



MINISTRY OF EDUCATION

SECONDARY SCHOOL

GRADE 8

Information Technology
Curriculum Guide

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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 8 IT Curriculum Guide

The overall objective of the Grade 8 IT Curriculum Guide is to advance upon the foundation established 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 8 Topics	Objective/Reason
1	Intermediate Spreadsheets	Building upon the introduction and use of Spreadsheet software in Grade 7, additional terms should be introduced such as: sheet, workbook, and tab. Students should be able to calculate averages and percentages as well as use other simple formulas. Students should also be able to produce simple charts using the chart wizard.
2	Ongoing Maintenance of Computer Systems	Introduce students to the basics of ongoing maintenance of the computers. Students will recognize the expense of the equipment and how regular maintenance of the computers can prolong their performance, use, save the cost of purchasing new equipment, and therefore benefit all users.
3	Categories of Computers	Students need to be aware that the computers used in schools are only one type of a range of computers available. Rote learning of the computer categories is not recommended. Instructors should try to get students to understand that a personal computer (PC) is only one type of computer like a cell phone is just one type of phone. A field trip to an organization could help achieve this.
4	Accessing the Internet	If the school has access to the Internet, the Instructor should introduce Internet related terms such as: browser, website, webpage, link, html, and search engine. The Instructor can then teach students how to browse websites and search for information and assign tasks which require students to undertake research using the Internet. This will help build students' confidence in the research process and their abilities to use the Internet to access information.
5	Definition of IT versus Computer Science	Instructors should introduce the definitions of and differences between Information Technology and Computer Science. Making sure that students understand the difference will allow them to recognize that choosing to pursue study in one field versus another may directly impact their qualifications and the career they eventually take.
6	Introduction to Databases - Using pre-existing databases	Instructors should attempt to introduce the definition of database so that students can build a level of understanding of what databases are without actually creating one. Students should be able to use and navigate a database, find records, and filter records.

Content Rationale for Grade 8 IT Curriculum Guide

Priority	Grade 8 Topics	Objective/Reason
7	Intermediate Word Processing - Page Setup, Margins, Lists, Fonts, Inserting Graphics, Advanced Typing Skills, Tables, Spelling & Grammar Check	Instructors should focus on building the formatting knowledge and typing skills established in Grade 7. Students should be able to perform more complex formatting tasks and begin to develop an "eye for detail" or an appreciation for the impact that formatting can have on the presentation of the document and how it is received.
8	Introduction to Files - Definition, Naming Files, and File Extensions	Introduce the definition of File. Instructors should build an understanding that Files are composed of a File Name (assigned by the User) and File Extension (assigned by the computer) and that File types relate to the programs that they were created on. Students should feel comfortable naming Files properly and appropriately.
9	Data Protection	Instructors should teach students to make it a habit to backup their work. No storage device is 100% perfect. Sometimes they fail and other times they can get infected with viruses so having multiple copies of the same item can save the student from losing important work. Students should understand anything stored on individual computers or storage devices will not necessarily be private or completely safe from loss, damage, or theft.
10	Input, Output, Backing/Storage Devices, and CPU	Instructors should help students categorize Hardware into Input Devices, Output Devices, Backing/Storage Devices, and the Central Processor Unit. Understanding the process that the computer uses to (1) intake data, (2) pull instructions from backing/storage, (3) process it, and then (4) output information can help students feel comfortable in understanding how the computer works. Students should be able to distinguish between these devices and feel comfortable using them.
11	Introduction to Desktop Publishing	Define Desktop Publishing: the process of using the computer and specific types of software to combine text and graphics to produce documents such as newsletters, brochures, books, etc. Introduce the basic concepts of Desktop Publishing, elements of design, and assign a task which requires students to use Word Processing Software to create an announcement, brochure, or newsletter. Students should feel comfortable combining graphics and text to produce unique documents.
12	Compilation of Terms used in Grade 8	Building upon the list from Grade 7, students should try to keep a list of all the terms they have been introduced to during the course of Grade 8. The instructor may take some time to review of all the terms introduced and their definitions to ensure that students understand the definitions and their use. The emphasis here should be on the understanding and application of the terms, not on the rote learning of complicated definitions.

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Topic	Learning Objectives				Content	Methods / Strategies / Materials	Evaluation	Areas of Integration
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Intermediate Spreadsheets	Use simple functions to calculate sum and average.	Functions for sums and averages.	The average of a set of numbers is the sum of those numbers divided by the quantity of numbers being added together. If a cell contains a null value I.e. it is empty it will not be counted as a number.	Willingness to translate the average concept into a Spreadsheet formula.	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. Average formula: =average (beginning cell reference: ending cell reference)	Have students enter data into a table. Possible topics could include: cricket scores by player, basketball stats by player, or inventory of a store by month. Have students create the sum and average for each row and column. For example, in a table of cricket scores, students can compute the sum and average hits, runs, etc. per player and for the team as a whole.	Can students use the sum and average functions in a spreadsheet to extract useful information from a table of data? Are students comfortable with using the sum and average formulas?	Mathematics, Social Studies, Science: Students can use spreadsheet software to report the data gathered from a Maths, Science, or Social Studies project. They can then use the sum, average, and percentage formulas to analyse this data.
	Use simple formulas to calculate percentages.	Formula for calculating percentages.	The percentage of a particular thing can be calculated by dividing that piece by the total or 10% of a whole can be calculated by =.10 * cell reference.	Willingness to translate the percentage concept into a Spreadsheet formula.	Percentage formula: =part/whole also =B3/sum(B2:B3)	Use the data entered into the table from the previous skill set and have students generate percentages for the items in each row.	Can students use percentage formulas to determine each row's contribution to the total? Do students understand what percentages represent and why or when they might be used?	

