

SUMMARIES OF VIDEOS

GRADE 10 - 12

NETWORK TECHNOLOGIES

<p>1.</p>	<p>Grade 10: Network Technologies I</p> <p>A network is a system of two or more computers or other devices connected together via a communication channel so that the devices can communicate and exchange data. There are two basic types of networks; local area network (LAN) and wireless local area network (WLAN).</p> <p>A LAN covers a small area. It is often within a room or a building, but can also stretch over a site like a school or a campus. All devices in a LAN are connected using a cable. A WLAN covers the same area as a LAN but connects devices wirelessly.</p> <p>A network is used to share data and resources. They provide connection between computing devices. They create a safe working environment to store and retrieve data. Networks also allow sharing of useful devices like printers.</p> <p>The basic components of a network include:</p> <ul style="list-style-type: none"> • Workstations • Servers • Communication medium (cables/wireless) • Network interface card • Network devices • Network software 														
<p>2.</p>	<p>Grade 11: Network Technologies II</p> <p>A network is a system of two or more computers or other devices connected together via a communication channel so that the devices can communicate and exchange data. There are two basic types of networks; local area network (LAN) and wireless local area network (WLAN).</p> <p>A comparison of LAN and WLAN:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">LAN</th> <th style="text-align: left;">WLAN</th> </tr> </thead> <tbody> <tr> <td>Easy to install</td> <td>More complicated</td> </tr> <tr> <td>Better security</td> <td>Can be less secure</td> </tr> <tr> <td>Reliable connections</td> <td>Connections can sometimes be lost</td> </tr> <tr> <td>Speed depends on cable type</td> <td>Speed depends on the network traffic</td> </tr> <tr> <td>Cheaper to install</td> <td>More expensive to install</td> </tr> <tr> <td>Need a physical connection point where you want to connect to a device to the network.</td> <td>Can connect the device anywhere within range (no physical connection)</td> </tr> </tbody> </table> <p>An intranet is a private network that uses the same components and software as the Internet. It is usually found within an organisation and is only available to employees. An intranet can create forums that can be used as a platform for discussions between employees. It gives access to internal email and employees can collaborate on one project using shared files. It is also time and cost effective.</p>	LAN	WLAN	Easy to install	More complicated	Better security	Can be less secure	Reliable connections	Connections can sometimes be lost	Speed depends on cable type	Speed depends on the network traffic	Cheaper to install	More expensive to install	Need a physical connection point where you want to connect to a device to the network.	Can connect the device anywhere within range (no physical connection)
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	<p>The networks and the information on them is private and belongs to an individual or a company. There is a need to keep the data secure. This can be done by controlling access for users through usernames and passwords. Servers should also be kept locked in separate rooms. The security rights should always be updated and there should be a firewall.</p>								
3.	<p>Grade 12: Network Technologies III</p> <p>A Wide Area Network or WAN is a wide network of computers that is spread over a large geographical areas such as cities, countries and continents. There are many communication media to connect a WAN together. These include cables, satellite, radio wave and microwave.</p> <p>A WAN is helpful in facilitating communication between users over large distances. It provides a centralised data source and connects LANs together. Examples of these are bank networks and the Internet which can also be referred to as a Global Area Network or GAN.</p> <p>The Internet is a worldwide computer network that consists of computers and networks that are linked using phone lines, satellite, microwave and undersea cables in order to communicate and share resources.</p> <p>Technology has had a great influence on how we communicate, bank, shop and interact with each other. Distance is no longer a hurdle in communication.</p> <p>Grid computer is where the resources of a large number of computers are shared and used at the same time to solve a single problem. It is used for scientific applications that require large amounts of data or high processing power. For example, a scientist analysing data or a financial analyst forecasting the growth of a particular stock.</p> <p>The advantages and disadvantages of grid computing:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Advantages</th> <th style="width: 50%;">Disadvantages</th> </tr> </thead> <tbody> <tr> <td>Cost-effective solution to use many resources</td> <td>Must have a fast network connection between computers and networks for the processing power to be effective.</td> </tr> <tr> <td>Method to solve problems that need an enormous amount of processing power.</td> <td>The computers may not be fast enough.</td> </tr> <tr> <td>Saves money and resources by using the power of 'idle' computers.</td> <td>Computers may be infected by Malware.</td> </tr> </tbody> </table> <p>There are many services offered by the government on the internet:</p> <ul style="list-style-type: none"> • TV license renewal • Post box renewal • Election information can be accessed online and via SMS • Up-to-date information ca forms can be accessed • UIF and Tax details can be added and updated and payments can be captured online. • Educational publications, guidelines and past papers can be accessed and downloaded from the GDE's website. <p>The advantages of these services offered online are:</p>	Advantages	Disadvantages	Cost-effective solution to use many resources	Must have a fast network connection between computers and networks for the processing power to be effective.	Method to solve problems that need an enormous amount of processing power.	The computers may not be fast enough.	Saves money and resources by using the power of 'idle' computers.	Computers may be infected by Malware.
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	<ul style="list-style-type: none"> • Improved communication between government departments and citizens • Access to services possible whenever you have Internet access • No queues or long distance travelling • Immediate feedback – e.g. receipt when you file your tax return • Up-to-date info is accessible • Sites can be accessed with smart phones • Promotes green computing <p>The disadvantages include:</p> <ul style="list-style-type: none"> • Not everyone has Internet access • Initial cost to the government is expensive • People are nervous about online threats and privacy concerns • If system is down – services are not accessible • Many people prefer to deal face to face with people <p>There are 2 types of internet connection:</p> <ul style="list-style-type: none"> • Cabled (like ADSL and dial-up connections) • Wireless connections (like 3G and satellite) <p>ADSL is the most common wired solution and is suitable for home and business use. It is a permanent digital connection to the Internet that works through a fixed landline. You are able to make a receive calls while online and this is generally less expensive than a wireless connection. However, ADSL is not always available in all areas and your data speed is limited by your physical location.</p> <p>A modem is a device used to connect a computer to the Internet via a telephone line. A router is a device used to connect two networks together. It can also perform some network management tasks such as deciding where data packets should go. An ADSL modem router is the two devices combined. It is basically a normal router with an ADSL modem built into the device.</p> <p>Broadband refers to a high-speed, high-bandwidth connection to the Internet. Bandwidth refers to the total amount of data that can be transferred from one point to another in a given time period.</p> <p>There are two basic types of wireless technologies, cellular technology like 3G, and dedicated WiFi technology like iBurst or Neotel. Cellular technology allows you to have mobile access to the Internet wherever there is a mobile connection, anywhere in the world. This kind of connection is more expensive per megabyte than cabled access. A dedicated WiFi technology requires you to use a specific router, and the coverage is not as extensive as a cellular connection.</p> <p>WiFi is a way of connecting to an existing Internet connection wirelessly. Multiple devices can connect to a single WiFi access point. It provides faster data transfer at a lower cost than accessing the Internet via a 3G connection. Many mobile devices are able to remember WiFi hotspots they've previously connected to and will automatically connect to them again when in range.</p>
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Note: there are no interactive multimedia lessons and no How To's for Network Technologies.