Digital learning in schools

SESSION 2

Getting technical

CLASS NOTES

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Department:
Basic Education
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Via Afrika

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Course content

Digital learning in schools

Session 1: Why eLearning?

Session 2: Getting technical

Session 3: Managing and using ICTs in schools

Session 4: Content and apps for teaching

Session 5: Online assessment tools

Session 6: Games and gamification in education

Digital learning in schools

Session 2: Getting technical

Class Notes

Important information

1. You can download and print the Class Notes for personal use, but you may not share them.

2. Once you have watched all the videos and completed all the quizzes, reflections, tasks and assessments successfully, you can download your certificate and print it.

3. If you wish to earn SACE Professional Development (PD) points for this session, you must complete all the online assessments in the session successfully. Our system will notify us of your success, and we will send the points allocation request to SACE.

4. Please remember that devices and apps are updated all the time, so the device specifications, app features and icons that you see here might differ slightly depending on the device you're using and any subsequent app updates.

Abbreviations and terms

Bloom's Revised Taxonomy: A pedagogical framework for eLearning. [See pedagogy, See eLearning]

eLearning: Learning that is supported by, enhanced by, or facilitated through Information Communication Technologies (ICTs), and that is supported by reconsiderations of content, and a relevant pedagogy. [see ICT]

ICT: Information and communication technologies.

PD Points: Professional Development Points [See SACE]

Pedagogy: The how and why of what we do in the classroom. The method and practice of teaching, especially as an academic subject or theoretical concept.

PedTech: Pedagogical Technology for what happens when we want to use technology in the classroom

RAT: Replace, Amplify, Transform. A pedagogical framework for eLearning. [See pedagogy, See eLearning]

SACE: South African Council for Educators. Awards Continuous Professional Development Points (CPDP) to teachers.

SAMR: Substitution, Augmentation, Modification, Redefinition. A pedagogical framework for eLearning. [See pedagogy, See eLearning]

TPACK: Technological, Pedagogical and Content Knowledge. A pedagogical framework for eLearning. [See pedagogy, See eLearning]

Contents

Outcomes and content

Outcomes of the session

By the end of the session, the participant will be able to:

- appreciate the various specifications of digital devices such as tablets and laptops (Central Processing Units, storage, Random Access Memory, internet connectivity, screen resolution, strength of screen, and ports)
- understand the implications of digital device specifications for use in a classroom
- understand the different digital device operating systems
- know more about different types of software and apps for teaching and learning
- make an informed decision with respect to choosing a digital device for use in a classroom that will meet the learner's and the teacher's individual context and needs

Content of the session

This session will focus on:

- discerning the technical specifications of digital devices, with a focus on:
    - Central Processing Units
    - storage
    - Random Access Memory
    - screen resolution
    - strength of screen
    - internet connectivity
    - types of available ports
- operating systems and apps
- choosing a digital device

Overview

Welcome to **Getting technical**. This is the second session of Via Afrika's **Digital learning in schools Course**. The aim of this session is to give you the understanding necessary to help you make sense of the technical terms associated with digital devices like tablets and laptops and to help you make good decisions when you are buying a new digital device.

Take note!

You will notice that we refer to 'inches' in this session. Inch is indated by the symbol ". Although this is not common practice in most of the world, the technical specifications for devices usually use 'inch' as a measuring unit, because it is used in the USA.

The same goes for the use of the decimal full stop instead of the decimal comma. Although we usually use decimal commas, the technical specifications for devices such as laptops and tablets are usually provided in numbers using the decimal point, for example '1.5 gigabytes'.

Please also note that the technical specifications contained here were accurate at the time of going to print. Technical specifications are subject to rapid change, however. Devices and manufacturers develop new products with new specifications all the time.

You will find a handy guide of technical terms used during this session in the Additional Resources section of these Class Notes.

Inside the digital device

There are, of course, many things inside a digital device, but we will focus only on the key things to which you need to pay attention when you are choosing a digital device.

The Central Processing Unit (CPU)

The CPU is an electronic chip inside the device, and it is often called the processor of the device. It is the brain of your device; it manages and runs the device.

The CPU controls how fast the device can work or, in other words, how much information it can process. This is measured in gigahertz (GHz). CPUs come in different sizes. This is measured in **cores**. There are a variety of different cores available, including single-core (one core), dual-core (two cores), quad-core (four cores) and octa-core (eight cores).