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Intermediate Spreadsheets continued.	Using chart wizard icon to create graphs. Selecting appropriate data to use in a graph.	Meaningful graphs can enhance the presentation of data.	Graphs and charts allow easy reading of information.	Appreciate that one set of information can be displayed in several different ways.	1. Transfer information from a spreadsheet to a graph. 2. Select chart wizard icon in the toolbar. 3. Use the same data and select various types of graphs. 4. Change patterns and colours on charts and graphs. 5. Use of appropriate headings and axis labels to provide meaning to the graph.	Discussion on transfer of information from the spreadsheet to the graph. Explain, demonstrate, and have students replicate how the colours and patterns of graphs can be changed.	Can the students transfer information from the spreadsheet to meaningful graphs? Can the students use the chart wizard icon effectively?	Mathematics, Social Studies, Science: Use the data from the previous skill sets and have students graph these data or... Have students use the time in the lab to complete charting and graphing homework due in their other courses.
Ongoing Maintenance of Computer Systems	Perform simple maintenance on the computer system: scandisk, defrag, and obtain virus updates.	How to run Scan Disk, Disk Defragmenter and obtain Virus Updates.	Care and regular maintenance are necessary for the efficient functioning of the computer systems. Using contaminated floppy disks can increase the risks of viruses in the computer system.	Willingness and desire to protect computer systems from viruses and maintain computer systems for use by all students.	Explanation and demonstration of how to run Scan Disk, Defrag, and Virus update on the computer. List of rules and consequences of abuse of computers.	Discussion of rules for the effective maintenance of the computer system. Actual demonstrations on how cleaning must be done.	Are students aware of the importance of caring for the computers? Can the students clean the mouse, keyboard and monitor?	Science, Social Science: Examine how delicate care and regular maintenance can impact the performance and benefits derived from a machine, the human body, or an animal or pet such as a cat, dog, horse, goat, or cow.

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Topic	Learning Objectives				Content	Methods / Strategies / Materials	Evaluation	Areas of Integration
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Ongoing Maintenance of Computer Systems continued.	Scan floppy disks and hard drives for viruses.	<p>Definition of a computer virus.</p> <p>Understand how computer viruses are spread.</p> <p>Understand how catching a computer virus can be prevented by updating virus definitions, scanning floppy disks before opening files, and scanning files before downloading and opening them from the Internet.</p> <p>Understand that installing more than one anti-virus program onto a computer can cause it to malfunction.</p>	<p>Computer viruses can produce messages, perform pranks, deny access to the computer, program, or file, steal data from the computer, corrupt data, delete data, or disable computer's hardware making the machine unusable.</p> <p>Anti-virus software can reduce the risk of a system being infected but ONLY IF the virus definitions on the computer are kept current.</p>	<p>Willingness to take precautionary measures to protect against viruses.</p> <p>Awareness that individual protection against viruses impacts everyone. If one person does not take precautions, they can infect the entire community.</p>	<p>A computer virus is a program designed to harm a computer system. It can spread across computers and networks by making copies of itself, usually without the user's knowledge.</p> <p>Viruses typically spread via the Internet, networks, or floppy disks.</p> <p>Restricting the use of floppy disks, Internet downloads, and using anti-virus software can reduce the risk of a system being infected.</p>	<p>Demonstrate how to load the virus protection software, look for the last virus definition update date, and scan floppy disks for viruses.</p> <p>Allow students to explore the anti-virus software set-up and screens. Ask students to scan a floppy disk using the anti-virus software.</p> <p>Discuss how the anti-virus software works, the importance of virus definition updates, how viruses spread, who writes them, and what effect they might have on a computer.</p>	<p>Do students understand what a computer virus is, how it spreads, what it can do to a computer, and how to prevent it from spreading?</p> <p>Do students know how to scan their floppy disks for viruses and check for the last date of the virus definition updates?</p>	<p>Biology: Discuss some of the similarities in characteristics between biological viruses and computer viruses. For example: A biological virus is not a living thing. Unlike a cell, a virus has no way to do anything or to reproduce by itself -- it is not alive. Instead, a biological virus must inject its DNA into a cell. The viral DNA then uses the cell's existing machinery to reproduce itself. A computer virus shares some of these traits. A computer virus must use another program or document in order to get executed. Once it is running, it is then able to infect other programs or documents.</p>

