TERM 1

Unit 1: HEALTH AND SAFETY

Range and Content

Students will learn:
- ✓ Rules governing the use of the computer laboratory and electronic devices. For example, place chairs under desk when not in use; no food or liquid in the computer laboratory; eject flash drive correctly before removing it from computer system, exercise care when connecting or disconnecting cables to the computer system.
- ✓ Appropriate health and safety practices when using a computer system
  - o Injuries which may arise from the prolonged use of computer systems(Repetitive Strain Injury, Carpel Tunnel Syndrome, Computer Vision Syndrome and lower back pain)
  - o Methods to prevent/reduce the impact of these injuries (correct posture, taking breaks away from the computer, proper lighting, top of monitor at or just below eye level, head and neck balance in line with torso, shoulders relax, elbows close to body and supported, wrists and hands in-line with forearm, feet flat on the floor)
  - o About the negative effects that the use of electronic devices may have on the environment
- ✓ Definition of Ergonomics
- ✓ Ergonomics guidelines for use of computer systems. For example, chairs designed to support back, wrist/palm rest designed to help support wrists, monitors designed to adjust brightness and position of screen, adjustable keyboards that allow the user to change the positions and angles of the keyboard, armrests should be removable and the distance between them should be adjustable, armrests should be padded and soft, a mouse should match the curve of your hand and have sufficient cord length to allow its placement next to the keyboard, wrist rest should match the front edge of the keyboard in width, height, slope, and curve

About the Unit

There are several health risks associated with the improper use of the computer laboratory and electronic devices. This unit should provide an overview and understanding of health and safety guidelines governing their proper use. It will also highlight the methods of prevention/reduction that should be followed to ensure that these risks are minimized or eliminated.

Guidance to Teacher
Some of the content of health and safety should be integrated with other topics and therefore should not only be confined to this unit. Teachers may create computer laboratory rules in collaboration with the students taking into consideration the school's culture. Teachers should observe/supervise students and constantly encourage them to engage in proper health and

safety practices while operating computer systems. Teacher should endeavour to expose students to ergonomically designed equipment and furniture.

Prior Learning
Check that students:
● Understand what is a computer system

● Can use a computer system

Learning Outcomes
Students will be able to:
● Articulate the importance of correct ergonomically safe practices
● Explain the consequences associated with the improper use of computers
● Discuss different methods to reduce adverse effects associated with the improper use of computers.
● Model correct health and safety behaviours when using computer systems.
● Articulate the negative effects of the electronic devices on the environment

Extended Learning
Students can collaborate to design an ergonomic equipment/furniture. Students can develop guidelines for facilitating a safe environment at home when using a computer system.

Points to Note
Teachers are encouraged to reinforce established rules for the care, use and maintenance of computer lab and equipment
Teacher must keep abreast of new developments in Computer related disorders/illnesses.
Dramatization could can be recorded using image capturing devices and played back for class discussion

Resources
Personal computers Internet access Multimedia presentation kit Photographs of persons using the computer Video on Ergonomics Resource books/CDs

Key vocabulary
Health, safety, ergonomics, carpal tunnel syndrome, repetitive strain injury, computer lab rules, eye strain, back strain, shoulder pain, lower back pain, computer vision syndrome, emergency procedures.

Unit 1: HEALTH AND SAFETY (2 weeks)		
Attainment Target(s): Students understand health and safety procedures applied to the use of a computer system. Students demonstrate health and safety practices while operating the computer system.	**Objectives:** **Students will:** ● Display safe and healthy behaviours in the computer lab and while operating the computer system ● Discuss Ergonomics and how it affects computer related disorders ● Discuss various computer related disorders/illnesses and methods to prevent them. ● Apply and adapt appropriate health and safety practices while using a computer system ● Examine the negative effects of electronic devices on the environment ● Collaborate in group activities	
Suggested Teaching and Learning Activities	**Key Skills**	**Assessment Criteria**
Students will: In groups, discuss and develop a list of computer lab rules and use available resources to present these rules. Dramatize selected rules listed to demonstrate their knowledge of computer lab safety operations Review literature to discover the meaning of ergonomics and record definition in their own words. View a video on ergonomically designed equipment and furniture and discuss its importance to computer usage. Take a tour of their school computer lab(s)/office and identify ergonomically safe and unsafe practices. Use image capturing device to record images. Create a digital story or picture collage depicting safe and unsafe practices observed View pictures of computer system usage and classify them into categories based on ergonomically safe or unsafe	Collaborate in groups Discuss and share ideas Use appropriate media to present information Perform and present information View for information Discuss and share ideas Create digital story or picture collage Observe to collect information View for information Critique and classify information Discuss ideas Work collaboratively in groups Select and use appropriate presentation methods Read for information Demonstrate to present information Observe dramatization Discuss ideas Assessing scenario	Media appropriately used to communicate pertinent computer lab rules Dramatization satisfactorily demonstrated an understanding of computer lab safety operations. Digital story or picture collage created accurately highlighted ergonomically safe and unsafe practices Pictures correctly classified as ergonomically safe or unsafe practices. Project, podcast, essay or blog correctly depicted evidence of computer related disorders/illnesses, cause and effect and suggested preventative measures. Presentation portrayed evidences of correct and incorrect usage of computers. Correctly applied health and safety