Buying guideline

Processor minimum requirements

- Dual-core processor or higher.
- A speed of 1.5 gigahertz or better.

Note that the higher the specifications (CPU, Random Access Memory, screen quality, etc.) of the device, the more expensive it usually is.

Task

- Examine the digital device that you work with most often, and then answer these questions.
- How many cores does your CPU have?
- What is the speed in gigahertz of your CPU?
- If you were to buy another device now, do you think you would buy one with a similar CPU or one that was quicker or slower?
- Why?

Storage

Drives

All the information on your device is stored on your device's drive or Hard Drive. A laptop or computer will most likely have a Hard Drive with moveable parts, but some laptops and all mobile digital devices like tablets and smartphones have Solid State Drives. A Solid State Drive is often called an SSD. It is predicted that all devices will have SSDs by 2028.

Another type of SSD that we use to transfer smaller amounts of data between devices, is commonly called a Thumb Drive/USB Drive/Flash Drive.

It is also possible to save files in an Online Drive, commonly called Cloud Storage. Examples of this are Microsoft's OneDrive, Apple's iCloud Drive, and Google Drive.

Some mobile devices, for example tablets and smartphones, also offer an SD Card Slot. This can act as an additional drive for storage.

The size of the drive will determine how much data you can store. If you must save lots of video files on your digital device, you need a lot of storage space because those files are big. If you only need to surf the internet, and you don't save any files on your device, you don't need much storage space.

The size of drives is usually indicated in gigabytes (GB), although some devices have more than a terabyte (TB) of storage. A terabyte is 1 024 gigabytes.

Buying guideline

Storage minimum requirements

- Tablet devices: 128 gigabytes.
- Laptops: 256 gigabytes.

RAM

RAM stands for Random Access Memory. RAM is a different kind of memory from that of your device's internal storage. Rather, you could consider RAM as short-term memory.

RAM is measured in gigabytes.

Why is RAM important?

RAM allows you to store and quickly access information. This is useful because it allows open apps to have data immediately available rather than having to read it from the drive.

With higher RAM and a faster CPU, it will be quick and easy to open apps.

You should ensure that a device has enough RAM for your needs

Require lots of RAM	Require less RAM
Videos	Camera
Games	Chat Apps (WhatsApp, Telegram)
Interactive eBooks	PDFs
Productivity Apps (Microsoft Apps, Google Apps)	Surfing the internet

Task

- Identify how much RAM each of the digital devices that you own has.
- If you cannot find the information on the device itself in the About this Device or Control Panel or Settings Sections, look online for your make and model to get the information.

Internet Connectivity

An important aspect to consider when you are choosing among digital devices is **how** you will connect to the internet.

How you connect

Most people are aware of connecting to WiFi, and often think of connecting to the internet as connecting to WiFi. For WiFi to work, though, the internet connectivity must come from somewhere.

In homes, schools, coffee shops and other areas like this, the connectivity to the internet is most likely to come via a wireless router from a fibre line.

You can then connect a computer using a Network Cable from the router into the Ethernet Port on the computer.

If your laptop has WiFi capability, or if you are using a smartphone or tablet device, you will connect to the WiFi hotspot created by the router.

A WiFi hotspot is a limited area around the router where you can connect to the internet from your computer, laptop, tablet, or smartphone – without using wires – as long as your devices are close enough to the router.