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Categories of Computers	Identify three categories of computers.	Know the difference between micro-, mainframe, and mini-computers. Know which category of computer is best suited to a given situation or organisation.	Understand that different categories of computers have varying processing speeds, memory and storage capacity. Therefore, the different categories of computers will be used for different situations.	Appreciate that there is a huge range of computers with different performance levels.	Microcomputer - usually for individual use and is also called a personal computer (PC). Mainframe computer - a large, powerful computer, capable of processing large amounts of information. Minicomputer - a 'mini' version of the mainframe.	Site visit to organisations to view the different categories of computers used e.g. GT&T, Bank of Guyana, NDMA. Give students a list of organisations and the activities carried out within that organisation. Students must identify which computer type is most appropriate for that organisation.	Do students understand the definitions for each of the categories of computers? Do students understand why each category of computer is used for different purposes and by different organizations?	Social Studies: Organisations, their structure, their business needs and why they might choose the computer categories that they do. Biology: Organising plants and animals by species, class, etc. What are the common characteristics for each group?
Different types of Personal Computers	Know that there are different types of Personal Computers available on the market. They include desktop, laptop, notebook, and palmtop computers or Personal Data Assistants (PDA).	Understand that just because these PCs look different or come in different packages or sizes they all have similar capabilities. Recognize that different types of PCs are purchased and used for different purposes and reasons.	Appreciate that all personal computers have fundamentally similar capabilities because they are part of the same computer category.	Distinguishing characteristics of a desktop, laptop, notebook, and palmtop computer or PDA. Compare prices and then weigh the benefits of buying one type of PC versus another.	Have the students list the things they want to use a PC for e.g. play video games, surf the internet, write papers, etc. Have the students then determine the best PC for them and why they have chosen that type of PC. The teacher might provide them with a budget limit, a few requirements, and/or a scenario. For example, students can pretend to be bankers, teachers, travel agents, and lawyers.	Can the students distinguish between a laptop, desktop, notebook, and palmtop computer or PDA? Do the students know the reasons why a customer might choose one type of PC over another?	Social Studies, Economics: Explore the development of the different types of computers, how they are used, and how they have changed, how people do business, find information, do their homework, etc. Biology: Organising species of plants, animals, etc. What differences and similarities lie within the same categories?	

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Accessing the Internet ----- NOTE: This topic should ONLY be taught if the school has Internet access.	Identify the building blocks of the Internet.	Definition of a stand-alone environment, a Network, a Local Area Network (LAN) and a Wide Area Network (WAN). Differences between a stand-alone environment, a Network, a LAN, and a WAN.	Different types of computer networks are available for different needs. They are all inter-related and some are connected through the Internet. Networks speed up the rate at which people can share, transmit, and transfer data and information.	Appreciate the benefits of sharing files, information, data, and peripherals through computer networks.	Stand-alone environment - a computer all by itself. Network - a group of computers that are physically connected in a way that lets them communicate and interact with each other. LAN - a computer network connected in a limited area [in one building]. e.g. school lab. WAN - a computer network connected over wide areas e.g.. between towns, cities, counties, and countries. e.g. banking organisation.	Have students break up into groups and demonstrate an example of a stand-alone environment, LAN, and WAN. They can do it physically, draw it, or write it. Have students explain the good and bad aspects of each of these environments.	Do students understand the difference between a stand-alone environment, a LAN, and a WAN? Do students understand the pros and cons for having or not having a network?	Physical Education: Take the students outside to have them form and test out their various types of stand-alone environments and Networks. They can even test the pros and cons of networks by trying to exchange information. Social Studies, Biology: Have the students examine how the ease of sharing information with other people has improved the quality of life of all people. How is sharing information critical to life? In what other ways do we form networks?

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<p>Accessing the Internet continued.</p> <p>-----</p> <p>NOTE: This topic should ONLY be taught if the school has Internet access.</p>	Understand what the Internet is	<p>The Internet is a global version of a WAN.</p> <p>It is not run by any one person, company, or government.</p> <p>It is not a library or an encyclopaedia.</p>	<p>The Internet is composed of a network of supercomputers (also called servers), wires, and satellite connections that enables those supercomputers to share data and information.</p> <p>Anyone can post information on the Internet whether it is truth or fiction is for the reader to decide.</p>	Appreciate the good and bad of connecting computers and sharing data and information.	<p>The Internet is best defined as a network of wires and satellite connections that connects computers worldwide.</p> <p>There are several uses for the Internet. The most popular uses for the Internet include the World Wide Web, Electronic Mail, and Chat.</p>	<p>Have students break up into groups as various examples of computer environments/networks. They can do it physically, draw it, or write it. Then have students connect each of these environments to each other to form the Internet.</p> <p>Have students explain what happens if one of the LAN, WAN, or stand-alone environments do not work. i.e. page will not display.</p>	Do students understand that the Internet is distinct from the World Wide Web, that no one person is to blame if the Internet is not up and running, and no one reviews the content posted on the WWW for truth or fiction?	Biology, Social Studies: Examine dependent and independent systems. Compare them to the Networks and components that make up the Internet. What is the most efficient way to ensure all the pieces/components are working? Who takes responsibility for the information they discover on the Internet?
	<p>How to access the World Wide Web (WWW)</p> <p>Differentiate between reliable and unreliable or biased information.</p>	The World Wide Web can be accessed through a browser.	<p>Recognize that anyone who has a computer can post data and information on the WWW.</p> <p>Students must be careful in determining what information is good and bad.</p>	<p>Appreciation for the quantity of information available on the WWW.</p> <p>Willingness to question information made available on the WWW.</p>	<p>BROWSER - A program that accesses and displays files available on the WWW.</p> <p>Two examples of Internet Browsers are Internet Explorer and Netscape.</p>	<p>Connect to the Internet. Have students open up a browser and allow them to look through the WWW for various information by clicking on links. Suggested websites include: http://www.sdn.org.gy, http://www.google.com, http://www.yahoo.com</p>	<p>Can students open a browser and follow links on a website?</p> <p>Can students distinguish between advertising and legitimate, informative links?</p>	English, Social Studies, Biology: Allow students to use the WWW to do research for their subject areas.

