MINISTRY OF EDUCATION

SECONDARY SCHOOL

GRADE 7

Information Technology Curriculum Guide

CONTENTS

PREFACE

Information Technology Curriculum Guides, Grades 7 to 11, were produced in 1999. These Curriculum Guides (draft) were designed to make all students computer literate and allow teachers to use the computer as a tool for teaching any subject of the school curriculum. The documents covered three major aspects of Information Technology: (i) Information Technology Theory, (ii) Word Processing, and (iii) Spread Sheet.

The Guyana Education Access Project (GEAP) with the help of the Secondary School Reform Project (SSRP) and the National Centre for Educational Resource Development (NCERD) have collaborated to supervise the revision of the draft IT Curriculum Guides produced in 1999. Since these Guides have been in use for more than three years, it is imperative to update them and keep them within the new developments that have since occurred.

Other key contributors in the revision process were a number of GEAP trained Information Technology Administrators (ITAs) taken from Regions 6 and 10. These ITAs are still teachers of Information Technology in Secondary Schools and Schools with Primary Tops.

The Objectives of the Revised National Information Technology Guides are to:

1. Guide the teaching of Information Technology in schools.
2. Help teachers improve their Information Technology skills.
3. Help to prepare students for Information Technology at the Caribbean Examination Council (CXC) and Caribbean Advanced Proficiency Examination (CAPE).
4. Serve as a tool for students who choose not to write IT CXC or CAPE but need to have a working knowledge of IT for the world of work.

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INTRODUCTION

It is our understanding that Information Technology requires immediate practical application on a computer in order to ensure a student's understanding and retention of the material. Without quality time spent practicing on a computer, a student cannot be qualified as literate in Information Technology. This Curriculum Guide has been developed based on this understanding and encourages those educational professionals who choose to institute the IT Curriculum in their schools to have adequate computer facilities to do so. For example, if your school does not have power and/or computer labs, then you do not have to institute the IT Curriculum.

If on the other hand, your school does have computers, you might consider the following suggestions for integrating IT into the school curriculum with a limited number of computers:

- *Administrative Uses* – Teachers could be encouraged or required to use word-processing, spreadsheet, and educational software to develop their lesson plans, type up their class lists, keep their students' grades and attendance records, and submit all their other administrative work to the Headmaster or Principal. This would allow for the development of a solid foundation of basic IT skills among the teaching staff and perhaps later contribute to the full integration of IT into regular subject areas or the eventual implementation of the IT Curriculum at the school.
- *Teaching* – Teachers could use the computers as a presentation and demonstration tool to teach another subject or to show how a practitioner of that field (e.g. Scientist, Mathematician, Social Scientist, Artist, Academic, Poet, Writer, etc.) would use the computer to solve a particular problem, complete research, or achieve their objective.
- *Word-processing* – Students could be encouraged or required to type up and submit their school assignments using word-processing software available on the computer.
- *Spreadsheet* – Students could be encouraged or required to create tables, graphs, and complete their Maths or Science assignments or supplement their research assignments with capabilities available on spreadsheet software.
- *Educational Software* – Students could be encouraged or required to use encyclopaedias, typing programs, and other educational software to supplement and complete their assignments from other subjects.

In these cases, the computers would be made available on a timetable basis to teachers and students who have been given a basic introduction to the facilities and their care and maintenance.

The IT Curriculum Guide should be used as a guide only. It should not be adhered to slavishly if it is inappropriate for the technical and human resources available to the school. If the entire curriculum cannot be covered in the course of a year, then it is up to the instructor to determine the most important topics for review.