The range of your WiFi depends on the transmission power, antenna, and the location of your router. In the image below, the blue circle indicates WiFi reach, and the user would need to bring the mobile phone closer to the router to have an internet connection.
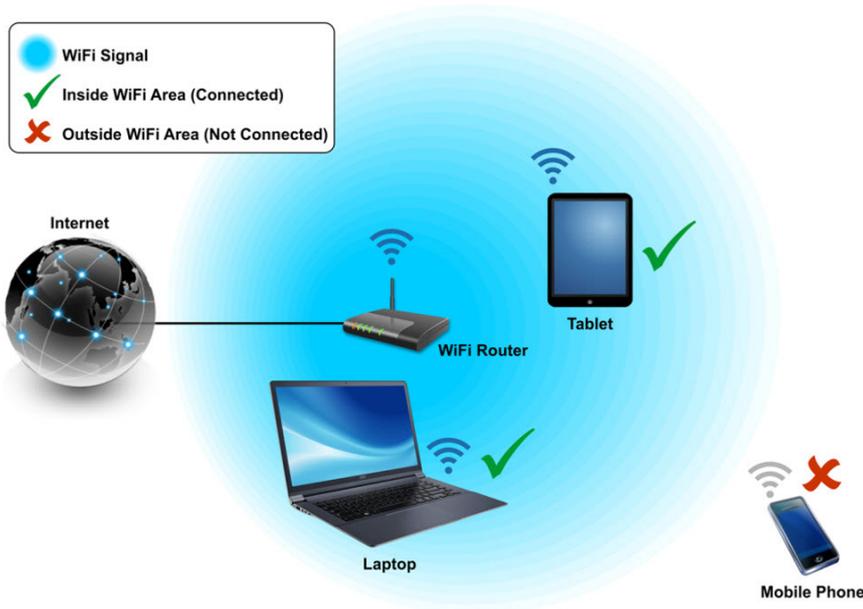
A WiFi connection can be open or locked. If it is open, anyone within range of the router can access the internet and use data. It is better to use a password on your WiFi connection so that you can limit access; this creates a private wireless network.

WiFi vs mobile data

WiFi isn't the only way that you can connect to the internet. When you move out of range of the router, you will lose your connection to the internet. That is why it is good to have mobile data as well.

Mobile data is provided by cell towers. You buy a data package from your service provider for the amount that you prefer, or your digital device might be part of a contract with fixed mobile data per month.

Choosing a device

Devices with WiFi-only connections are usually cheaper than devices with WiFi as well as mobile data capabilities. But if you buy a WiFi-only device, you'll have an internet connection only when you're close to a WiFi router.

If your school doesn't have WiFi, you'll need a device with a mobile connection. Remember, though, that you'll have to pay for data. This might limit the devices you can choose from and will push up the price.

<div>

Buying guideline

Connection costs

- WiFi-only device: Cheaper.
- WiFi device with mobile data capabilities: More expensive.

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Task

- Using what you have learned so far, decide which tablet device, and which laptop you would buy in the following circumstances.
- If you have lots of money.
- If you have a very, very limited budget.
- Do not worry about the actual price, identify the devices purely on what you would expect to pay based on the specifications.
- Write down the reasons for your choices.
- Use the information in the two tables below. You will see the word cellular in this table. This is one way in which mobile data is referred to.

</div>

	Apple iPad (2022)	Lenovo Tab M10 Plus Gen 3	Samsung Galaxy Tab S8	Xiaomi Tab 5
Processor	Six-core 2 x 3.1 GHz & 4 x 1.8 GHz (Apple A14 Bionic)	Eight-core 2 x 2.4 GHz & 6 x 1.8 GHz (Qualcomm Snapdragon 680 4G)	Eight-core 1 x 3 GHz & 3 x 2.5 GHz & 4 x 1.8 GHz (Qualcomm Snapdragon 8 Gen1)	Eight-core 1 x 3 GHz & 3 x 2.5 GHz & 4 x 1.8 GHz (Qualcomm Snapdragon 8 Gen1)
RAM	4 GB	6 GB	8 GB	6 GB
Storage	256 GB	128 GB*	256 GB*	256 GB*
Connectivity	WiFi & Cellular	WiFi & Cellular	WiFi & Cellular	WiFi
OS	iOS16	Android 12	Android 12	Android 11
Screen	10.9" 2 360 x 1 640 px 264 ppi	10.6" 2 000 x 1 200 px 220 ppi	11" 1 600 x 2 560 px 274 ppi	11" 1 600 x 2 560 px 274 ppi

	Acer Aspire 5	Acer Chromebook 15	Dell Inspiron 15 Plus	Microsoft Surface Book 3 15-inch
Processor	Dual-core Intel Core i5-7200U 2.5 GHz	Dual-core Intel Celeron 3205U 1.5 GHz	Quad-core 11th Gen Intel Core i7 3.0 GHz	Quad-core 10th Gen Intel® Core™ i7 1.3 GHz
RAM	8 GB	2 GB	8 GB	16 GB
Storage	256 GB	16 GB	1 TB	256 GB
Connectivity	WiFi/Ethernet Port	WiFi	WiFi/Ethernet Port	WiFi/Ethernet Port
OS	Windows 11	ChromeOS	Windows 11	Windows 11
Screen	15.6" 1 366 x 768 px 100 ppi	15.6" 1 920 x 1 080 px 141 ppi	15.6" 1 920 x 1 080 px 141 ppi	15" 3 240 x 2 160 px 260 ppi

Outside the digital device

All about screens

Digital devices are often used to view multimedia content, so their display quality is important. We judge the quality by examining the screen resolution and the pixel density.