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Definition of IT versus Computer Science	Definition of IT	Recognise that IT consists of the study of computer systems (past, present & future) and networks e.g. the internet as well as user end software.	Someone who majors in IT will likely deal with day to day maintenance and use of computer, information and communications systems. This is why they will need to understand the technology of/behind information. Thus, the title of the major - Information Technology (IT).	Appreciate that people who major in IT help develop, construct, and maintain the structures that allow Users to exchange, transmit, save, delete, and copy information easily.	IT is the study of computer hardware, computer software and networks. In the field of IT we use a variety of devices (including computer systems) and programs to research, create, and manipulate data effectively to produce, save/retrieve or transfer information.	Discussion of what IT is. Discussion of jobs available in IT. Discussion of responsibilities/duties, hours, range in wages, availability, and pros and cons of each of the positions available in IT.	Do students understand what types of jobs people who choose to pursue a degree in IT are able to apply for and receive?	Economics, Social Studies, Guidance: Encourage students to study the history of formal education in IT. For example: When did colleges and universities begin to offer it as a major? Do many people in the job market require a degree in IT or do they look for certification in other areas? What is the range of wages someone might receive for majoring in IT? How has this changed over time?

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Definition of Computer Science	Computer science is the study of programming to develop/create software. It also looks at the technical aspects of computer systems and networks.	Someone who majors in Computer Science will likely deal with inventing, developing, and designing computer programs, systems, and components. This is why they will need to understand the science of how computers work. Thus, the title of the major Computer Science.	Appreciate that people who major in Computer Science invent, design, and create the systems and structures that allow Users to interact with the hardware and software of a computer system easily.	Computer Science is the study of programming in order to write, edit and update existing software to suit user end requirements. Computer science looks at inventing and developing systems and system networks to suit the needs of the users.	Discussion of what Computer Science is. Discussion of what kinds of jobs are available in Computer Science. Discussion of responsibilities/duties, hours, range in wages, availability, and pros and cons of each of the positions available in Computer Science.	Do students understand what types of jobs people who choose to pursue a degree in Computer Science are able to apply for and receive?	Economics, Social Studies, Guidance: Encourage students to study the history of formal education in Computer Science. For example: When did colleges and universities begin to offer it as a major? Do many people in the job market require a degree in Computer Science or do they look for certification in other areas?	

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Definition of IT versus Computer Science continued.	Differentiate between IT and Computer Science	IT is concerned predominantly with the user-end spectrum, whereas Computer Science relates to the development of systems and software.	Realise that study in IT is very different from the study of Computer Science but there are certain aspects that overlap.	Appreciate that the working world makes a distinction between Computer Science and IT and might therefore categorize a job applicant based upon this distinction.	<p>Review the definitions of IT and Computer Science.</p> <p>Review the types of jobs available in IT and Computer Science.</p> <p>Compare and contrast the various jobs. How are they similar, different, the same? What skills are employers looking for that are similar, different, the same in IT and Computer Science?</p>	<p>Compare the IT and Computer Science fields.</p> <p>Discuss some of the jobs in IT and Computer Science.</p> <p>Ask students to identify whether they would rather study IT or Computer Science and why. Also remind students to recognize that there is sometimes an overlap between the two.</p>	<p>Can the students distinguish between IT and Computer Science?</p> <p>What are the differences between the jobs that an IT person versus a Computer Science person would have?</p>	<p>Social Studies/ Guidance: Careers and job roles.</p> <p>The difference between IT and Computer Science is like the difference between being a Doctor and a Scientist.</p> <p>Doctors maintain and improve upon the existing system. Scientists attempt to invent and create new systems to add to or replace the already existing ones.</p>
Introduction to Databases	Definition of Database	A Database is an organized collection of structured data about a particular subject (person, place, or thing).	A Database package or program enables you to organise and store datafiles (tables) so that specific items of information can be retrieved easily and quickly in a structured fashion.	Recognise the uses and potential power of Database programs.	<p>Definition of Database.</p> <p>Demonstration of different uses for Database programs.</p>	<p>Discussion on the uses for Databases by teacher and students.</p> <p>Examples of previously constructed Databases.</p>	<p>Do students know what Databases are?</p> <p>Can students identify areas where Databases can be useful?</p>	<p>Science: Use of Databases to track and record scientific data.</p> <p>Economics: Use of Databases to do record-keeping, book-keeping, and budgeting.</p>

