

	user, a gaming enthusiast, a photographer, a home video enthusiast, a distance education user, a human resources manager, an accountant).											
Operating Systems	A3.1 describe operating system functions that meet various user needs (e.g., running applications, organizing files, managing users, configuring peripherals);	-						-	-			
	A3.2 use file management techniques to organize and manage files (e.g., copy, move, delete, rename files; create shortcut);	X	X	X	X	X	X	X	X	X	X	X
	A3.3 use general keyboard shortcuts to perform common tasks (e.g., cut, copy, paste, print, print window, print screen);	X	X	X	X	X	X	X	X	X	X	X
	A3.4 describe the features and limitations of various operating systems	-							-	-		
Home Computer Networking	A4.1 identify various networking applications and protocols (e.g., VoIP, streaming media, FTP, email, instant messaging);											
	A4.2 describe the features and functions of wired and wireless networking hardware (e.g., NICs, routers, hubs, cables, modems);			X		X		X	X	X		
	A4.3 demonstrate an understanding of various methods for sharing network resources (e.g., shared file access, shared printer access, Internet access) .	X	X	X	X	X	X	X	X	X	X	X
Maintenance and Security	A5.1 describe different types of malware (e.g., viruses, Trojan horses, worms, spyware, adware, malevolent macros) and common signs of an intrusion, and explain how to prevent malware attacks;							X				
	A5.2 explain the importance of maintaining soft - ware updates (e.g., operating system updates, application software updates, virus definitions) to increase computer security and maintain hard - ware and software compatibility;			X				X	X	X		
	A5.3 explain the importance of preventive maintenance (e.g., defragmenting a hard drive, deleting unused software and data files) to manage computer performance .	-	-	-	-	-	-	-	-	-	-	-
ICS20	Introduction to Programming	WS	DG	BR	MM	I1	PS	I4	SJ	I2	LC	
	B1.1 use correct terminology to describe programming concepts;			X		X		X	X	X		
	B1.2 describe the types of data that computers can process and store (e.g., numbers, text);			X		X		X	X	X		

Programming Concepts	B1.3 explain the difference between constants and variables used in programming;								x	X	
	B1.4 determine the expressions and instructions to use in a programming statement, taking into account the order of operations (e.g., precedence of arithmetic operators, assignment operators, and relational operators);			x		x		x	x	X	
	B1.5 identify situations in which decision and looping structures are required;			x		x		x	x	X	
	B1.6 describe the function of Boolean operators (e.g., AND, OR, NOT), comparison operators (i.e., equal to, not equal to, greater than, less than, greater than or equal to, less than or equal to), and arithmetic operators (e.g., addition, subtraction, multiplication, division, exponentiation, parentheses), and use them correctly in programming.								x	X	
Writing Programs	B2.1 use a visual problem-solving model (e.g., IPO [Input, Process, Output] chart; HIPO [Hierarchy plus Input, Process, Output] chart and diagram; flow chart; storyboard) to plan the content of a program;			x		x			x	X	
	B2.2 use variables, expressions, and assignment statements to store and manipulate numbers and text in a program (e.g., in a quiz program, in a unit conversion program);								X	x	
	B2.3 write keyboard input and screen output statements that conform to program specifications;								X		
	B2.4 write a program that includes a decision structure for two or more choices (e.g., guessing game, rock-paper-scissors game, multiple-choice quiz, trivia game);								X		
	B2.5 write programs that use looping structures effectively (e.g., simple animation, simple board games, coin toss);								-		
	B2.6 explain the difference between syntax, logic, and run-time errors;			x		x			X		
	B2.7 compare and contrast the use of different programming environments to solve the same problem (e.g., a solution developed in a programming language versus one developed using a spreadsheet).								X		
	B3.1 write clear and maintainable code using proper programming standards (e.g., indentation; naming conventions for constants, variables, and expressions);			X		x			x		

Code Maintenance	B3.2 write clear and maintainable internal documentation to a specific set of standards (e.g., program header: author, revision date, program name, program description; table of variable names and descriptions);	-	-	-	-	-	-	-	-	-	-
	B3.3 use a tracing technique to understand program flow and to identify and correct logic and run-time errors in a computer program;					-		-	x	-	
	B3.4 demonstrate the ability to validate a computer program using test cases.					x	x		x		
ICS20	Computers and Society	WS	DG	BR	MM	I1	PS	I4	SJ	I2	LC
Social Impact	C1.1 describe a variety of adaptive technologies that help to improve computer accessibility (e.g., text-to-speech, speech-to-text, adapted mouse, font control, ergonomic keyboard, virtual keyboard, sticky keys, colour contrast, image magnifier);							-			
	C1.2 explain the impact on privacy of techniques for collecting and processing data (e.g., camera phones, reward programs, targeted advertising, digital rights management, monitoring software);							-			
	C1.3 describe how portable computing devices (e.g., PDA, cell phone, GPS, laptop) affect our everyday lives;							X			
	C1.4 describe how electronic access to information (e.g., instant messaging, webcasts, social networking sites, wikis, blogs, video sharing sites) influences our everyday lives, as well as the lives of people in various countries around the world, in both positive and negative ways;							-			
	C1.5 describe issues associated with access to online services (e.g., reliability of passwords, network security, identity theft, the permanence of information released onto the Internet).							-			
	C2.1 describe the negative effects of computers and computer use on the environment (e.g., chemicals from electronic waste dumped in landfills – domestic or overseas – leaching into soil and groundwater; unnecessary use of paper; heavy power consumption) and on human health (e.g., effects of exposure to radiation, musculoskeletal disorders, eye strain, mental health and behavioural problems created or exacerbated by social isolation);							-			
	C2.2 identify measures that help reduce the negative effects of computers on the environment (e.g., lab regulations, school policies, corporate	-						-			