practices and justify decision. In groups conduct a guided review on Carpal Tunnel Syndrome, Lower back pain, Repetitive Strain Injury and Computer Vision Syndrome as they relate to computer usage highlighting the cause and effect and suggest preventative measures. Use various methods to present their findings such as a project, podcasts, essay or blog. Use dramatization or any other presentation style to communicate comparisons between correct and incorrect usage of computers. Discuss safety procedures to be observed in a computer lab. Read the following scenario and discuss do's and don'ts that Jane should have observed. "Jane entered the computer lab with her lunch to complete an assignment. She powered on the PC but observed that it was not booting even though it was plugged into an electrical outlet. She realised that the printer was on, she decided to plug out the printer from its outlet in the wall in order to connect her computer. The cords ran across the walk way. Conduct an offline or online research to evaluate the negative effects of electronic devices on the environment. Present their findings project form. Create a 3-D model lab from material in your environment. The model should highlight elements of ergonomics and safety in the computer lab.	Reading to draw conclusion Apply knowledge Research to gather information Apply knowledge from STEAM areas to create model	principles in analysis of scenario Project satisfactorily captures the negative effects of electronic devices on the environment 3-D model satisfactorily captures elements of ergonomics and health and safety in a computer lab

Unit 2: Foundation of Hardware and Software

Range and Content

Students will learn:
- Definition of fundamental terms associated with the computer system - computer, computer system, hardware, software, data and information, multimedia, word processing, system software and application software.
- The types and function of the main hardware components of the computer system (input, output, processing, storage and communication devices).
- The historical development of computers since the nineteen century
- To identify examples of the two main categories of software (system and application)
- Keyboarding and mouse skills such as (correct placement of hands while using the mouse and keyboard, keyboard home keys, correct posture while using the computer system, keyboard keys, mouse buttons)
- Describe the function of each section of the keyboard, Numerical keypads, function keys and alphanumeric and special keys such as the ctrl, shift, caps lock, num lock, etc.
- The different sections of the word processing window
- To use word processing software to create documents, apply formatting to text and page, insert graphics and manipulate tables.
- To create basic multimedia presentation using text, graphics, animation and transition.

About the Unit

This unit provides an opportunity for students to develop an appreciation for the history of computers and its importance to the Information Age. It should enable students to develop an understanding of computer system, hardware and software components including their functions, processes and procedures. In addition, it will seek to equip students with basic computing skills critical for manipulating the computer as a tool to accomplish tasks such as the creation of text documents and multimedia files.

Guidance to Teacher

The foundation of hardware and software unit should help students feel more confident around computers and other computing devices. Hence, teachers are encouraged to modify the tasks to meet the needs and circumstances of their students. The availability of resources such as computers, software and internet connections will determine which tasks are most appropriate. Students' readiness and interest should also be taken into consideration in choosing tasks and teaching aids such as videos to make the unit exciting and relevant for students.

Prior Learning
Check that students can:
● explain what is a computer
● perform basic computer operations
● use digital tools to gather and research information

Learning Outcomes
Students will be able to:
● Explain the terms: computer, computer system, hardware, software
● Differentiate between a computer and a computer system
● Demonstrate an understanding of the development of early computers
● Differentiate among the different types of computer systems
● Classify hardware devices as Input, Output, Storage, Processing and Communication
● Demonstrate competence in the use of keyboard and mouse
● Group software into categories
● Operate Word Processing and Presentation Software

Extended Learning
Students can build a model of a computer system
Student can collect pictures of the basic hardware components and create poster illustrating the names of each component and their role.
Students can use their word processing skills to complete their assignments in other subjects such as History, Geography, Language and Literature.
Students will use word processor to create a flyer advertising an event.