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	Skills	Knowledge	Understanding	Attitude				
Introduction to Databases continued.	Understand why a Database is being used.	When to use a Database to organize, store, and structure data and/or information.	Databases are usually used to organize, store, and structure large quantities of information and complex data into tables and forms for easy access. Records are easily retrieved and manipulated to search for data.	Recognise the conditions and circumstances that promote the use of Databases.	The process of determining when a Database would be needed. 1. Examine the data/information provided. What is its structure? 2. Will it need to be sorted, searched, or filtered? If so, in how many different ways? 3. Which would be the best way to organise this data/information for these purposes?	Provide students with a scenario e.g. video store, music store, doctor's office, Ministry office. Have students put together the data and information they would have given their scenario. What would they use this data/information for? What kind of questions would they ask? Would they need a Database in order to answer these questions?	When given a set of data or information, can students identify when to use a Database to organize the data or information provided?	Guidance, Economics, Social Studies: Have students go to various places in their communities, interview workers, and ask if they use computers or Databases to help them in their work. Students should report how these establishments use computers and/or Databases and if they don't how could they use computers and/or Databases? What are or would be the pros and cons?
	Understand the organisation of a Database. NOTE: In some texts you will see "table" referred to as a "file" i.e. a datafile. It is only MS Access that uses "table."	A standard Database is composed of tables, records, and fields. Definition of tables, records, and fields.	How tables, records, and fields combine to organize and structure data and information in a Database.	Willingness and patience with learning how a Database is organized and acquainting oneself with the basic elements of a Database.	Table - a collection of related data about a subject and is divided into rows and columns. Each row holds a record and each column has a unique field. Field - an area reserved for each piece of individual data. Record - a group of related fields.	Have students navigate through an already created Database and observe how it is organized. Have students identify examples of tables, records, and fields in the Database they are navigating.	Can students identify and distinguish between a table, record, and field? Can students work through how a Database is organised and/or structured?	Science, Social Studies: Observation and dissection. How are governments, communities, or groups of animals organized? How do they structure themselves? Have students observe and organize these findings into what they will eventually enter into a Database.

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Introduction to Databases continued.	Find and filter records in a Database	Use find to pull up a record with specific criteria. Use filter to display all records in the database that have the criteria you have established.	A Database program allows the user to find and retrieve information by finding and filtering.	Appreciate that these exercises demonstrate in a practical way, the reasons for using databases i.e. to store, access & manipulate information in a quick and easy way.	Find will show all records but highlight the record meeting the criteria. Filter will change the display so that the database only shows those records containing the criteria e.g. address field might = Georgetown.	Use an existing Database to demonstrate how to find and filter records with specific criteria. Have students replicate finding and filtering records with different criteria using an already existing database.	Do students know how to find and filter records based on certain criteria? Do students see why using a Database to organize and store information makes finding and filtering easier?	Economics, Government, Social Studies: How can the ability to find and filter records faster impact how society is organized? How government services can be delivered? How businesses, libraries, hospitals, etc. function?
Intermediate Word Processing	Page Set-up	How to use Page Set up to: - set page margins - set paper size, and - set paper orientation.	Page set-up improves the presentation of documents. Establishing the Page Set-up before you begin typing can provide the user with a more accurate view of what the finished product will look like.	Willingness to use Page Set-up to improve the presentation of documents. Appreciate presentation is an important factor in Word Processing.	Load the Word Processing software. Go to File, Page Set-up: 1. Set left and right margin. 2. Select and change paper size. 3. Select page orientation.	Explain how Page Set-up works i.e. what options are available and how they work. Demonstrate how Page Set-up works. Have students type a letter or a report using the Word Processor. Have students begin by setting up their page using Page Set-up.	Can students locate correct dropdown menu for the Page Set-up option? Are students able to set the margins, paper size, and paper orientation effectively and efficiently?	Language: Preparation of business letters, book reports, evaluations, homework and other documents.

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Intermediate Word Processing continued.	Use advanced formatting features. - Lists - Fonts - Tables - Borders and Shading	Text to be formatted within a given document must first be selected (highlighted). Bullets are used to stress important points. Numbering is used for itemising. Tables can be inserted to organize information and data on a page. Borders and shading can be used to enhance or highlight a particular word, thought, or idea.	The type and audience of the document must be taken into consideration when choosing various formatting features.	Willingness to exert time and effort to use all available formatting features to improve the look, readability, and appeal of a document.	Formatting tool bar icons can be used to change font sizes, styles, bold, italics, underline text, and insert bullets and/or numbering. To insert a table go to the Table menu, choose Insert, Table, and choose the number of rows and columns. To change borders and shading, highlight the area you want to change and go to Format, Borders and Shading.	Demonstrate how to change font size, type, colour and style. Demonstrate how to create borders and shading, change background colour, insert bullets and numbering, and tables in a document. Give students a basic business letter which includes a table e.g. an invoice or quotation document. Ask them to use these formatting tools to change the look and impact of the document. Have students pair up and evaluate the other student's finished product.	Are students effective in the use of formatting features discussed? Are the formatting features used appropriate for the audience? Does it make an impact? What kind of impression do you get from the way the document was formatted?	Language: Preparation of business letters, book reports, evaluations, homework and other documents.