Screen resolution

The screen resolution of a digital device refers to how clear the pictures and text are on the screen. Things on-screen look sharper at higher resolutions.

Screen resolution is measured in **pixels** (px). Pixels are the components of a digital image and are tiny little dots of colour that join closely together to make up the picture.

A screen's resolution is measured by the number of pixels horizontally across the screen, and how many rows of pixels there are vertically down the screen. This is shown as a pair of numbers, for example 1 280 x 800. This means there are 800 rows of pixels, and each row has 1 280 pixels in it, giving us a total of nearly a million pixels.

The more pixels there are, the higher the screen resolution. The fewer pixels there are, the more visible the dots, so the more blurry or grainy the picture will be when you print it or when you zoom in on it.

Pixel density

Pixel density is measured in pixels per inch (ppi). This refers to how many pixels there are on a square inch of a device's screen. The higher the ppi, the sharper the image.

Ppi is different on different devices. For instance, your TV will always have lower ppi than your tablet but that's fine, because you do not sit close to the TV screen. You do sit close to the tablet screen, so you don't want to see dots on your tablet image. Anything above 300 ppi will not make a difference, because that is about the point where human eyes no longer see much difference in the display quality.

Sometimes you'll see the terms HD, Full HD, or Retina Display. These terms mean that the resolution of a tablet screen is high; the pixel count will give a good, clear, crisp picture. HD stands for High Definition. Retina Display is used by Apple to indicate screens that have a high pixel density.

To get good picture quality, good video quality and good gaming experience, you need a screen resolution of 1 280 x 800 or higher, and a pixel count of 200 ppi or higher.

> ### Buying guideline
>
> **Screen resolution minimum requirements**
>
> - Tablet devices: 1 280 x 800 pixels, 220 ppi.
> - Laptops: You would expect laptops to have larger screens than tablets. And with that can come lower pixel density.

Screen size

Screens are always measured diagonally across the screen. So, for example, a seven-inch tablet measures seven inches diagonally across the front of the screen, and a 15.6 inch laptop measures 15.6 inches across the front of the screen. Inches are indicated with the symbol ".

Screen durability

When you buy a tablet, the salesperson might not think of discussing screen durability with you, but do remember to ask. It is important to make sure that younger learners have devices that have stronger-glass screens (and maybe also a protective rubber tablet case).

Many new devices come with glass that is branded as 'Gorilla Glass'. This glass is much stronger, less breakable, and more scratch resistant, making it perfect for rough and tough environments.

All about ports

A computer port is the place where you can connect your digital device to another digital device, to a screen, or an electrical power point. This connection point gives you the opportunity to transfer data, power, audio, and video.

Types of ports

Digital devices have several ports, each with its own use.

Port	Use	Comment
USB-A	Charging, transferring data	Older format
USB-C	Charging, transferring data	Faster than USB-A
USB 3.0	High data transfer speeds	Newer version of USB-A
Thunderbolt	High data transfer speeds	Version of USB-C
3.5 mm Audio Port	Headphones	Becoming less common
SD Card Reader Slot	Data transfer and storage	
Micro SD Card Reader Slot	Data transfer and storage	
HDMI	Audio and visual transfer	Also found on TVs
Ethernet	Wired internet connection	Laptops and computers
Power Jack	Power Cable	Laptops and computers

Dongle

A dongle is a small piece of computer hardware that connects to a port on a device to provide more ports. This is very useful for tablets in particular, but can also be used to increase the number of ports available on a laptop.