ACKNOWLEDGEMENTS

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Content Rationale for Grade 7 IT Curriculum Guide

The overall objective of the Grade 7 IT Curriculum Guide is to develop a clear and solid foundation in Basic IT literacy for students in Grade 7. The topics chosen and the order they are placed in were therefore chosen with care and precision to enable the attainment of this goal. The rationale for each topic and the order of their importance are explained below to give teachers and instructors an overall view of what this curriculum guide is attempting to accomplish

Priority	Grade 7 Topics	Objective/Reason
1	Introduction to IT Lab - Rules and Guidelines	Introduce students to the lab environment, show them how to use the lab safely, make sure they understand why the rules were established, and why they should be followed. Students therefore cannot claim ignorance of proper lab conduct and rules and will then recognize that their use of the lab is a privilege that needs to be respected and not a right that they are entitled to.
2	Protection & Care of the Computer System	Introduce students to the basics of care and maintenance of the computers. Students will recognize the expense of the equipment and how care and protection of the computers can prolong its use, save the cost of purchasing new equipment, and therefore benefit all students.
3	Introduction to Hardware and Software	Familiarize students with the two fundamental categories that make up their use and interaction with computer systems. This will allow students to place a computer problem within a context i.e. the computer problem is either a hardware or software problem. This establishes the foundation for basic computer troubleshooting and problem solving.
4	Introduction to Operating Systems - Graphical User Interface	Familiarize students with the fact that Windows is only one type of Operating System available. This allows students to recognize terms associated with Graphical User Interfaces and how they function.
5	Keyboard & Mouse skills development	Train students to use the keyboard and mouse efficiently. This will help them build confidence and feel comfortable using and communicating with the computer through these devices.
6	Introduction to Word Processing - Basic Skills	Train students to type documents, save, and retrieve these documents on their own. Hopefully, the students will use these capabilities to complete their homework assignments and write letters.
7	Basic Formatting Skills - Using the formatting toolbars and icons	Train students on how to use formatting to enhance the delivery of a document. Formatting can impact the clarity, precision, and presentation of the document. It can greatly impact how someone responds to the document or perceives its sender. This will hopefully get students to think about presentation.

Content Rationale for Grade 7 IT Curriculum Guide

Priority	Grade 7 Topics	Objective/Reason
8	Accessing the Intranet	This topic should only be covered if the computer lab is networked. Teach students to navigate, save, and retrieve information from and onto various computers attached to the network. This allows students to become familiar and comfortable with how the computers connect and communicate with each other on the network.
9	History, Present, and Future of Computers - Research	Have students choose an aspect of the computer to research. Example topics: the monitor, mouse, processor, memory, keyboard, scanner, printer, personal data assistant (PDA), digital camera, MP3 player, cell phone, or internet connection. Have students research the history of how that item was invented, the present use or development of that item in today's business, government, or personal environment, and the potential use of that item in the future. Encourage students to use the internet, encyclopaedia, library, and IT magazines to find their information. This project will help students to connect the history of computers with their constant evolution today and how they may evolve in the near future.
10	Educational Tours - Commercial, Industries	Coordinate with local commercial, retail, or industrial work sites to arrange a visit for the students to see how people use computers in their everyday work. Example work sites could include the local video store, internet cafe, internet service provider, banks, mining companies, bottling companies, import/export companies, or retail companies. This will allow the students to see the differences in how computers are used from one company or business to the next.
11	Introduction to Spreadsheets - Rows, Columns, Cells, Cell References, Inserting text, Inserting Columns/Rows, Basic Formulas	Introduce the basic terms and layout of typical spreadsheet software. For example, terms may include: row, column, cell, cell reference, workbook, worksheet, and sheet tab. Students should be able to enter basic information into tables and sort that information. Students should be able to enter basic information into tables, add, subtract, and average items in a column or row.
12	Compilation of Terms used in Grade 7	Students should try to keep a list of all the terms they have been introduced to during the year. The instructor may take some time to review all of the terms introduced and their definitions to ensure that students understand the definitions and their use.