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Intermediate Word Processing continued.	Inserting and manipulating Graphics	<p>How to insert pictures into a document.</p> <p>How to modify the inserted graphics.</p> <p>How to wrap text around the graphics inserted.</p>	<p>Graphics can be used to emphasize or explain an argument, issue, or point.</p> <p>Graphics can be resized to fit into a document properly.</p> <p>Text can be wrapped above, below, and around a graphic to save space and add to the presentation.</p>	<p>Willingness to build skill in manipulating graphics (word art and clip art) and text to produce a well formatted, organized, and easy to read document.</p>	<p>1. To insert clipart, go to Insert, Picture, clipart. Choose the picture you want to insert and click OK.</p> <p>2. Use the mouse pointer and the corresponding edges of the clipart to modify the size, position and shape of the graphic.</p> <p>3. To wrap text around a graphic, click on the picture, go to Format, Picture, Layout, and choose Square.</p>	<p>Demonstrate how to insert, resize, and manipulate text around clipart.</p> <p>Have students put together a newsletter, newspaper, or other document that requires them to insert a graphic, resize it, and wrap text around it.</p> <p>Have other students evaluate a fellow student's work for style, appearance, and content.</p>	<p>Are the students able to insert and modify graphic (clip art and word art) within a document?</p>	<p>Journalism, Language, English: Students can use this time in the lab to layout and create a school newspaper, newsletter, or year book.</p>

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Use Spelling and Grammar Check		How to best use spelling and grammar check to your advantage. Pay attention and evaluate whether or not a spelling of a word or grammar of a sentence is wrong.	The word processor's spelling and grammar check can be wrong especially if it is not set to recognise Caribbean English. Evaluating whether or not the spelling or grammar of a particular word or sentence is right or wrong is ultimately up to the student.	Appreciate that a spelling and grammar check is only one form of proof reading that should be carried out. It is still important for students to manually proof read their work.	To check a document for spelling and grammar, go to Tools, Spelling and Grammar. Make sure students read and evaluate all the items the word processor is attempting to 'fix.'	Demonstrate the use of spelling and grammar check and discuss why a user should evaluate the proposed 'fixes' that spelling and grammar check will recommend. Have students walk with existing homework or a document that they can enter into the computer and perform spelling and grammar check on. Discuss the use of spelling and grammar check and the necessity for manual proof reading.	Can students effectively use spelling and grammar check? Do students understand why they still need to manually proof read a document?	Language: Preparation of business letters, book reports, evaluations, homework and other documents.
Introduction to Files and Folders	Definition of Files	All data and information on the computer is stored as files. A file is made up of two different elements; a file name and a file extension.	A file can be a program, document, spreadsheet, picture or anything else that is stored on backing/storage.	Respect and appreciate that system files should not be deleted, moved, or changed. Respect that the other person's files should not be opened, deleted, moved, or tampered with in ANY WAY.	Everything that is stored on backing/storage is called a file. File names should be unique. File extensions are usually composed of 3 letters describing the program that file belongs to. File extensions are often automatically assigned by the computer to the file.	Define files and folders. Discuss the file types and the meaning of the extensions. Identify which programs generate which types of files i.e. which file extensions are associated with which programs.	Can students identify by extension what programs produce which files? Do students feel comfortable naming files?	Language: Appropriate headings/titles for work

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	Definition of Folders a.k.a. Directories	Files are stored in folders or directories. Folders or directories are used to organize files on a hard disk, floppy disk, or CD-ROM.	Folders or directories can contain other folders or directories as well as files. They function just like folders in a filing cabinet.	Respect and appreciate that system folders or directories should not be deleted, moved, or changed. Respect that other person's folders or directories should not be opened, deleted, moved, or tampered with in ANY WAY.	A folder or directory is an area on the hard drive where files are stored. For example, folders or directories can be created in order to store all the files of one particular person or on one specific topic. Folders or directories can also contain other folders or directories.	Demonstrate folder and file structures using Windows Explorer. Have students draw a schematic of the way they would organize their folders. Discuss organization strategies: How would students ideally organize their own folders? How would they label those folders and what would they store inside?	Each student will have a personal folder containing their files. Can students plan and draw a schematic of how they plan to organize their folders?	Home Economics: Discuss organizing methods. How do people organize their homes, offices, kitchens?
Introduction to Files and Folders continued.	Naming Files and Folders	File names should be appropriate to the content of that file. The file name should be unique. Every file has a file extension. The file extension tells the computer what program that file belongs to or what kind of file it is.	Appropriate names should be given to files when saving. These general naming rules can also be applied to naming Folders.	Appreciate the importance of naming files and folders descriptively, accurately, and in an orderly manner.	Good file names: 1. Are unique. You can use up to 256 characters including spaces, underscores (_), and dashes (-) for a name. 2. Describes what is in the file. 3. Does not use a full stop (.), apostrophe (’), comma (,), or question mark (?).	Discussion of relevant file names and appropriateness to the content of the file. Discussion of relevant folder names and appropriateness to the content of the folders. Discussion of what can go wrong if files and folders aren't named well.	Each student will have a personal folder containing their files. Can students plan and draw a schematic of how they plan to organize their files and folders?	Home Economics, Social Studies, English: Discuss the importance of names in organizing things, society, and language and poetry.