<table>
<tr><td colspan="2" align="center">Task</td></tr>
<tr><td>•</td><td>Using what you know about screens and ports, decide which tablet device, and which laptop you would buy in the following circumstances.</td></tr>
<tr><td>•</td><td>If you have lots of money.</td></tr>
<tr><td>•</td><td>If you have a very, very limited budget.</td></tr>
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RAM	4 GB	6 GB	8 GB	6 GB
Storage	256 GB	128 GB*	256 GB*	256 GB*
Connectivity	WiFi & Cellular	WiFi & Cellular	WiFi & Cellular	WiFi
Ports	1 x USB-C	1 x USB-C 1 x Headphone / Microphone Combo Jack (3.5mm)	1 x USB-C	1 x USB-C
Screen	10.9" 2 360 x 1 640 px 264 ppi	10.6" 2 000 x 1 200 px 220 ppi	11" 1 600 x 2 560 px 274 ppi	11" 1 600 x 2 560 px 274 ppi

	Acer Aspire 5	Acer Chromebook 15	Dell Inspiron 15 Plus	Microsoft Surface Book 3 15-inch
Processor	Dual-core Intel Core i5-7200U 2.5 GHz	Dual-core Intel Celeron 3205U 1.5 GHz	Quad-core 11th Gen Intel Core i7 3.) GHz	Quad-core 10th Gen Intel®□Core™□i7 1.3 GHz
RAM	8 GB	2 GB	8 GB	16 GB
Storage	256 GB	16 GB	1 TB	256 GB
Connectivity	WiFi/Ethernet Port	WiFi	WiFi/Ethernet Port	WiFi/Ethernet Port
Ports	1 x USB-C 3 x USB-A HDMI video output Compact Ethernet Jack 3.5mm Audio Jack	2 x USB-C	Headphone Jack 1 x USB 3.2 Gen 1 Type-A HDMI 2.0 USB 3.2 Gen 1 Type-A Thunderbolt 4.0 Power Jack	2 x USB 3.1 Gen 2 Type-A Ports 1 x USB Type-C Port 3.5mm Headphone Jack
Screen	15.6" 1 366 x 768 px 100 ppi	15.6" 1 920 x 1 080 px 141 ppi	15.6" 1 920 x 1 080 px 141 ppi	15" 3 240 x 2 160 px 260 ppi

Operating systems and apps

Hardware and software

Hardware includes all the physical parts that make up a digital device. Software refers to the parts of a digital device that can't be touched, but all the things that the user interacts with to make the digital device worth more than a bit of glass, metal, and plastic. This includes the operating system and the programs, or as they are more commonly referred to now, the apps.

Operating systems (OS)

An operating system is also called an OS. It is the software that manages the files and hardware, such as the processor and the RAM on your device and keeps it running smoothly.

There are several different OSs available.

OS	Company
iPadOS and MacOS	Apple
Android	Alphabet
Windows	Microsoft
Chrome OS	Alphabet

When you buy a digital device, it is likely to have a preloaded OS.

Common features of OSs

Most OSs have some standard features in common. Some of these features could include the following.

- User accounts. This account is used for securing your device with a password.
- Settings for sound, display, and connectivity (Bluetooth, WiFi, etc.).
- Software updates. This means that your apps and your software are always working properly and that you have the latest technology on your device, even if you've had it for some years. Never ignore a request to update the software on your device. Be sure that you are not using mobile data to do this: updates can be huge and can therefore cost a great deal of money in data.
- Basic security that protects against threats and viruses might be part of your device. For Android users, it is part of Google Play services. But if you're not sure, rather check. And, of course, avoid clicking on links you don't know and visiting unsafe sites.
- Built-in apps, such as your device's clock, calendar, camera, email app, internet browser app, etc.
- A backup and restore feature. This means, for example, that users can take photos that will be backed-up to an Online Storage Site and made available on their phone or on other tablets. If you activate this in your settings, most of the newer tablet device OSs also make backups of contacts, settings, and messages. So, if you ever lose your device, you can restore this information to your new device when you re-enter your account details. This is not always so on a laptop.
- Free online Cloud Storage. If you buy a device with little storage space, Cloud Storage can help with storage issues. It's not automatic, but it's simple to enable or to sign up for this. But the free Cloud Storage can also be limited, so you might end up by buying a Cloud Storage Plan.
- Accessibility features enable people with disabilities to make use of the device. These features could include a screen reader that uses spoken feedback to describe your actions and to tell you about alerts and notifications. This varies from OS to OS.
- Personalisation options, such as the ability to change the background image, icon positions or notification sounds in the Settings Section.

