REPUBLIC OF CAMEROON
Peace – Work – Fatherland

MINISTRY OF SECONDARY EDUCATION

INSPECTORATE GENERAL OF EDUCATION

Inspectorate of Pedagogy in charge of the Teaching of Computer Science

REPUBLIQUE DU CAMEROUN
Paix – Travail – Patrie

MINISTERE DES ENSEIGNEMENTS SECONDAIRES

INSPECTION GENERALE DES ENSEIGNEMENTS

Inspection de Pédagogie chargée de l'enseignement de l'informatique

ANNUAL HARMONISED PROGRESSION SHEET FOR COMPUTER SCIENCE FORM 4

SCHOOL YEAR…………………………….   SCHOOL………………………………………………………..   WEEKLY WORKLOAD: 3 periods   COEFFICIENT: 3

TEACHER……………………………………..   GRADE…………………………….   TEL………………………………….

Term	Week	Module	Category of action	Competency statement	Lesson no	Lesson title	Objectives	Nature of lesson Th	Prac	Dig	Observation
FIRST TERM						Diagnostic evaluation					
	1	Problem solving and coding 2	Using control structures	Given an algorithmic problem that requires the use of control structures, learners produce algorithms that use the appropriate control structure to solve the problem.	1	Lesson 1:sequence and selection control structure	Explain how sequence and selection control structures work illustrate the functioning of sequence and selection control structures with a flowchart Write simple algorithms that make use of a selection control structure				
					2	Lesson 2:Multiple selection constructs	Explain how the different types of multiple selection constructs work Illustrate the functioning of the different multiple selection constructs Write algorithms that make use of multiple selection control structures				
	2				3	Lesson 3: Iterative constructs	Identify situations where an iterative or loop control structure is needed. Describe the 4 main parts of a loop. Explain advantages and disadvantages of iterative control structures.				
					4	Lesson 4: Definite iterative constructs	Choose correctly when to use a definite iteration. Build definite iterations that are coherent with a given context. Write simple algorithms that make use of definite iteration				
					5	Lesson 5: Indefinite iterative constructs	Differentiate between pretest and posttest indefinite iterations. Illustrate the functioning of indefinite iterations using a flowchart. Write simple algorithms that make use of indefinite iteration.				

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					6	Lesson 6: Integration activities				
3			Testing and debugging	Given an algorithm, learners evaluate its semantic correctness using the dry-run technique and propose a way of fixing errors if any.	7	Lesson 7: Notions on testing and debugging	Explain the concepts of testing , test case, test data and bug. Differentiate between testing and debugging. Differentiate between black box test and white box test.			
					8	Lesson 8: Dry running	Explain the concepts of dry running and trace tables. Perform a dry run test on an algorithm.			
					9	Lesson 9: Integration activities				
4			Setting up a programming environment	Given a problem, learners select the appropriate tools for programming and install them.	10	Lesson 10:Programming tools	State the role of the following programming tools: text editor, translator, and IDE. Differentiate between a compiler and an interpreter. Explain the advantages and disadvantages of installing an IDE over separate programming tools and vice-versa.			
					11	Lesson 11: Installation of programming tools	Install an IDE and use it to run a program Test the functionalities of an installed programming tool			
					12	Lesson 12: Integration activities				
						Evaluation				
5			Writing of source code	Given an algorithm, learners transform it into a syntactically and semantically correct program.	13	Lesson 13: Introduction to coding	Explain the concept of coding Explain strategies that can be used to ease coding Identify the structure of a program in a given programming language			
6					14	Lesson 14: Coding 1	Write source code that makes use of input, output, mathematical and assignment operators			
						Remediation				
						Remediation				
7					15	Lesson 15: Coding 2	Write source code that makes use of selection control structures.			
					16	Lesson 16: Coding 3	Write source code that make use of multiple selection control structures			
					17	Lesson 17: Coding 4	Write source code that make use of definite iterative control structures			
					18	Lesson 18: Coding 5	Write source code that make use of indefinite iterative control structures			
					19	Lesson 19: Integration activities				
8	DATA MANIPULATION 1		Operations on number systems	Presented with a situation that involves number systems, learners apply appropriate operations on number systems to solve the problem.	20	Lesson 20: Notions on number systems	Outline symbols of base 2, 8, 10, and 16. Identify symbols in a given base Recognise a number in a given number system			

