WOODFORD SCHOOL
LUSAKA

COVID–19 Response

A Guide to Connecting Your Home to the Internet

1. **Introduction**

Among the many things that COVID-19 has changed in our lives over the past few months is the way that we connect with the outside world and how we carry out everyday activities and aspects of life.

While some may have already been tech-savvy and were able to adapt smoothly to the new situation, the majority of us had to learn a lot about how to use modern technology for our work, our worship, our entertainment, our communication and socialising and indeed, our children's education.

Much of the new way of life requires us to be connected to the Internet in some form or other. With physical distancing meaning that we spend more of our time in our homes, it is crucial for us to consider how our residences are hooked to the resources we need for modern living.

In this guide, we provide you pointers on how to get your home connected to the Internet. We introduce the various options and methods for internet connections and we hope to provide you some help in making an informed choice depending on your family's needs and requirements.

2. Some Basics

Wi-Fi (short for "Wireless Fidelity") is a wireless networking technology that allows devices such as computers (laptops and desktops), mobile devices (smart phones, tablets and wearables), and other equipment (smart TV's, printers and video cameras) to interface with the Internet. It allows these devices (and many more) to connect to each other, by creating a network without cables.

It's separate from the Internet, which is the international network of computers, data centres and servers used for communication around the globe. To get to the Internet, you need to connect to an Internet source, such as a broadband modem.

A modem is a device that translates Internet signal from a service provider to a local network. As you will see below, even a smartphone can be used to act as a modem. Once the internet signal is received in a home or business premises through a modem, it can then be distributed through a router. This is a device that acts as a gateway to direct the signal to all the devices on a local network as needed (either through cables or wirelessly). Many modern routers include an integrated modem as a single hardware unit.

Broadband is a general term with a range of definitions, but in this context, we are referring high speed internet and the ability to connect multiple devices instantly.

3. Types of Internet Connections

Families in Lusaka can use any of the following options to get connected:

a	**Mobile Hotspot or Tethering** 	***What it means*** Using 3G or 4G cellular data through your smartphone to create a local Wi-Fi network that you can then connect other devices to. • Requires a mobile smartphone or other device that takes a sim card and that has the capacity to create a 'hotspot' or be tethered to a computer • Data is normally purchased in "Bundles" which are valid for a certain amount of bytes for a specific period of time • Data can also be subscribed for a specific time period (normally monthly)
b	**Mobile Wi-Fi Modem** 	***What it means*** Using 3G or 4G cellular data through a modem to create a local Wi-Fi network that you can then connect other devices to. • Wi-Fi modems can either be portable or have fixed power connections. They come with sim cards from the cellular provider or internet service provider. • Data is normally purchased in "Bundles" which are valid for a certain amount of bytes for a specific period of time • Data can also be subscribed for a specific time period (normally monthly)
c	**Fibre Cable** 	***What it means*** Connecting via fibre optic cable connection • Internet service providers offer a range of subscription packages • Service package usually comes with a modem/router

4. **Features of the various Internet Connections Options**

PROS		
Mobile Hotspot or Tethering	**Mobile Wi-Fi Modem**	**Fibre Cable**

• Accessible from anywhere within network range
 	
• Uses your current smart device (cellphone/tablet)
 	
• Batteries, when adequately charged, mitigate inconveniences during power outages
	• Mobile Modem (e.g. Mifi)
	  o Portable
	  o Batteries, when adequately charged, mitigate inconveniences during power outages
	
	• Fixed Modem
	  o Can connect devices via cable (more stable)
		• Very high bandwidth speeds are achievable.
		  o Fibre allows far faster connection speeds and carrying capacity than other options

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CONS		
Mobile Hotspot or Tethering	**Mobile or Wi-Fi Router**	**Fibre Cable**
• May not provide as fast internet as other options, especially if your area has Telecom network coverage challenges. • Hotspot networks created by smart devices are not very stable • Drains device batteries fast	• May not provide as fast internet as fibre internet • Replacement of Routers may be costly	• Supply can be interrupted due to cable faults along the network • Fibre cables are not yet available in all parts of the city, and certainly not outside urban areas • Initial installation is technical and can usually subject to small extra charge

5. **How much bandwidth will we need in our home?**

The amount of bandwidth you will require will naturally depend on how many users connect to the internet in a home at any time and what they connect for.

A large and busy household may have multiple online activities going on at the same time and will require enough bandwidth to cope. Among the activities the internet will be used for include:
- one or two parents working from home
- attending online religious services
- children playing online video games
- school or college/university students studying online
- banking and other consumer services
- browsing and researching on websites
- watching video streams (YouTube/Netflix/DSTV Now)
- communicating with family and friends via video conferencing tools (Zoom/MS Teams/Google Meet)

All these online activities require bandwidth to varying degrees. As with all resources, effective use of bandwidth in the home will require a certain level of sharing and moderation. For example, some online bank services are hard to do on the same network that has children playing Fortnite.

For our parents and guardians and their families, the ability to provide bandwidth for their children to take part in our school's Remote Learning Program is an important consideration. As a helpful guide, the estimated requirements of data per learner in a week are tabulated below:

Section	Average Duration of Live Session in Minutes	Estimated Data Usage Per Session	Average Number of Live Session Per day	Number of Live Session Per Week	Estimated Data Per Week
Reception	35	1.4GB	3	15	21GB
Lower Primary	35	1.4GB	3	15	21GB
Upper Primary	40	1.6GB	3	15	24GB

When the above is added to other family, social and entertainment data requirements, it can be seen that though using mobile data bundle packages can be a suitable starter option that is an easy way of introducing Internet into our homes, it can soon become cumbersome and expensive to keep 'refuelling'. This has led many internet users to explore the benefits of subscription services which provide unlimited quantities of data at the chosen bandwidth speed.

6. **Some Internet Connection Options available in Lusaka**