Points to Note
The worksheet could contain circles with the terms in them and then students be asked to fill the circles with words/phrases relating to the terms.
Use of proper technical terms when referring to software and hardware components. Teacher should ensure that students are aware of the difference between ICT and IT.
Highlight *the difference between a computer and a computer system.*

Key vocabulary
Computer, hardware, software, peripheral, component, input, output, storage, supercomputer, mainframe, minicomputer, microcomputer, vacuum tubes, transistors, ENIAC, UNIVAC, integrated circuits, processor, CPU, microprocessor, system software, word processor, multimedia, presentation, data, information, speaker system unit, monitor, mouse, keyboard, printer, text, graphics, bold, underline, page number, header, footer, margin, orientation

Resources
Personal computers Internet Access, Samples of hardware devices, Resource books/CDs, Rubric for grading presentations, Multimedia presentation kit ,Sample memoranda ,Drill and Practice software, Educational electronic games, Puzzles ,Pictures of computers

Unit 2: Foundation of Hardware and Software (12 weeks)		
Attainment Target(s): Students know the hardware and software components that make up computer systems. Students understand the purpose of hardware devices and software productivity tools in computer systems Students demonstrate competency in the use of computer hardware devices. Students demonstrate competency in the use of computer software productivity tools.	**Objectives:** **Students will:** • Define the terms: computer, computer system, computer hardware, computer software, multimedia • Differentiate between a computer and computer system • Differentiate between data and information • Trace the historical development of computers • Compare the different types of computers and assess their key hardware components and performance levels • Analyse how technology tools impact productivity in homes, schools, community and at the workplace. • Explain the basic functions of the hardware components (input, output, storage and processing) • Classify hardware devices as input, output, storage, processing and communication • Apply concepts of interdependency to hardware and software • Classify software into the two main categories system and application • Practise keyboarding and mouse skills • Appreciate the uses of software • Cooperate in group activities • Investigate the	

	different sections in the layout of a word processing software - Create documents using word processing software - Create multimedia presentation using presentation software and apply animation and transition features to multimedia presentation	

Suggested Teaching and Learning Activities	Key Skills	Assessment Criteria
Students will: On worksheet provided, in pairs, write words/phrases that comes to mind relating to the following terms 'computer' 'computer system', 'computer hardware', ' computer software', 'data' and 'information'. Discuss and select two phrases to share with the class. Along with teacher formulate a definition for the terms above and create a glossary or picture dictionary for class use. View a video on hardware components of a computer system and their functions. Identify hardware components and classify each component according to its role in the computer system – input, output, storage, and processing. Create a diagram to illustrate (electronically or manually) the relationships among hardware components of the computer system, highlighting input, storage, processing, output and communication. Collect facts from classmates, for example date of birth, name, and address. Organize facts collected to make them meaningful and share with class how the facts were organised. Create a meaningful sentence which represents information from a list of words for example (loves, you, God, care, He, and, about, you). Discuss the difference between data and information. In groups carry out a guided online research to collect royalty free pictures of devices and computers from the 19th century to present. Use the pictures to create a pictorial story-line using a photo sharing application or through a time-line website. OR In groups conduct offline research about the history and types of computers and present their findings by creating a scrapbook depicting the timeline or use a performing arts mode (skit/song/poem) portraying different eras of computer development and the types of computers. In groups, visit different companies/organizations within your parish. Capture pictures of the different types of	Recall knowledge Discuss and share ideas Think critically and express ideas Observe to make comparison Classify components Draw to represent information Gather, record, organize and evaluate facts Think critically and construct new ideas Collaborate in groups to gather, record, organize and present data Collaborate in groups to research and present information Debating moot Compare information to construct new knowledge Research and present information Classifying software Recall knowledge and share information, collaborate in groups to create puzzles Demonstrate ability to assembly keyboard and state functions Classifying hardware devices Demonstrate proper use of keyboard Discuss and share ideas Observe to compare and contrast Recall and memorize	Glossary or picture dictionary accurately defined the terms 'computer', 'computer system', 'computer hardware' 'computer software', 'data' and 'information'. Video created highlighted hardware components correctly classified according to functions. Model accurately labelled highlighting computer system showing relationships among hardware components. Facts meaningfully organised Accurate differentiation between data and information Diagrams of timeline correctly created to show the development of computers from 19th century to present. Scrapbook, song, skit, poem accurately portrayed the timeline of computer development. Debate satisfactorily presented sound arguments to support points of view Table accurately displayed information on characteristics and performance capabilities of computer systems Accurately prepared table Categorizing software into the two main categories: Application and Systems.