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								Th	Prac	Dig	
	9				21	Lesson 21: Conversion from any base to base 10	Explain the principle of conversion from any base to base 10 Convert from base 2, 8, and 16 to base 10				
					22	Lesson 22: Conversion from base 10 to any base	Explain the principle of conversion from base 10 to any base Convert from base base 10 to base 2, 8, and 16				
					23	Lesson 23: Conversion from base 2 to 8 and 16 and vice versa	Explain the principle of conversion from base 2 directly to base 8, and 16 Explain the principle of conversion from base 8 or 16 directly to base 2 Convert from base 2 to 8, and 16 and from base 8, and 16 to base 2				
					24	Lesson 24: Addition and subtraction in a number system	Explain the principle of addition in any number system Explain the principle of subtraction in any number system Apply the principle of addition and subtraction to add and subtract in a base 2, 8, and 16.				
	10				25	Lesson 25: Integration activities					
			Analysing simple logic circuits	Learners analyse a situation concerning logic circuits and determine the correct outputs and truth tables of the different elements used in the circuit.	26	Lesson 26: Basic logic gates	Explain the concept of logic gates and truth tables Identify a given basic logic gate Explain the functioning of a given basic logic gate Produce the truth table of a given basic logic gate				
						Evaluation					
	11				27	Lesson 27: Derived gates	Identify a given logic gate Explain the functioning of a given logic gate Produce the truth table of a given logic gate				
					28	Lesson 28: Logic circuits	Explain the concept of logic circuit Deduce the expression and truth table of a logic circuit of 2 variables Draw the logic circuit of a logic expression of 2 variables				
	12				29	Lesson 29: Integration activities					
						Remediation					
						Remediation					
SECOND TERM	13	Hardware and software systems 2	Optimising computer performance	Provided with a situation with issues related to optimising a computer, learners propose methods of optimising the computer which are coherent with the situation	30	Lesson 30: Software methods for optimising the computer	Outline common software for optimising the performance of a computer. Explain the following concepts and how they affect the performance of a computer: malware, fragmentation, defragmentation. Explain how antivirus, disk defragmenter, disk cleaner, and operating system configurations can improve the performance of a computer.				

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					31	Lesson 31: Hardware methods for optimising the computer	Explain how size of RAM and disk can improve computer performance. Explain how SSDs improve computer performance compared to HDDs. Explain hardware related methods for improving computer performance.			
					32	Lesson 32: Integration activities				
14			Choosing appropriate peripheral devices	Learners select appropriate peripheral devices based on a situation or context. Clear justification of the choice should be made.	33	Lesson 33: Input peripherals	State the purpose of a given input peripheral device Describe the characteristics of a given input peripheral device Choose appropriate input peripheral in a given context			
					34	Lesson 34: Output peripherals	State the purpose of a given output peripheral device Describe the characteristics of a given output peripheral device Choose appropriate output peripheral in a given context			
					35	Lesson 35: Integration activities				
15			Calculating storage space	Given a problem with factors related to storage space and units, learners determine the cause and solution to the problem showing clearly how they achieved the proposed conclusions.	36	Lesson 36: Units of storage	Explain the concepts of storage, and storage units. State units of storage and the relationship between these units Explain the read and write operations on storage			
					37	Lesson 37: Conversion between units of storage	Explain how to convert from a given unit to another. Convert between units of storage.			
					38	Lesson 38: Integration activities				
16			Carrying out basic computer maintenance	When presented with a situation involving issues with a computer, learners propose possible causes and possible methods to fix such issues.	39	Lesson 39: Notions on computer maintenance	Explain the concepts of maintenance, hardware maintenance, software maintenance, preventive maintenance, and corrective maintenance. Classify maintenance problems into hardware and software. Classify solutions into preventive and corrective maintenance.			
					40	Lesson 40: Hardware maintenance	Match symptoms to a given hardware problem. Determine appropriate and logical means of solving a given hardware problem. Explain common preventive maintenance tips.			
					41	Lesson 41: Software maintenance	Match symptoms to a given software problem. Determine appropriate and logical means of solving a given software problem. Explain common preventive maintenance tips.			
17					42	Lesson 42: Integration activities				
						Evaluation				