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	Skills	Knowledge	Understanding	Attitude				
Introduction to IT Lab - Rules, Health and Safety Guidelines	Display proper forms of conduct in the Lab.	Rules specific to the IT Lab. Discipline is to be maintained at all times when in the Lab. Food and drink are not allowed in the computer lab.	It is important to adhere to rules and regulations when in the Lab in order to protect both the user and the equipment. The Lab is provided for communal use. Equipment in the Lab should not be coveted by any student.	Appreciate the importance of proper student behaviour and demonstrate consideration for fellow students while in the Lab. Demonstrate proper use and care of equipment, sharing resources, and taking turns at using the computer.	Computer rules. Rules governing: Student to Student relationships in the Lab. Student to Teacher relationships in the Lab. Student behaviour e.g. stop and listen to each other.	Guided tour of the Lab. Establish the environment for working on the computer. Discuss rules governing acceptable behaviour in the Lab. Simulate situations involving worst case scenarios (group activities). Compare and contrast an IT lab that is fitted with Lab rules and one that has no rules.	Are students able to respond to Lab rules with 100% distinction? Are students considerate in their treatment of other students while in the Lab?	Home Economics: Comparing rules in a Home-Ec Lab and those in the IT Lab. Allied Arts: role-playing given situations.

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Introduction to IT Lab - Rules, Health and Safety Guidelines continued.	Observe health and safety rules in the Lab.	Ergonomics - the correct position to sit, hold your hands, and place your feet while using the computer. Importance of taking eye breaks.	Particular postures should be adopted so as to protect oneself from permanent life threatening injuries. Eye strain can lead to permanent damage.	Willingness to follow health and safety guidelines. Respect for one's own physical limitations and treatment of physical well being.	Positioning and adjustment of chair, keyboard, monitor and mouse for safe and comfortable working. Adopting the recommended posture when using equipment. Posture should include a comfortable upright position with fingertips tapping lightly on the keys. Emphasize the use of glare protection screens and taking regular breaks.	Demonstrate position to be employed when operating the computer. Measure and record the height of chairs, desks, and monitors to see if the Lab environment is meeting the Ergonomics safety standards. Have the students act like investigators as they examine the Lab and report other potential safety issues such as wiring, proper storage, and improper security measures.	Are students using correct postures so as to minimize permanent injuries? Can students examine their environment and take note of other potential safety hazards?	Art, Maths: Draw and label a picture demonstrating Ergonomically correct position. Label with proper angles for elbows, knees, and eyes. Physical Education: Teach students stretching exercises, yoga poses, and relaxation techniques they can use to prevent injury, reduce, and relieve stress from sitting down in one position for a long time.

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Protection and Care of Computer Systems	Carefully handle components of the computer system.	The components of a computer system are delicate. Computer systems must be kept as cool as possible. Computers must be covered when not in use to prevent dust and dirt from entering.	Abusing computer components by punching or hitting them will cause damage to these devices. Operating AC or having a fan aimed at the back of the computer system can help to keep the computer cool. Contamination by food, drink, dust, dirt, and smoke can cause the system to malfunction.	Recognize that the computer is for everyone's benefit. Demonstrate care when using the computer and do not allow anyone to destroy it.	List of guidelines explaining how to care for a computer. List of the potential results and their impact of not caring for a computer properly.	Have students examine broken computer parts to see how delicate they are and the result of abuse to a computer system. Have students list the benefits of using a computer and the costs of not being able to use the computer because someone damaged it.	Do students understand how to handle computer components with care? Do students understand why they should handle computer components with care?	Social Studies, Economics: Have students research the cost of repair, maintenance, and replacement of damaged or broken computer parts i.e. cost of replacement mouse, keyboard, hard disk drive, floppy disk drive, etc.

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	Properly clean mouse, keyboard and monitor.	Liquids should never be sprayed directly on the keyboard, mouse, or monitor. How to properly and carefully clean computer components.	When cleaning these components, care should be taken to handle these items delicately.	Willingness to properly care for and maintain equipment.	Methods of cleaning computer components (e.g. using a soft cloth and appropriate cleaning solution like ethanol or clear alcohol, removing mouse ball and cleaning rollers).	Teacher/student discussion on how to clean and maintain the computer systems in the lab and what might happen if these items are not cleaned or maintained properly. Actual demonstrations on how cleaning must be done.	Do students understand how to clean computer components properly? Do students understand what happens if components are not cleaned properly?	Science: Caring and cleaning of Scientific equipment.
Protection and Care of Computer Systems continued.	Turn on and shut down the computer system properly.	Use the power button to turn on the computer. Choose Start, Shut Down to shut down the computer properly. Difference between hard disk and power lights.	Shutting down the computer system properly will protect the system's hard disk from damage. Moving or turning off the computer when the hard disk light is on can cause damage to the hard disk.	Patience for the computer as it starts up and shuts down. Willingness to properly shut down the computer in order to protect the hard disk drive from damage.	Process and procedure for turning on the computer properly. Process and procedure for shutting down the computer properly and why.	Demonstrate and then have the students replicate how to turn on and shut down the computer properly. Show students an old hard disk drive so that they can see what happens when a computer is shut down incorrectly.	Can students turn on and shut down the computer properly? Do students understand why it is important to turn on and shut down the computer properly?	Physical Education: Use warming up and cooling down before and after exercise as an example of what can happen if you don't have patience when starting up and shutting down a computer properly.