computers that are being used and record what these computers are used for as well as when these computers were invented. Create a storyboard to present findings to class.	information	Accurately classified and justified software into categories
	Reproduce document using Word Processing Software	
Prepare and conduct a debate on the moot for example "be it resolved that technology tools negatively impact productivity in homes, schools, community and at the workplace".	Discuss and share ideas Demonstrate word processing skill	Accurately created and completed puzzles relating to terms and concepts used in the lesson
In groups select a place of focus for example home, school, community or workplace. Visit at least three of these areas to find out how technology impacts productivity. Record findings and present information using software of their choice.	Collaborate in groups to gather, record, organize and present data Critical thinking Use a Word Processing software to print documents	Accurately assembled and labelled keyboard puzzle. Satisfactorily described the functions of the keyboard sections
Differentiate among the types of computer systems highlighting their unique characteristics (primary uses, processing power and size)and display findings in a table or any other of presentation style	Compile and organize data Reflect and evaluate	Accurately dragged and dropped hardware devices in the correct columns Document accurately reproduced and properly formatted based on instructions
Conduct online/offline guided research to identify the two main categories of software used on a computer system then identify the particular types of programs on the machines in the computer lab and on a personal computer, and create a table separating the examples of software into the two main categories.	Discuss, share and evaluate ideas Observe and reproduce/model procedures to create multi-media presentation Use multi-media software to create multi-media presentation	Letter satisfactorily created using formatting features of word processing software Document pages printed according to specifications given.
Use teacher provided worksheet on software examples provided to classify software. JUSTIFY your choice of classification – explain what each software does and why and how you think it should be classified.	Review, evaluate, organize and print information	
In groups create puzzles (crossword/word search) of terms and concepts taught in the lessons and exchange among groups to solve.	Collaborate in groups to discuss, research, record, organize and present solutions	Multimedia presentation satisfactorily created with the inclusion of appropriate slide design, transitions and effects
In groups, assembly keyboard puzzle pieces to label and describe the different sections of the keyboard and state their functions; or demonstration by teacher.		Hand-outs of presentation satisfactorily printed.
Practise creating multimedia presentations – insert new slides, add text, insert tables, insert images, insert sound files, add hyperlinks. Apply basic animation and transition features to multimedia presentations		Problem examined from multiple perspectives to include Sciences, Technology, Engineering and Mathematics
Use multimedia presentation software templates to create a new presentation file and print presentation as a 'hand-out'		The Engineering design process used to arrive at the solution and to implement the solution.

Create a multimedia presentation on aspects of Jamaican culture. Add this presentation to their portfolio (electronic or manual).

Innovators Challenge
The Storage Solution Company Limited is seeking new designs for storage devices because the environmentalists have been complaining about the hazardous effects of damaged devices. This situation as well as recession is causing the company to lose money. They have hired a team of innovators to help them solve the problem and you are a-part of that team.

Focus questions:
1. What is the problem? Provide evidence.
2. What are some of the causes of the problem? Explain/justify/defend.
3. What would these innovators do to find a solution? Demonstrate the process.
4. What is the result of the solution chosen? Showcase and report on the result.
5. How successful was the solution used?
6. Based on the solution presented how much money will the company expected to earn?

Requirements
1. Record all assumptions
2. Solution may be unique/original.
3. Evidence must be presented of the product and process
4. Must be done collaboratively
5. Make use of credible research

TASK: INPUT, OUTPUT STORAGE, PROCESSING AND COMMUNICATION DEVICES
Click, drag and drop each item listed below in the correct column
Keyboard Scanner Touch Screen Digital Camera Light Pen Barcode Reader Speakers Joystick OMR Webcam CD/DVD Moitor/Screen CPU Modem Mouse VDU Laser Printer USB Flash Drive Plotters

INPUT DEVICES	OUTPUT DEVICES	STORAGE DEVICES
PROCESSING	COMMUNICATION DEVICES	

Use drill and practice software or manual keyboarding exercises to practice, proper finger placement, use of the numeric keypad, and practice the use of special keys such as the ctrl,

Evidence of the integration of Mathematical ideas

Most of the problem solving steps observed to include:
- Define the Problem
- Examine possible solutions
- Apply Solution and revise
- Look Reflectively to revise and make improvement
- Communicate solution

shift, caps lock, num lock etc. Play educational electronic games using the keyboard and mouse to improve both speed and accuracy. In pairs, discuss what they have used word processing software to do in the past, and share how using this software made their task more efficient Observe two sample documents with similar information; one hand-written and the other typed. From your observation write two advantages and two disadvantages, of typing a document using a word processor as opposed to hand-writing the document. Launch a word processing program, describe the role of the different sections of the displayed word processing interface and draw and label the word processing window. Examine a document with various formatting features (bold, italics, underline, font type, font colour, font size, page numbering, headers, and footers); discuss the formatting features observed and use the word processing software to reproduce the document. Discuss the procedure to insert graphics (from online clipart or from local drive) into a word processing document. For example using a digital camera to capture a picture of their school and upload image to their computer; open the file and copy image then place it into a word-processing document. Work in groups to discuss a situation in their school environment and compose a letter addressed to the principal. Type letter in a word processing software using the formatting features introduced previously In groups, investigate to find out some of the problems/issues that students face on a daily basis. Investigation can take the form of interviews or using a digital camera to capture issues at hand. Using the concept of formatting and inserting graphics in a word processing software, create a bulletin to be sent to the principal highlighting your findings. Print a word processing file using different selections (current page, specific pages, entire document) Create a portfolio (electronic or manual) and add		

their word processing documents to portfolio View hard copy of a document advertising an event (flyer, brochure, invitation). Watch a Multimedia presentation on the same event. Discuss which method of presentation of the information was more effective. OR Through discussion, identify reasons for using presentation software e.g. at a school event, advertising a new product or delivering a lesson. Imitate the creation of a multimedia presentation while viewing activity on video		