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Data Protection	Back-up files onto floppy disk	Definition of file back-up. Reasons why students should back-up their files.	Files can be lost if they are not saved regularly, especially if a power cut is experienced suddenly, or if a computer fails for some other reason e.g. hard drive failure. Therefore, backup on a different drive is important.	Take responsibility for saving files in more than one place e.g. backing up files just in case something happens to the file or the computer's hard disk drive.	Floppy disks are removable, transportable storage devices. They can be used to back up files from the computer's hard disk drive. Backing up of files onto floppy disk will reduce the risk of losing files in the case of system failure.	Discussion on what backing up data is. Ask students to back up their own personal files onto a floppy disk. Brainstorm ways that files might be lost. Discuss how backing up onto floppy disk might prevent this.	Do students understand that the maintenance and existence of their files is their responsibility? Do students understand the importance of backing up their files onto floppy disk?	Economics, Home Economics: Discuss the importance and possible reasons why people having a savings account, insurance, or credit to cushion against unemployment or something bad happening to you.
Data Protection continued. ----- NOTE: This topic should ONLY be taught if the school has a network set-up.	Use passwords to log-on to networks	Purpose of passwords.	A password can be used to restrict access to a computer system. A password serves to identify and clear an individual who has the authority to use or gain access to the information in that computer system.	Appreciate that memorizing passwords is important. Appreciate that sharing passwords can give someone other than the owner access to sensitive information.	Physical protection of data by restricting access can be through the use of passwords. This might be on personal computers, networks or on the labs themselves i.e. an entry keypad on a door.	Students use passwords to access log-in areas on a network. Discuss other areas in which passwords are used e.g. ATMs, email, dialling into Internet, etc. Discuss the possibility of identity theft and it's consequences if students misplace or share their password information with others.	Do students comprehend the importance of passwords? Do students understand the possible problems that can be caused if they share their passwords with others?	Social Studies, Economics: Explore the spread of the need for passwords and Pins (personal identification numbers). Discuss how this has changed finance, flow of cash/funds, the rise of new forms of crime, and the challenges that might face individuals and the police to protect and investigate electronic crimes.

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Input, Output, Backing-Storage Devices and CPU	Definition of input, output, processing and backing / storage.	Definition of an input device, output device, processing and backing/storage device.	All hardware components of a computer system can be separated into four different categories. The categories are established based upon their function.	Recognize that understanding the categories can be important to understanding how the components work together to accomplish tasks.	Input devices - Devices that let you enter data into a computer. Output devices - Devices that output information. Backing/Storage devices - Devices that let you enter, store, and retrieve data and information. Processor - Device that converts data into information.	Students identify what input and output devices humans have i.e. ears, nose etc, talking and writing can be referred to as input & output devices respectively. Discuss the brain as the central processing device and memory as a storage device. Relate this to the input, output, processing and storage devices that a computer system utilises.	Do students understand that difference between the four categories? Can students relate the categories to something concrete?	Science, Biology: Discuss how the study of medicine is also divided into input, output, processing, and backing/storage functions. For example: internal medicine, ear, nose, and throat doctors, psychologist, etc. Each specializes so that when a problem occurs, solving it will be easier by narrowing down what category is causing the problem.
Input, Output, Backing-Storage Devices and CPU continued.	Categorize hardware components into input, output, processing and storage devices.	Input devices include the keyboard and mouse. Output devices include the monitor, speakers, and printer. The processing device is the CPU. Backing/storage devices include CD-ROMs, floppy diskettes, and hard disks.	Hardware can be categorized as input, output, processing and storage devices.	Recognize that hardware components work together to transform data into information using input, processing, backing / storage, and output devices.	Define and describe the categories of the function of hardware components: Input, Output, Processing, Backing/Storage. Categorize all hardware components into one of these four main categories.	Instructor should draw a flowchart depicting how input, output, processing and backing / storage devices relate to each other. Students categorize hardware components into input, output, processing or storage devices. Define and discuss the uses of the different devices.	Does the student understand that hardware components and their functions can be separated and described by four categories?	Science: Categorization, definition, and organization of animals, plants, body parts, and/or complex systems based on physical descriptions or functions, etc.