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Topic	Learning Objectives				Content	Methods / Strategies / Materials	Evaluation	Areas of Integration
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Introduction to Hardware: Components of the computer system	Define Hardware	A computer is a system made up of physical components used for processing information. All the physical components of the computer are referred to as hardware.	Hardware is defined as the parts of a computer system that you can see or touch.	Willingness to touch and move the hardware components of the computer system.	Definition and examples of hardware.	Show all the physical components of a computer system.	Do students understand what the word Hardware means in computer terms?	Art, Maths: Invent, draw and design (provide measurements) futuristic versions of various hardware components of the computer system.
Introduction to Hardware: Components of the computer system continued.	Identify the hardware components of the computer.	The hardware components of a computer include CPU, monitor, mouse, disk drives, microphones, keyboard, and speakers.	Some parts of the computer e.g. monitor keyboard, mouse and CPU are essential for the system to function as a whole. Others are accessories e.g. speakers, microphone.	Willingness to use new technology. Care in the use of the equipment/ technology. Appreciate that not all computers need to have all accessories function.	Basic parts of the computer system: C.P.U., Monitor, Keyboard, Mouse. Include other peripherals such as parts of a multimedia computer system - speakers and microphones.	Identifying parts and uses of these computers. Focusing on desktop computers, identify each component. Discuss the importance of each component.	Can the student label the basic parts of the computer system correctly? Can the student name a variety of peripherals that can be attached to a computer system?	Science: Observation, Operation of equipment. Have students identify how the components fit together.

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	Recognize the functions of the hardware components.	A keyboard is for typing characters. A mouse is for choosing options. A monitor shows the user what is happening. A CPU processes instructions. Disks store programs and data.	A computer is a machine used for processing information. Each hardware component has a different and unique function.	Appreciate that each component has its distinct and special use that contributes to the efficient functioning of the entire system.	Functions of the hard ware components of the computer.	Have students try to use each component of the computer system separately, identify what they do, then come together to show how data flows through and information comes out of the computer system.	Can students identify the function of each hardware component of the computer system?	Science: Functions of various body parts, organs, or components of a complex system.
Introduction to Software	Differentiate between hardware and software	Software is made up of a series of instructions that tell the computer what to do. Sometimes, these instructions are referred to as a program.	Hardware cannot function without software. The two are interdependent.	Appreciate that software is important to the experience of actually using the computer.	Definition and examples of software.	Demonstrate the software environment to students. Provide examples of different types of software. For example, word processing, spreadsheet, database, presentation, and educational software.	Can students distinguish between software and hardware? Can students distinguish the functions of hardware and software?	Home Economics: Baking a cake using a set of instructions. The ingredients are hardware, instructions are software, and the product i.e. the cake is output. Social Studies: Court or debate models. The facts, participants, etc. are hardware, the rules and procedures are software, and the product i.e. the result of the case is output.