TERM 2

Unit 3: Data Communication, Networking and the Internet

Range and Content
Students will learn:
- Terms related to data communication: Communication, Data communication, Network, Modem, Internet, Web browser, Web page, Web site , URL, e-mail, Upload, Download
- Components of Communication (Context, Sender, Message, Medium, Receiver and Feedback)
- The components needed for successful electronic communication (receiving and sending device (fax machine, smart phones, laptop, notebook, tablet); communication channel/transmission media (wired: telephone lines, coaxial cable, twisted pair cable, fibre optic cable; wireless: Bluetooth, satellite, infrared, microwave station); communication device (MODEM – Modulator/Demodulator))
- To identify computer-based methods of sending and receiving information, for example, email, videoconferencing, Telephones (voice), internet call, SMS and Multimedia Messaging Service, Broadcasting, Internet Relay Chat.
- Types of Networks (PAN, LAN, MAN, WAN)
- The different resources necessary for connecting to the internet (hardware: sending and receiving devices, communication devices; software: web browser; Internet Service Provider)
- How to perform basic web search using search engines and URLs
- How to upload and download files from different sources such as the internet

About the Unit
This unit will provide students with an awareness of the various opportunities available for modern communication through the use of new and emerging technological tools. It will develop students understanding of the technical terms used in data communication, networking and the internet. In addition, students' internet skills will be improved tremendously as they will get the opportunity perform web searches as well as upload and download data/information.

Guidance to Teacher
Some of the content from data communication and networking spans several subject areas; efforts should be made to make relevant and important links. Teachers should use opportunities to demonstrate how data communication works, for example, allowing students to send a file from one device to another. Also, teacher can display to students how computers and devices are connected together in a network. The delivery of this unit will be largely dependent on the resources available; teacher however should find creative and innovative ways to ensure that students benefit from this unit. For example, smartphone (where permissible) can be used to display web search by projecting screen to entire class.

Prior Learning
Check that students can:
● Identify basic communication devices

● Access services on the internet to share information

Learning Outcomes
Students will be able to:
● Have knowledge of the terms: Communication, Data Communication, Network, , Modem, Internet, URL and search engine
● Explain the relationship among the components of successful communication
● State the differences among PAN, LAN, MAN and WAN
● Differentiate among website, web browser and web page
● Identify resources needed to connect to the internet
● List various services and activities provided by the internet
● Differentiate between Upload and Download
● Demonstrate ability to perform basic search using the internet

Extended Learning
Students can navigate between web pages using hyperlinks

Points to Note
Teachers must refer to the Guidance to Teacher notes at the beginning of this Unit. This unit deals only with the definitions of basic data communication, networking and internet terms. Teachers must be aware of new and emerging technologies in data communication. As much as is possible do not allow students to use pages that are made by the public as at times the information is not always correct!

Key vocabulary
communication, data communication, internet, network, , local area network(LAN), metropolitan area network(MAN), wide area network(WAN), modem, upload, download, sender, receiver, channel, feedback, , webpage, web browser, website, URL, search engine

Resources
Personal computers, Internet access, Multimedia presentation kit, Diagrams of networks
Resource books/CDs

Unit 3: Data Communication, Networking and the Internet (5 Weeks)		
Attainment Target(s): Students understand how computer systems communicate with each other. Students develop an awareness of the application of various forms of communication technologies in everyday life Students evaluate the importance of implementing appropriate security measures when using a network	**Objectives:** **Students will:** ● Define the following terms as they relate to data communication: Communication, Data communication, Network, Modem, Internet, Web browser, Web page, Web site, , search engine, URL, e-mail, Upload, Download ● Describe a Network and highlight the services available in a networked environment ● Explain the functions of the hardware required for a basic network (sending, receiving, communication device, etc.) ● Identify the components of data communication ● Describe various forms of electronic communication (email, SMS) ● Differentiate among the types of network (Personal Area Network, Local Area Network, Metropolitan Area Network, Wide Area Network) ● Discuss the advantages and disadvantages of using a Network such as the Internet ● Differentiate between the Internet and the World Wide Web ● Investigate basic internet resources – Email, Instant messaging and Social Networking ● Explain the relationship between key terms (World Wide Web, website, webpage, hyperlink, web browser, URL, search engine) ● Collaborate in group activities to gather, record or present information ● Formulate ethical judgment when using the internet	