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	Understand the flow of data into and information out of the computer.	Map the flow of data into information.	Data goes into the computer via input devices. The processor retrieves instructions / meaning from the backing/storage device to process the data into information and posts the results onto an output device.	Patience and appreciation for the process the computer takes to transfer data into information.	<ol style="list-style-type: none"> 1. The User inputs data into the computer / processor. 2. The Processor accesses backing/storage to assign meaning to the data. 3. Once meaning is assigned to the data... 4. The Processor outputs the result onto an output device. 5. The User can then decide to save the output to a storage device. 	<p>Use a broken computer for demonstration purposes. Have students draw the components and create a flow depicting how the computer processes data into information.</p> <p>Discuss why this is important i.e. patience is often required to allow the computer to process the data entered.</p>	<p>Can students track the flow of data into and information out of the computer?</p> <p>Do students know why they have to be patient when working with a computer?</p>	<p>Mathematics, Social Studies: Flow charts and organizational charts. For example: Have students draw the process of going through school, the levels they must complete, what happens if/when they don't, etc.?</p>

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Introduction to Desktop Publishing	Distinguish between Desktop Publishing and Word Processing	Word processing is a stage of desktop publishing: the preparation of text, rather than the design or typography.	There is a difference in degree between Word Processing and Desktop Publishing even though a user might use the same software to accomplish both these tasks.	Appreciation for the range of difficulty that encompasses Desktop Publishing.	Desktop Publishing - The process of using the computer and specific types of software to combine text and graphics to produce documents such as newsletters, brochures, books, etc.	Discuss the difference (in terms of stages or steps) between Word Processing and Desktop Publishing. Discuss the impact computers have had on Desktop Publishing. With computers people can make many items at home. Give examples. What items still need to be produced by Desktop Publishers? e.g.: movie posters, billboards, magazines, etc.	Do students understand the difference between Word Processing and Desktop Publishing?	Social Studies, Economics: Explore how the spread of personal computers has impacted the demand for desktop publishing items such as business cards, flyers, invitations, newsletters, etc. How has it changed how people communicate with each other?
	Basic concepts of Desktop Publishing	The process from beginning to end of creating a publishable item from a blank page.	There are many steps that Desktop Publishers take to put together a publication so that the maximum number of people will read and respond to it.	Appreciation for the background work that needs to be done before a Desktop Publisher ever sits in front of a computer.	1. Plan the publication. 2. Determine your audience. 3. Brainstorm its content. 4. Design the Document. 5. Make a Rough Sketch.	Review the basic concepts of Desktop Publishing. Have students identify a goal e.g. school newspaper, yearbook, or autobiography - an article about themselves. Make sure students record all the steps they took to plan the publication.	Have fellow students look at plans. Does the rough sketch accomplish the student's goals and purpose for the publication?	Language, Social Studies: Have students discuss how people respond to images in publications, why they might respond in that way, and how publications can impact/influence people. English: Writing for a purpose or an audience.

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Introduction to Desktop Publishing continued.	Using a Word Processor to accomplish Desktop Publishing	High-end word processors don't have the same fine control over graphic design elements as do formal desktop publishing software. However, they are much easier to use and more portable i.e. can be transferred to more computers and printers.	There are many different types of Desktop Publishing software. In many cases, Word Processing Software can be used to create Desktop Publishing items. The type of software you choose depends upon the type of Desktop Publishing you are attempting to accomplish.	Willingness to use available software to accomplish more complex Desktop Publishing tasks.	<p>Use of show/hide paragraph marks to indicate proper spacing, location of breaks, and other formatting in the document.</p> <p>Use of and formatting of columns to create news letters, article layouts, and newspapers.</p> <p>Use of header and footer to create headlines and specialised page numbering on every page.</p> <p>Picture formatting to change picture sizes, wrap text around pictures, and adjust picture colour/brightness.</p>	<p>Have students take the item that they planned in the previous topic and create it using a Word Processor.</p> <p>Once complete, have students present their Desktop Publishing item to their fellow students for review.</p>	Have fellow students look at plans. Does the product accomplish the student's goals and purpose for the publication?	Language, Social Studies: Have students discuss how they used the word processor to put together their document. What did the students experience as advantages of using a word processor to design their desktop publishing items?

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Introduction to Desktop Publishing continued.	Elements of Design	Desktop Publishing combines art and creativity with technology. The composition guidelines and recommendations in art therefore apply.	Even in creative tasks, there are general guidelines that can be followed to enhance rather than hinder the creative process.	Willingness to balance artistic creativity with composition guidelines and use technology to aide in the process.	Focus, Balance, Proportion, Contrast, Directional Flow, Consistency, Colour	Have students take the item that they created in the previous topic and submit it to their peers for review based on the elements of design. Once the draft has been critiqued by their peers, have students make changes to their document to incorporate changes that address the comments made.	Have fellow students look at plans. Does the final product accomplish the student's goals and purpose for the publication? Does the final product also take into account the elements of design?	Language, Social Studies: Have students discuss how they used the word processor to put together their document. What did the students experience as advantages of using a word processor to design their desktop publishing items? Art: Design, creativity, and composition of a project.
Compilation of Terms used in Level 8	Maintain records of terms and definitions for future use.	The terms and definitions relevant for material covered in Level 8.	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?