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Topic	Learning Objectives				Content	Methods / Strategies / Materials	Evaluation	Areas of Integration
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Introduction to Operating Systems	Identify the Operating System (OS) used in the computer lab.	The OS is software which allows the User to interact with the Hardware that makes up the computer system. There are many types of OS.	Without an OS, the User would not be able to use the Hardware that makes up the computer system or the Software installed on the computer system. Each OS is chosen based on the Hardware used and the conditions under which the computer is being used. OS are updated frequently to deal with changes in hardware.	Appreciate that the Operating System is one type of Software and without it, a user cannot operate their computer. Appreciate that no one OS is right for every computer.	Definition and examples of various Operating Systems. Review the conditions in which one Operating System might be chosen over another. For example, hardware restrictions, networks, mainframes, and stand alone environments.	Demonstrate the differences between a Windows and DOS OS. Explore different computing environments: school, corporations, government. Brainstorm what each might use the computer to accomplish and have students suggest an OS for each environment based on what the environment is like and its goals.	Can the student identify the Operating System of the computer they work on? Can the student explain why that computer uses that OS?	Science: Examine the circulatory system, photosynthesis, or other systems that allow life to function. Social Studies: Examine different forms of government, laws, rules that allow civil society to remain orderly and function.

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	Identify the Computer Lab's Operating System as a Graphical User Interface (GUI).	A Graphical User Interface is made up of 4 main components: Windows, Icons, Menus, and Pointers. Examine components of the Desktop.	A GUI allows Users to easily interact with a computer. It does not require the memorization of a language or set of instructions.	Willingness to be curious and explore the GUI environment so as to feel comfortable with the OS of the machine.	Definitions of Windows, Icons, Menus, and Pointers. Components of the Desktop include taskbar, Start Menu, icons (as appropriate to lab computers).	Encourage the students to explore the computer by clicking on various icons and looking through menus. Have them look at the task bar, open, minimize, and close windows.	Do students understand the meaning of the terms window, icon, menu, and pointer? Do students understand what the desktop is and how to locate it?	Art: Students design their own icons. Language: Discuss menu names, definitions, and logic behind their use.

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Keyboard and mouse skills development	Recognizing and naming the groups of keys on the keyboard. Using the groups of keys for their correct functions. Improve the speed and accuracy of typing by using typing tutor programs.	Use of the computer keyboard.	The keyboard is made up of several groups of keys each performing a specific function. Function keys are labelled with an F and then a number. They are not number keys. The arrow keys can be used to move the cursor in four directions.	Willingness to learn and understand the computer keyboard so that typing skills can be improved. Recognise that improved typing skills can improve comfort levels and use of the computer.	Review handout or layout of the computer keyboard. Identify the functions of each group of keys.	Use typing tutor programs to teach basic typing skills and improve typing accuracy.	Do the students know where each key is located on the keyboard? Can the students identify the function of each group of keys?	Language: Typing short passages. Science: Typing reports. Reading, Literature: Type letters, book reports, poems, and assignments.

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	Work effectively with the mouse	Hold the mouse by using your thumb and third finger, anchor the mouse using the palm of your hand, and rest your two first fingers on the buttons. Definitions of single click, right click, double click, and drag and drop.	Holding the mouse comfortably and in a relaxed way will give you more control. There is a difference between single click, right click, double click, and drag and drop. Using the correct terminology is important because these terms are often referred to in IT instructions.	Exercising patience when using the mouse. Showing care for the mouse. Appreciating the purpose of pointing and clicking to interface with the computer.	Introduce definitions of single click, double click, right click, and drag and drop. Demonstrate the results of single clicking (choose or highlight an object), right clicking (display available options), double clicking (open a program or object), and drag and drop (move an object).	Develop mouse skills using educational software and games that require pointing, clicking, double clicking, and drag and drop. Use Paint program to draw lines, move, select, and gain proficiency using the mouse.	Are users able to move the mouse to point and click effectively?	Physical Education: Games with hand-eye coordination. Art: Draw pictures using MS Paint. Maths: Play solitaire or other card games on the computer.

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Introduction to Word Processing ---------- NOTE: Requires at least 6-9 lessons. Students need a lot of practice to become confident with their Word Processing Skills.	Load a Word Processing program	Word Processing programs allow you to manipulate text in a document.	In order to produce a document using the computer it is necessary to use a Word Processing program.	Comfort with using Word Processing programs to produce professional looking documents.	Demonstration of documents produced using a Word Processing program.	Discussion of Word Processing and the loading process. Demonstration of documents produced using a Word Processing program. Produce a document on any subject the student wants to write about.	Can students effectively load a Word Processing program?	Language: Use essay-writing skills to produce a document. Allied Arts: Use play-writing skills to produce and perform a play or skit.