Suggested Teaching and Learning Activities –	Key Skills	Assessment Criteria
Students will: Play the Chinese telephone game to demonstrate the communication process; Identify the elements involved in the game as the necessary elements of communication – sender, channel, receiver Create a diagram depicting the communication process based on their interpretation of the process Conduct guided research to define the common terms related to data communication, network and the internet such as modem, web browser, search engines and so on. Examine the following scenario: the School Board has purchased 55 computers and wants to distribute one to each classroom, 5 to the library and 5 to the staffroom. There will be a meeting to decide if they need to network the computers or should have stand-alone computers. As a member of the computer club you were asked to present arguments for and against networking of the computers in the school. If the argument presented is in support of a network then samples of the hardware needed to network the computers should be shown and explained In pairs, produce a list of different ways in which data communication can be carried out then share the list with the whole class. Classify transmission media as wired or wireless from a list of different media Create a scrapbook that shows pictures of sending and receiving device, communication device(MODEM) and different types of transmission media Conduct a guided research to explain the various components of data communication (sending device, communication device, communication channel/transmission media and receiving device). Conduct guided research to determine the most common types of computer networks – PAN, LAN, MAN, WAN; and be given different scenarios to explain and justify which network is best suited for the various scenarios. For example	Demonstrate the communication process and identify the necessary elements of communication Create diagram to represent information Research and define terms Present arguments Gather, record, organize and present information Classify media Create scrapbook Research and present information Research and present information Create models to represent information Create puzzles Discuss and share ideas Identify types of web browsers Debate moot Demonstrate uploading and downloading Demonstrate proper use of search engines and URL Recall information Discuss and share ideas Create poster Create podcast/poem or using dramatic mode	Chart/game correctly shows the communication process. Terms accurately defined as related to data communication Arguments satisfactorily highlight advantages and disadvantages of using Networks. Correct hardware were used to support network Transmission media correctly classified as wired or wireless Scrapbook correctly shows the components of data communication Components of data communication correctly explained Satisfactorily justified type of network based on various scenarios Models created correctly shows the different types of network, highlighting the features Puzzles created satisfactorily using data communication terms Accurately list differences between the Internet and World Wide Web and resources needed to connect to the Internet and the World Wide Web Satisfactorily identified advantages and disadvantages of using the internet Assignment downloaded,

Places	PAN	LAN	MAN	WAN
Church				
Travel Agency				
Bank				

University				
Library				
Home				

Create models of the different types of communication network using recycled materials (Plastic, string, paper, soda can, etc.)comparing and contrasting the features of the various networks

Create puzzles (crossword, find-a-word etc.) using terms from data communication.

Watch an appropriate video on how is the Internet different from the World Wide Web and through discussions; identify the differences and the software used to access the resources on the Internet and the World Wide Web.

List and draw examples of web browsers and identify the ones that are used on computers and other electronic devices.

Debate the moot: "The world today, without the Internet, would be a better place." Incorporating the advantages and disadvantages of using the internet.

Discuss the difference between upload and download and identify instances in their Internet experience when they have uploaded or downloaded data

Launch a web browser and practice accessing teacher-selected websites by inputting the Uniform Resource Locator (URL) in the address bar and search for specific information on the Internet by inputting terms into a search engine.

Question	Website	Search Engine	Answer
Which parish is the largest in Jamaica?			
What is the highest mountain in Jamaica?			
How many medals did Jamaica received in the Summer Olympics in 2008 and 2012?			
The population of Jamaica is approximately			
What language throughout the			

adjusted and uploaded successfully

Navigate between websites seamlessly i.e. download pages from a web server based on URL inputted and successfully locate specific information using a search engine

Accurately list services/activities provided by the internet

Posters correctly depicts information on Emails, Instant Messaging and Social Networking

Presentation satisfactorily captures good and bad practices when using the internet

Caribbean is spoken the most? How many people speak this?			
What is the tallest building in the Caribbean? Where is it? When was it built? How high is it?			
What is the largest river in Jamaica? How long is it? Where is it?			

In pairs, create different posters highlighting following:

➢ How to compose and send an email with attachment
➢ How to compose and send an Instant Message
➢ How to use Social Networks highlighting some basic rules

Create a **podcast**, poem or use dramatic mode to depict good and bad practices when using the Internet

In groups, create a model of a Wide Area Network between three countries. Model should show individual PAN, LAN and MAN that connects to form a WAN. Communication channel and communication devices that are used in each network should be highlighted. In addition, show approximate distance in km or miles for each network.