- An App Store where you can download apps. Remember, the App Store is unique to the OS.
- An intelligent voice assistant that helps you with basic tasks (for example weather updates) often forms part of newer OSs. You may have heard of Google Assistant, Apple's Siri, and Samsung's Bixby.

Versions of OSs

OSs are continually being improved and updated. Pay attention to the OS version on any device you purchase. You may not be able to update it if it is older version.

OS	Version notes
iPadOS and MacOS	iPadOS 16 (2023) MacOS Ventura (2023)
Android	**Avoid** Cupcake Donut, Éclair, Froyo, Gingerbread, Honeycomb, Ice Cream Sandwich, Jelly Bean, KitKat, Lollipop, Marshmallow, Nougat, Oreo, Pie **Go for the latest** Version 10, Version 11, Version 12, Version 13, Version 14
Windows	Windows 11
Chrome OS	Check with the manufacturer for version being used

Task
• Identify the OS and its version number for each of the digital devices that you own. • If you cannot find the information on the device itself in the About this Device or Control Panel or Settings Sections, look online for your make and model to get the information.

Apps

Apps are software programs that help us to get things done on our digital devices. They can either be saved directly on the device, or they could work on the web.

Apps are designed to work on the different OSs, and although the same app may appear on various App Stores, it can only be used on the OS for which it was developed.

OS	App Store
iPadOS and MacOS	Apple App Store
Android	Google Play Store
Windows	Microsoft Store
Chrome OS	Chrome Web Store

Task
• What is your favourite app?
• Why?
• Which app did you find easiest to learn to use?
• Which app have you found the most difficult to learn to use?

Choosing your digital device

Tips for choosing your digital device

What do you need?

You have learned a great deal about what you can buy. Now think of what you need in your own classroom with your own learners. If you were to make the digital device buying decisions, what would you do? Here are some questions that will guide you when choosing.

- Tablet or laptop?
- How much RAM will I need?
- What screen resolution would I like?
- How much storage will I need?
- Which OS appeals to me most and why?
- How will I connect to the internet (using WiFi or mobile data)?

Buying a device

Choosing a digital device can be difficult. The important considerations when you are choosing a digital device are found in **R**ead **O**ur **R**ules **C**arefully **S**am.

- **R**ead stands for **RAM**. Remember, the more RAM the better.
- **O**ur stands for **Operating System**. Remember to check the version.
- **R**ules stands for **Resolution**. Remember higher ppi means sharper images.
- **C**arefully stands for **CPU**. Remember the speed.
- **S**am stands for **Storage**. Remember to think about how much you really need – too little and you may have to supplement it, too much and you spent too much money.

If you can remember the mnemonic RORCS, then you're well on your way to remembering what to look out for when you purchase a digital device.

Buying guideline

General tips

- Don't be intimidated by the options and variations. You have the knowledge needed to make a good purchase.
- Any other questions can be answered using Google's search engine and YouTube videos.
- If you need information, or you want to get some help with product specifications, look online. Do a Google search.
- YouTube is helpful if you want to find videos of how to do things, but there are also many reviews of specific tablets on YouTube that will teach you a lot.

Task

- Take some time to answer these questions for your own context.
- If you could choose, what would you buy? Give a reason for your decisions.
- Tablet or laptop?
- How much RAM will you need?
- What screen resolution would you like?
- How much storage will you need?
- Which OS appeals to you most and why?
- How will you connect to the internet (using WiFi or mobile data)?

About the Final Assessment

At the end of this training session, you will be asked to complete the Final Assessment.

If you complete the Final Assessment successfully, you will qualify for your virtual badge and certificate. You can see a sample here.

VIA AFRIKA DIGITAL EDUCATION ACADEMY

Certificate

has successfully completed the attendance and assessment requirements of:

GETTING TECHNICAL

This training is endorsed for 5 SACE Professional Development points.