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	Identify parts of the Word Processing Screen	Text can be inserted into a document at the insertion point. Scroll bars will allow you to move the page up and down. Tool bars will allow you to perform various tasks.	Different parts of the Word Processing Screen have different purposes and functions.	Willingness to explore the organizational structure of the word processing program: menus, toolbars, scroll bar, document, page, ruler, buttons.	Demonstration of the different parts of the Word Processing screen: organization of menus, toolbar icon locations, scroll bars, and moving the insertion point.	Have the students replicate a simple letter or other pre-typed assignment.	Are students able to produce a document using a Word Processing program?	Language: Typing short passages. Science: Typing reports. Reading, Literature: Type letters, book reports, poems, and assignments.
Introduction to Word Processing continued.	Use the formatting toolbar icons	Use of Bold, Italics, Underline, Font, Font Size, Left Align, Right Align, Centre, and other standard formatting toolbar buttons.	Formatting can impact how a document looks and how it is received.	Appreciation for the impact that good formatting can have on the presentation of a document i.e. good formatting can affect the mood (e.g. seriousness) of the document on a reader.	Text manipulation: size, font, underline, italics, bold, alignment. Cut, copy, paste. Inserting graphics. Using Page Setup to establish page/paper orientation.	Have the students improve the formatting of an already existing document file. Activities should include cut, copy, and pasting parts of documents.	Are students able to improve the presentation of a document using the formatting toolbar icons?	

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Accessing Intranet --- NOTE: This topic should ONLY be taught if the school has an Intranet system.	Definition of Intranet	The files available on the Intranet are placed at a central location in the computer lab, and accessible once a connection is made to that central location. These files can be taken from the Internet, CD's, encyclopaedias, web pages and e-books.	The Intranet is the collection/set of files stored locally that can be accessed without the use of a telephone connection.	Recognition that the Internet and Intranet are completely different things. Appreciation that an Intranet can be created among several computers in a small lab.	Definition of Intranet. Demonstration of the distinction between the Intranet and Internet.	Presentations of visual representations of the school's Intranet. Group discussions on the differences and similarities between Internet and Intranet.	Does the student understand what the Intranet is? Does the student understand the difference between Internet and Intranet?	Physical education: Have students form in small groups and share information in those groups (Intranet). Have students share information between/among the groups (Internet). Art: Have students draw a visual representation of an Intranet and then one of the Internet.
Accessing Intranet continued. --- NOTE: This topic should ONLY be taught if the school has an Intranet system.	Browse the Intranet	The Intranet can be accessed by typing in the address bar, the path to the central location where all files are stored.	The Intranet can be used as a tool to access information.	Appreciation for information available on the Intranet. Willingness to use the information available on the Intranet.	Access the school's web page. Access other information available on the lab's Intranet.	Presentation of subjects researched using the Intranet. Group discussions on the differences between information that might be on the Intranet versus what might be on the Internet.	Can each pupil access the Intranet? Can the student find information in a timely manner?	Language Arts: Compiling information collected in research. Social Studies: History of School, Country Agencies etc.

