wired vs wireless, Intranet, basic security, Internet, WWW and communications, portable vs mobile, cellular data, browser, email, data, websites
• Gr 10: what is a network, aims of objectives of networks, advantages, disadvantages, Internet as an example, PAN/ HAN, modem, router, switch, communication, ISP</td></tr>
<tr><td rowspan="3">CONCEPTS AND SKILLS</td><td rowspan="3">Refer to the pages between brackets and read those pages attentively:
• Wide area networks (WAN)
○ Definition, purpose and role
○ Internet as example (pg. 96)
• Internet services (pg. 100)
(uses/purpose, advantages, disadvantages, limitations, examples)
• Real-time messaging - instant messaging and chat</td><td>CAN YOU?</td></tr>
<tr><td>Do the following exercises from the DBE text book after you have studied the pages as indicated in the column on the left:
Activity 4.1, pg. 98
Activity 4.2, pg. 109
Activity 4.3, pg. 113
Revision activity, pg. 114</td></tr>
<tr><td>Study the pictures below after you have completed the exercises above. Answer the questions next to each picture:</td></tr>
</table>

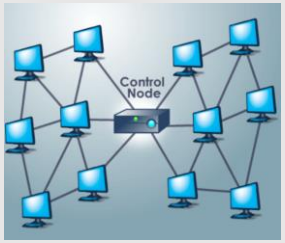
	• *Voice over Internet Protocol (VoIP)* • *File Transfer Protocol (FTP)* • *File sharing* • Concept *of grid computing and cloud* ***computing (pg. 103)*** • Government *Internet services and information such as tax return, TV licence payment and election information* ***(pg. 107)*** • *Make buying and informed decisions regarding Internet connection and access* ***(pg. 110)*** • *Modem/router, types of connections, e.g. ADSL, wireless technologies, including their advantages, disadvantages and limitations* • *ISP, Internet services* • *Consideration of access points, coverage (wireless)* • *Data transmission speed - measured in kilobits per second(kbps) and megabits per second (mbps)* • *CAP, bundle* • *Concept of broadband and bandwidth*	 https://www.lifewire.com/	Explain the difference between a LAN and a WAN.
		 https://getvoip.com/	What is the difference between a landline telephone and VoIP?
		 https://www.brosix.com/	What is IM? Write down three applications you have used in this regard.
		 https://blog.ipswitch.com/	Explain what File Transfer Protocol entails.

	• *Downloading/uploading*	https://legacytips.com/free-file-sharing-sites/	Write down an example of where file sharing could be used.

Name the terminology/ concept each of these pictures refer to and then write down a definition of each term/ concept.

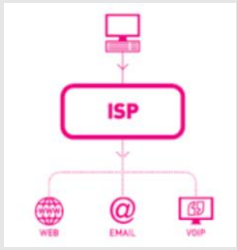
https://www.fastmetrics.com/

https://computer.howstuffworks.com/

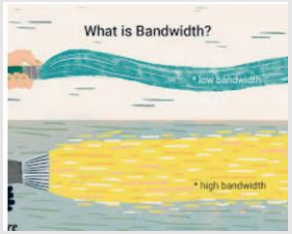


https://www.incredible.co.za

http://iwebz.co.za/



https://www.lifewire.com/



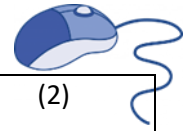
https://www.wifiattendance.com/

https://www.itweb.co.za/

https://www.gogetorganised.co.uk/

https://www.dreamstime.com/

ACTIVITIES/ASSESSMEN / CONSOLIDATION	***Answer the following questions to concolidate the work you have studied in this chapter. Make sure you know the definition of the concepts in bold:***
	Also use the glossary at the end of the book (pg 221).
	1. Give TWO reasons for connecting computers in a **network**. (2)
	2. Which communications technology or **protocol** allows devices to connect within a **WLAN**? (1)
	3. What is the purpose of an **ADSL router**? (1)
	4. State TWO ways in which a user can convey emotions in an **IM** (**instant messaging**). (2)
	5. What are **FTP servers** and services used for? (1)
	6. Which **hardware** or **software technology** is often used to control and monitor access between a **network** and the **Internet**? (1)
	7. Name the device that connects a **LAN** to the Internet. (1)
	8. Why would a **10 Mbps ADSL line** be unsuitable for someone who needs an upload **bandwidth** of 10 Mbps? (2)
	9. How is the **Internet** different from the **World Wide Web**? (1)
	10. Name a device that connects a **LAN** to a **WAN**. (1)
	11. Give TWO reasons why a school may not want to use **cloud storage** for storing large volumes of data. (2)
	12. What is the function of a **network switch**? (1)
	13. User access rights can limit what a user can do on a network. Give TWO examples of **access rights** that restrict a user on a **network**. (2)
	14.1 Give an example of a program that supports **VoIP**, other than **Skype**. (1)
	14.2 Why is it not recommended to use **VoIP** for emergency calls? (1)
	14.3 Why would a user reduce the quality of **VoIP** calls? (1)
	15. How would one use a **mobile device** to check if a **hotspot** is available? (1)
	16. How can one prevent a **keylogger** from sending information back to the **hacker**? (2)
	17. What **network communications protocol** makes voice calling in many **IM** apps possible? (1)
	18. Give TWO reasons why it is necessary to limit the access rights of users on a **LAN**. (2)
	19. State TWO factors that should be carefully considered when choosing an **ISP (internet service provider)**, other than cost. (2)



	20 Give TWO limitations of using an **ADSL connection**. (2) 21 Name TWO **technologies/protocols** that use **encryption** to secure communication over a **wide-area network**. (2) 22 What are the advantages of a **wireless LAN** over a **wired LAN**? (2) 23. Explain why large videos **stream** slowly during office hours, but the same videos will stream faster late at night, even though you use the same computer and the same internet connection. E-mail and file downloads, however, are equally fast during the day or night. (3) 24. You use your **smartphone** only for **instant messaging** and cellphone calls. The monthly **data cap** of 5 GB on your smartphone has been used up before the end of the month. Give TWO possible reasons why the data cap did not last the whole month. (2) 25. State TWO **netiquette** rules for a group **chat** on **social media**. (2)
VALUES	*Draw learners' attention to values relevant to the topic* *Link topic or concepts/skills to real life scenarios*

(Lesson compiled by: Ms E Goosen (CAT Subject Adviser – West Coast ED)