Unit 4: Computer Ethics and Research

Range and Content

Students will learn:
- What computer ethics and ethical behaviour means especially when using online and offline sources to collect and upload information (computer ethics means a set of moral practices that governs the use of computer)
- The concept of plagiarism, copyright, trademark and intellectual property rights
- Ethical practices that should be adhered to while using online and offline sources to gather information (for example: make reference or give credit to the authors of published materials; do not copy someone else's work and pretend it's your own)
- How to identify bibliography information from online and offline sources

- The criteria that make an online or offline source credible (for example, author's name, publication date, last update, credentials/qualifications)
- To determine if an online or offline source is credible by identifying specific information(for example: author's name: John Doe, publication date (June 3, 2008), last update (September 5, 2013), credentials/qualifications: MSc in Technology in Education)
- To cite online (websites) and offline (textbook) sources in their academic writing using the APA and MLA format

About the Unit

Ethical behaviour must be exhibited in our daily lives at all times as it is morally the correct thing to do. Therefore, users of computer systems and information sources must be cognizant of the ethical behaviours that govern the downloading or uploading of information from on/offline sources and the need to practice good citizenship. Discussions from this unit will enable students to understand computer ethics and associated terms and concepts. It will enable students to properly identify credible online and offline sources when collecting and uploading information. In addition, this unit will enable students to use correct guidelines to make references or give credit to authors of published material by using the APA and MLA formats.

Guidance to Teacher
It is important that students understands that ethical and moral practices must always be exercised when using online and offline sources to collect and upload information. The concepts to be covered in this unit, will allow students to apply the skills and knowledge to other subject areas. As such, emphasis must be placed on ensuring that students practice these concepts. Awareness of the consequences that may arise from neglecting to adhere to ethical and moral practices when using online and offline sources should be reinforced. Teachers should also for additional reinforcement ensure that they demonstrate ethical and moral practices in their delivery. Students are to be exposed to basic knowledge of using APA/MLA reference format.

Prior Learning
Check that students can:
● Distinguish between right and wrong
● Identify socially ethical behaviours

Learning Outcomes
Students will be able to:
● Define the terms: ethics, computer ethics, moral, intellectual property right, plagiarism, trademark, copyright
● Discuss moral and ethical practices in using online and offline information
● Identify the bibliography information from online and offline sources
● Recall the characteristics/features that makes an online or offline sources credible
● Analyze a given source to determine credibility

Extended Learning
Students can compose a song/poem which can be used to advise their school mates about the consequences of unethical practices when using online and offline sources to gather information
Students can create a poster/brochure that explains to their school mate what the term intellectual property right means and the laws (copyright, trademark) that protect this right.

Points to Note
Teachers must refer to the Guidance to Teacher notes at the beginning of this Unit.
Plagiarism does not only mean copying text word for word from a published work but it also means copying ideas. Breeches of the practice comes in different forms:
- Replacing a word with the synonym
- Passing on someone's work as your own
- Quoting, summarizing or rephrasing without citation

Breeches of ethical practices are commonly performed when uploading or forwarding information such as pictures, videos and audio to online sources.
Key vocabulary
Ethics, computer ethics, moral, online source, offline source, ethical behaviour, plagiarism, trademark, copyright, intellectual property rights, bibliography

Resources
Internet access , Multimedia presentation kit , Personal computer , Videos , Resource books

Unit 4: Computer Ethics and Research (3 weeks)		
Attainment Target(s): Students demonstrate a responsible, moral and ethical approach to using online and offline information Students use search technologies effectively while carefully evaluating digital content Students determine the ethical, social and moral issues and implications surrounding the use of technology.	**Objectives:** **Students will:** ● Define terms associated with computer ethics and its practice (ethics, moral, computer ethics, intellectual property right, plagiarism, trademark, copyright, etc.) ● Discuss moral and ethical practices in downloading and uploading online and offline information. ● Investigate to determine credible online or offline sources based on specific criteria. ● Apply the APA and MLA styles when making reference to online and offline sources ● Demonstrate willingness to question information available on the Internet ● Collaborate in group activities	

Suggested Teaching and Learning Activities	Key Skills	Assessment Criteria
Students will: Through guided discussion construct the meaning of the following terms: moral, ethics, computer ethics, intellectual property right, plagiarism, trademark, copyright, etc) Match computer ethics terms with their description to appropriately define the term. Determine what is regarded as online and offline sources based on their uses/application by viewing video on the various uses of online and offline sources. Identify online and offline sources from a list of sources provided. Create a scene using two or more of the terms (moral, ethics, computer ethics, intellectual property right, plagiarism, trademark, copyright, etc) and role play to show an understanding of terms and their consequences. Through guided discussion, identify ethical practices in using online and offline information and share ideas with the class Illustrate ethical practices governing the use of online or offline information by creating a short video/cartoon/poster/brochure. In groups select unethical practices observed in your environment, and then develop a dialog discussion between group members on the ethical issues related to this practice. Using an online second life application with characters of each group member present their dialog discussion to the class.	Construct and present information Recognize meaning Analyze and evaluate visual and aural information. Demonstrate to present information, teaming Discuss and share ideas Identify issue, Analyze, evaluate and present information Represent information Utilise checklist Collaborate in groups to research and present information View for information and identify information Analyze, evaluate, research and present information Categorize information	Terms accurately defined Correctly match terms to their description Accurately distinguish between online and offline sources Dramatization satisfactorily demonstrated an understanding of the terms and their consequences Identification of ethical practices in using online and offline information highlighted Video/cartoon/poster/brochure satisfactorily illustrates ethical practices governing the use of online and offline information Issues discussed shows an understanding of ethical behaviours Accurately identified bibliography information from resources Information presented correctly shows criteria that makes an online or offline source credible Presentation accurately justifies why sources are credible. Accurately define terms from credible sources without plagiarising the content as well as use bibliography information to cite sources. Accurately categorize references as APA or MLA formats