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	Browse the various computers on the internal network to locate, open, or save specific information in a timely manner.	Computers connected to an internal network can communicate with each other allowing Users to browse the different computers on the network.	An internal network allows Users to sit at any machine and access their work.	Understanding that Users do not have to sit at the same machine each time to complete their assignments. Willingness to browse and use the internal network.	Basic introduction to how the computers in the lab are able to connect and exchange information.	Presentations of visual representations of the school's internal network and how it works.	Can students access information from other computers on the internal network?	Social Studies, Science: Students can examine how communities, societies, and complex systems are connected and communicate.
History, Present, and Future of Computers - Research	Connect the development of a particular piece of computer equipment from its invention to its potential future use.	The origins of the computer system or certain components of the computer system and how they impact the future development of IT.	Computers as Users experience them today have come from a long history of development. Computers as Users will experience them in the future will come from present and past human interaction, wants, and needs for technology to supplement or impact their lives.	Willingness to read IT magazines, information, and news. Appreciation for the time, effort, money, and work many individuals have invested into developing, researching, and creating IT components and equipment.	History or development of the modern personal computer, its present look, feel, and use today, and its potential future look, feel, and use.	Have students choose a component of a modern multimedia computer system: digital camera, printer, scanner, MP3 player, personal data assistant (PDA) and research its history, present, and potential future uses/changes. Group discussion on the history, present, and future of Information Technology.	Can students connect the history to the present and future development of technology?	Social Studies, Economics, Government: Students can examine how society, government, and business has been changed by Information Technology. Maths, Science: Students can examine how science and maths has been impacted by technology.

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	Skills	Knowledge	Understanding	Attitude				
Educational Tours to Commercial and Industrial businesses	Observe, research, and report on the different types of technology and their use in various businesses.	How computers are used in accomplishing the tasks and the objectives of the organization.	Computers are used in different ways depending upon the organization, the task, and the objective.	Appreciation for the variety of ways computers can be used in commercial and industrial businesses.	Identify what factors commercial and industrial businesses consider when they go to choose the type of computer technology they need to use to accomplish their goals. Identify the ways in which computer technology helps commercial and industrial businesses function.	Have students write up a report identifying the factors that local video stores, government offices, banks, and industrial sites might have used to choose the type of computers and systems that they use and what they are used for. Discussion on what working in these commercial and industrial businesses might be like without the use of computer technology.	Do students understand that there are many ways in which a computer can be used? Do students understand that the type of computer system to be used is influenced by your objectives in using it?	Social Studies: How have computers changed the way business, individuals, and governments function on a day to day basis?

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Introduction to Spreadsheet	Define Spreadsheet	A Spreadsheet program enables you to carry out numerical work easily and flexibly. The name comes from the way in which the software allows you to display or SPREAD out number data on a computerised SHEET.	A Spreadsheet program allows you to manipulate, calculate, and keep track of numbers.	Recognise the uses and potential power of Spreadsheet programs.	Definition of Spreadsheet. Demonstration of different uses for Spreadsheets.	Discussion on the uses for Spreadsheets by teacher and students. Examples of previously constructed Spreadsheets. Students should change data and observe the Spreadsheet automatically recalculating the data.	Do students know what Spreadsheets are? Can students identify areas where Spreadsheets can be useful?	Science: Use of tables to track and record scientific data. Economics: Use of tables to do record-keeping, book-keeping, and budgeting.
	Definition of columns, rows, cell, and cell reference.	Columns are vertical. Rows are horizontal. Cells are the intersections of columns and rows - they look like boxes. Cell references are made up of the letter of the column and the number of the row where the cell is located.	Columns, rows, cells, and cell references are used to make calculating and identifying the location of an item on a Spreadsheet easier. A cell can only be changed if it is active.	Willingness to use rows, columns, cell, and cell references to describe the location of items on a spreadsheet.	Differences between rows and columns. Use of cells and cell references. An active cell is the one highlighted.	Have students draw a grid on a sheet of paper. On that grid, have them identify a cell and label each row, column, and cell reference.	Can students distinguish between columns, rows, cells, and cell references?	Social Studies: Maps, addresses. Maths: Grids.