Date

Christina Watson
Chief Executive Officer

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Department:
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Final Assessment

	Indicate the ONE correct response for each question.
1	I teach young learners and need my device to take and store plenty of good quality pictures and videos. Which one of these devices would I choose?
a	Device A = Six cores 2 x 3.1 gigahertz & 4 x 1.8 gigahertz 256 gigabytes.
b	Device B = Six cores 2 x 3.1 gigahertz & 4 x 1.8 gigahertz 128 gigabytes.
c	Device C = Six cores 2 x 3.1 gigahertz & 4 x 1.8 gigahertz 64 gigabytes.
2	I teach Grade 9 English. I use my tablet for digital textbooks and internet only. I don't need many apps. Most of the research my learners do is on the internet, but they have to read a lot of text on their tablets so I would like a big screen! Which one of these tablets would I choose for my class?
a	Device A = 10.9" 2 360 x 1 640 px 264 ppi.
b	Device B = 10.6" 2 000 x 1 200 px 220 ppi.
c	Device C = 10.9" 1 280 x 920 264 ppi.
3	Which statement about OS is true?
a	iPadOS and MacOS are made by Apple.
b	iPadOS and MacOS are made by Android.
c	iPadOS and MacOS are made by Alphabet.
4	I teach Grade 6 Geography. My learners have their own devices, and they are all different. Most of them have Android OSs. I show my learners many videos and pictures of geological events. My learners make their own presentations using these videos and pictures. What device would I most likely choose?
a	Device A = Android with 16 gigabytes internal storage.
b	Device B = Android with 32 gigabytes internal storage.
c	Device C = Windows with 32 gigabytes internal storage.
5	My school has excellent fibre and WiFi. Which tablet should I choose to save the most money?
a	Tablet A = WiFi & Cellular.
b	Tablet B = WiFi.
c	Tablet C = Router.

	Final Assessment (continued)
Indicate the ONE correct response for each question.	
6	I teach a class with learners who struggle with their eyesight. I should look for a device that has good _____ features.
a	action
b	able
c	accessibility
7	What is a port?
a	It is the amount of storage space I have on my device.
b	It is the place where I can connect my digital device to another digital device, screen or to an electrical power point.
c	It is the software and engine that runs my device.
8	The screen resolution of screens is constantly getting better. If I want to make sure that I have a good screen resolution, I need to make sure that my screen resolution is at least higher than _____.
a	16 gigabytes
b	10 megapixels
c	1 280 x 800 with at least 200 ppi
9	I am always in a rush teaching one Grade 8 History class after the other. I need my device to be fast. I cannot wait for things to happen and waste time in class. I would need a device with a CPU that is _____.
a	faster than 1.5 gigahertz
b	slower than 1.5 gigahertz
c	1 280 x 800 RAM
10	We use Google Classroom and mostly Google Apps in our school. We are looking at becoming a Google School. What would most likely be the best choice of OS for our school?
a	Windows
b	Windows or Android
c	Chrome OS or Android

Final Assessment (continued)

Indicate the ONE correct response for each question.

11	Screen resolution is measured in _____.
a	pixels
b	pixies
c	inches
12	CPU stands for _____.
a	Computer Programming Updates
b	Central Programming Unit
c	Central Processing Unit
13	A useful guideline for minimum RAM in a device is _____.
a	six gigabytes for tablets, and eight gigabytes for laptops
b	six gigahertz for tablets, and eight gigabytes for laptops
c	six ppi for tablets, and eight ppi for laptops
14	Most tablet devices today operate on _____.
a	Windows OS
b	Android OS
c	iPadOS
15	If I want to store lots of media files on the device, I must make sure I have a lot of _____.
a	RAM of storage
b	gigahertz of storage
c	gigabytes of storage

Additional resources

An explanation of terminology

Term/symbol	Explanation
App	A software program that enables a task to be done on a device.
Audio Jack	A port in which you plug headphones or an external speaker. Many devices no longer have this port. They expect you to connect to the audio using Bluetooth Headphones. [See Port.]
Bluetooth	A method of connecting two devices within 10 metres of each other to transmit data between them.
Browse the web/search the web/search the internet	To use a web browser connected to the internet to search for information or a particular web page or website on the World Wide Web.
Browser/web browser	An online app used to search the World Wide Web, for example Chrome or Bing.
Central Processing Unit (CPU)	The electronic chip inside the device. It is the brain of the device, and it manages and runs it. Often called the processor of the device. The CPU controls how fast the device can work. [See CPU Core.]
Cloud Drive/Cloud Storage	Online storage of data on a server that is on the internet, for example OneDrive from Microsoft, or Google Drive, or iCloud Drive by Apple.
CPU Core	The size of a CPU. Each core works on its own, but also with the other cores. • A single-core CPU has no other cores to help it. It must handle all the processing work by itself. • A dual-core CPU has two cores, and this means it has a partner core to help it with the work. Both are equally strong, so this is good for when you want to run many apps. • Quad-core processors has four cores. • Octa-core CPUs have eight cores.