Use a checklist to assist in identifying the components of bibliography from given resources (such as IT textbooks, websites among other resources) Work in groups; to conduct a research on criteria that makes an online or offline source credible. Present findings to the class. View selected online and offline sources and justify why sources are credible based on researched criteria (author's credentials, date of publication etc.) Present justifications through various media. Conduct an online or offline research to explain the following terms computer ethics, intellectual property rights, plagiarism, copyright and trademark; state whether the sources used are credible by listing the relevant information that determines a credible source; use bibliography information to cite source using the APA or MLA format Given various online and offline sources and differentiate categorize references written using either APA or MLA styles from a list of references		

TERM 3
Unit 5: Computing Careers

Range and Content

Students will learn:
- Careers opportunities in ICT (file librarian, programmer, computer technician, system operator, computer engineer, system administrator, network engineer, software engineer, musical engineer, database administrator, system analyst, web designers, webmaster, data security analyst
- Roles and responsibilities of ICT personnel (computer technician –maintains computer system; troubleshoot, fix and replace hardware and operating system; system analyst - identifies problems within an organization and develop new IT solutions or modify existing system to solve these problems.
- The importance of ICT careers in society (creation of new jobs, changes in work pattern)

About the Unit
This unit will provide students with an awareness of the various job opportunities available in the field of ICT. Students will gain an understanding of the role and responsibilities of personnel in these fields. In addition, it will enable students to appreciate ICT careers.

Guidance to Teacher
Teachers should use opportunity to provide students with some of the possible ICT related jobs. However, new and emerging jobs should not be taught until Grade 8. Students should be allowed to share past experiences or interactions with ICT personnel n their everyday lives. In addition, discussion should be tailored so that students appreciate ICT careers which may lead to students choosing careers in these fields. This will allow them to contribute significantly to the development of our society.

Prior Learning
Check that students can:
        Identify traditional careers (Teachers, Doctors, Police, Lawyers)

Learning Outcomes
Students will be able to:

- Identify career opportunities in ICT
- Understand the basic job functions of ICT personnel
- Understand the importance of ICT careers

Extended Learning
Students can film the dramatizations and use an image editing software to create a video
Conduct an interview with an industry personnel based on student's career

Points to Note
Teachers must refer to the Guidance to Teacher notes at the beginning of this Unit. This unit deals with only the basic job functions of ICT personnel. Discussion about this unit should allow students to understand the importance these ICT careers as well as they should develop an appreciation of ICT careers in society.

Key vocabulary
career, careers including but not limited to file librarian, programmer, computer technician, system operator, computer engineer, system administrator, network engineer, software engineer, musical engineer, database administrator, system analyst

Resources
Personal computers Internet access Multimedia presentation kit Videos Resource books/CDs

Unit 5: Computing Careers (3 weeks)		
Attainment Target(s): Students are aware of and understand the competencies and qualifications needed for computing careers and computing skills necessary for the world of work Students understand the roles of different personnel in Computing Careers Student understand the application of Computing Careers in everyday life	**Objectives:** **Students will:** ● Identify careers available in the field of ICT ● Describe the job functions of different personnel in ICT careers ● Discuss the importance of ICT careers in society ● Create job description and advertisement on Computing career ● Collaborate in group activities ● Appreciate the importance of computing careers in the Information age	
Suggested Teaching and Learning Activities	**Key Skills**	**Assessment Criteria**
Students will: Research job opportunities in the field of ICT and create a Multimedia presentation to report findings In groups conduct research to identify the job functions of specific Computing personnel; dramatize the job functions of these personnel to the class. The class should then determine the job being dramatized. Match Computing personnel with basic job functions in a table Work in groups to brainstorm and	Research and present information Demonstrate to present information Observe dramatization Observe and make comparison Match functions Discuss and share ideas Create job description and advertisement	Presentation depicts accurate range of job opportunities in ICT Dramatization accurately depicts job function of Computing personnel Accurately match Computing personnel with job functions Questions developed correctly highlight aspects of the related Computing career Satisfactorily created Computing career job description and advertisement

develop questions to interview computing personnel. Use questions developed to participate in a panel discussion with ICT personnel so as to gain knowledge about various Computing careers. In groups, create an advertisement along with a job description of an assigned Computing career to be placed in a local newspaper Research job description for different IT careers. Create a poster in to display collage of IT personnel job descriptions.		