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Introduction to Spreadsheet continued.	Definition of worksheet, workbook, and tab.	Workbook - the file in which you work and store your data. Worksheet - the primary document that you use to store and work with data. Sheet tabs - the names of the worksheets appear on tabs at the bottom of the workbook window.	Because each workbook can contain many worksheets, you can organize various kinds of related information in a single file organizing that information by providing descriptive labels for the sheet tabs.	Willingness to use all the features available in a workbook - organizing different information on various worksheets and labelling the sheet tabs appropriately.	Demonstrate that each workbook can contain many worksheets, a worksheet consists of cells that are organized into columns and rows, and that a worksheet is always stored in a workbook. Show students that to move from worksheet to worksheet, all they need to do is click the sheet tabs.	Have students create a workbook for the year using an exercise book or several sheets of paper bound together. Each sheet of paper will be a worksheet where they've drawn and labelled columns and rows. At the bottom of each worksheet, they'll draw a sheet tab and label it for each month of the year. Have students then list on each worksheet the items their family buys and the cost of each item for each month in a year.	Can students distinguish between workbook, worksheets, and sheet tabs?	Social Studies: Use a workbook or exercise book to keep statistics for a project. Home Economics: Use a workbook or exercise book to keep monthly savings and expenditures for the household.

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	Insert text and numbers in cells	Text and numbers can be inserted by placing the pointer in a cell, clicking once, and using the keyboard to type the letters you want to enter. The data being entered can be viewed in the toolbar.	The mouse is used to identify where you want to insert text and the keyboard is used to enter that text.	Willingness to accurately insert text and numbers into cells.	The process for inserting text and numbers in cells. The reason why the process happens in a certain sequence i.e. identify the cell, move your mouse to that cell, click, and begin to type.	Teacher demonstrates the process of inserting text into cells. Have students copy into Spreadsheet software a table with text and numbers.	Can students insert text and numbers into cells?	Social Studies, Science, Maths, Economics: Students can recreate a table of information that they have seen in a textbook or create a table of information for a report that they are submitting.
Introduction to Spreadsheet continued.	Insert additional columns and rows	To insert a column, click on the column letter to highlight a column and use the Insert menu. To insert a row, click on the row number to highlight a row and use the Insert menu.	Additional columns and rows can be added in even after numbers and text have already been inserted.	Comfort with inserting a column or row when an additional one is necessary.	The process for inserting additional columns and rows. The reason why the process happens in a certain sequence i.e. identify the column/row, move your mouse to that column/row reference, click, highlight, choose Insert menu and choose column/row.	Teacher demonstrates the process of inserting additional columns/rows. Building off the Spreadsheet students have already started to build, have them replicate inserting additional needed columns/rows.	Can students insert additional columns and rows into a worksheet?	Have students add additional information to their already existing tables for their reports.

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	Use basic formulas to perform simple calculations	When finding the sum of rows and columns the Auto Sum tool can be used as a shortcut. For using the addition, multiplication, division, and subtraction formulae the following signs are used: +, *, /, and - respectively.	A formula is used for making calculations. All formulas must start with an equal sign (=) in Excel.	Appreciation for the ease of using formulas to perform calculations in Spreadsheets. Willingness to use the calculation power of Spreadsheets instead of a calculator or pen and paper to perform calculations.	Use of Auto Sum tool. Example of formula for addition =SUM(B2:F2) where B2 is the beginning cell reference and F2 is the ending cell reference and ":" serves as 'to' i.e. the formula reads: this cell equals the sum of B2 to F2. Students practice using cell references and basic formulas such as =B3-B2, =B3*B2, =B3/B2, B3+B2.	Teacher demonstrates the creation and logic of formulas in Spreadsheets. Students are then assigned a task where they first enter data in the Spreadsheet and then calculate sums, +, /, *, and -.	Do students understand the power of Spreadsheet software to perform simple calculations? Can students use Spreadsheets to perform simple calculations?	Maths: Formulas for adding, subtracting, multiplying, and dividing.

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Compilation and Review of all Terms Introduced in Level 7	Maintain records of terms and definitions for future use.	The terms and definitions relevant for material covered in Level 7.	The terms and their definitions have very specific and meaningful uses.	Willingness to be responsible for understanding the terms and definitions used in IT.	Terms and definitions introduced throughout the course of the terms.	Students maintain a workbook throughout the year writing down each term and looking up the definition of terms that they do not understand.	Can students understand some of the basic terms introduced? Can students take the responsibility for researching and teaching themselves the definitions of certain terms?	Language: Use these terms in writing an assignment. Social Studies: Identify the use of these terms in local newspapers and local news. Are they being used properly?