Data	Information that is used by devices like laptops, devices, smartphones, and tablet devices.
Dongle	A small piece of computer hardware that connects to a port on your device to give you more ports. [See Port.]
Download	The process of getting apps, documents, emails, web pages, images, and files from the internet.
Ethernet Connection	A connection to a wired network created between a device and a modem-router using an Ethernet Cable.
Ethernet Port	A type of port used for transmitting wired internet connections. They are often faster internet connections than wireless connections, but they are found only on laptops and computers and not on tablet devices. [See Port.]
Flash Drive/Thumb Drive/ USB Drive	A type of drive for portable storage. It plugs into a USB Port and is used to transfer smaller amounts of data between devices. [See SSD. See USB.]
Gigabyte (GB)	The unit of measurement to describe the speed of CPUs. [See CPU.]
Hard Drive	A type of drive used in laptops and PCs (especially older ones) where all the information on the device is stored. The drive has moving parts, and the circular part spins. It is predicted that all Hard Drives will be replaced with SSDs by 2028. [See SSD.]
Hardware	All the physical parts that make up a device.
HDMI Ports	A type of port that accept connections from HDMI Cables that transmit and receive high-definition audio and visual signals. [See Port.]
Inch (")	The unit of measurement typically used to describe the size of device screens.
Internet	A global network that connects devices and device systems around the world that holds the World Wide Web.
Operating System (OS)	The main piece of software that runs on a device and that manages all other software/apps and hardware parts of the device, providing a way for the user to communicate with the apps on a device and the device itself.
Pixel (px)	Screen resolution is measured in pixels and digital images consists of pixels. Pixels are tiny dots of colour that join closely together to make up the picture.
Pixels per inch (ppi)	The unit of measurement for Pixel density/screen resolution. It refers to how many little dots of colour there are on a square inch on a device. The higher the ppi, the sharper the image. [See Pixel.]

Port	The place where you can connect your digital device to another digital device or screen, or to an electrical power point. This connection point gives you the opportunity to transfer data, power, audio, and video. Found on the sides of digital devices.
Power Jack	Where you will plug in your laptop charger. Tablet devices most often use a USB-C Port for charging. Some laptops also use a USB-C Charging Cable.
Pre-installed	An app or operating system that comes installed on a device when it is purchased.
Random Access Memory (RAM)	A part of the device where data that is being worked on at that moment is held to be available for use by the CPU.
SD Card	A card holding storage space. Also available in micro-size.
SD Card Reader Slot	A type of port that allows you to put an SD Memory Card into the device. Useful to increase storage space and to transfer data. [See Port.]
Secured network	A network that can be accessed only with a network security key or password.
Software	The parts of a digital device that can't be touched but includes all the things that the user interacts with. This includes the OS and the programs or apps.
Software update	An update of an app to ensure that it has the latest data for security and functions.
Solid State Drive (SSD)	A type of drive, found in tablet devices, smartphones and nowadays also laptops and PCs. The advantage that an SSD has over the older Hard Drives is that there are no moving parts, so you cannot damage it as easily as you can a PC if you bump it or move it. [See Hard Drive.]
Terabyte (TB)	A unit of measurement to describe the storage space on a device or drive. A terabyte is 1 024 gigabytes.
USB Cable	A cable with special plugs on each end that enable connection between a device and peripherals and, in some instances, the supply of power to the device. [See USB Port.]
USB Port	The plug hole into which a USB Cable is plugged into a device. • USB-A Ports are for the older type of USB. They are used for charging and transferring data. • USB-C Ports are oval-shaped and smaller than the USB-A Port. • A USB 3.0 Port is an updated version of the USB-A Port. It allows for much higher transfer speeds than the USB-A.

Web App	An app that can be accessed online from any device that has a web browser.
WiFi	Wireless technology that allows devices to connect to a network as well as the internet.
WiFi hotspot	An area where a WiFi network is available.

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