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					#	Lesson	Objectives				
			Creating digital content	Faced with a situation related to the creation and editing of digital content, learners propose a variety of tools that can be used to solve the problem and produce digital content using an appropriate tool.	43	Lesson 43: Types of Digital content and File formats	Describe the different types of digital content Identify common types of digital content and their file formats Differentiate between multimedia and hypermedia				
18					44	Lesson 44: Tools for creating digital content	Identify appropriate tools for producing digital content of a given type State AI tools for producing digital content Outline methods for creating digital content				
						Remediation					
						Remediation					
19					45	Lesson 45: Creation of audio content	Produce audio content using hardware tools. Produce audio content using software tools.				
					46	Lesson 46: Creation of image content	Produce image content using hardware tools. Produce image content using software tools.				
					47	Lesson 47: Creation of multimedia content 1	Produce multimedia content using hardware tools. Produce multimedia content using software tools.				
20					48	Lesson 48: Creation of multimedia content 2	Combine text, audio, image using an appropriate tool to produce a video				
					49	Lesson 49: Creation of hypermedia content 1	Identify the necessary technologies to create hypermedia content Create hypermedia content with the help of html, CSS, JavaScript, etc.				
					50	Lesson 50: Creation of hypermedia content 2	Create hypermedia content with the help of html, CSS, JavaScript, etc.				
21					51	Lesson 51: Creation of hypermedia content 3	Create hypermedia content with the help of html, CSS, JavaScript, etc.				
					52	Lesson 52: Integration activities					
					53	Lesson 53: Integration activities					
22			Producing word processed documents	Given a task that is related to using a word processor to produce or reproduce content, learners use appropriate features of a word processor to achieve the task.	54	Lesson 54: Features of a word processor	Choose appropriate word processor features for a given task. Perform basic formatting.				
					55	Lesson 55: Common operations on a page	Explain what is meant by page layout Perform basic operations on a page				
					56	Lesson 56: Operations on tables	Create tables of different rows and columns using a word processor. Perform operations on tables (add, delete, resize...)				

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	Week		Module	Description	No	Lesson	Objectives				
THIRD TERM	23				57	Lesson 57: Integration activities					
					58	Lesson 58: Integration activities					
			Manipulating spreadsheets	Given tasks that is related to spreadsheets and with appropriate guidance, learners choose functions or spreadsheet features that are coherent with the tasks and apply them correctly on spreadsheet software.		**Evaluation**					
	24				59	Lesson 59: Notions on cell referencing	Explain the concepts of cells, formula, ranges, and cell reference. Differentiate between the different types of cell referencing. Identify when to use a given type of cell referencing.				
						Remediation					
						Remediation					
					60	Lesson 60: Operations using different types of cell referencing	Perform operations (sum, average, product, count) using different types of cell referencing.				
	25				61	Lesson 61: Conditional functions: IF function 1	Describe the IF function. Identify when to use the IF function. Solve variety of problems using the IF function.				
					62	Lesson 62: Conditional functions: IF function 2	Solve variety of problems using the IF function.				
					63	Lesson 63: Conditional functions: SUMIF, PRODUCTIF	Describe the SUMIF, and PRODUCTIF functions. Identify when to use the SUMIF, and PRODUCTIF function. Solve a problem that uses the SUMIF, and PRODUCTIF.				
	26				64	Lesson 64: Conditional functions: COUNTIF, AVERAGEIF	Describe the COUNTIF, AVERAGEIF functions. Identify when to use the COUNTIF, AVERAGEIF function. Solve a problem that uses the COUNTIF, AVERAGEIF.				
					65	Lesson 65: Represent data using charts	Identify the different types of charts. Represent data using charts. Perform simple formatting on charts.				
					66	Lesson 66: Integration activities					
	27				67	Lesson 67: Integration activities					
			Understanding embedded system IoT and Cloud Computing	Given a situation with factors related to IoT and embedded systems, learners identify the correct type of sensors used in the situation and their role.	68	Lesson 68: Types of sensors	Explain the concept of sensors, and actuators State the different types of sensor and their roles Outline situations in life where a given type of sensor can be used				
	28				69	Lesson 69: Embedded systems and IoT	Differentiate between embedded systems, IoT, and cloud computing Describe scenarios where IoT and embedded systems are used in life				

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					No	Lesson	Objectives	Th	Prac	Dig	
					70	Lesson 70: Cloud computing	Explain the concept of cloud computing Outline the 3 main types of cloud services with examples Describe how embedded systems and IoT relate to cloud computing				
					71	Lesson 71: Integration activities					
29		Ethics, society and legal issues 2	Practising netiquette rules	Placed in a context that requires communicating with others, learners determine and apply appropriate behavioural norms that respect others and their cultural and generational diversities.		**Evaluation**					
					72	Lesson 72: Notions on netiquette	Explain the concepts of netiquette, and empathy State codes of conduct for posting and sharing content online Explain the importance of empathy, awareness in cultural and generational diversities when communicating online				
					73	Lesson 73: Emojis	Differentiate emojis from emoticon. Give the meaning of common emojis. Explain why it is important to know the meaning of an emoji before using it.				
30						**Remediation**					
						Remediation					
					74	Lesson 74: Communicating responsibly online	Choose communication modes and strategies adapted to an audience. Identify hostile or derogatory messages or activities online that attack an individual or groups of individuals. Propose behavioural rules when using digital technologies in a context.				
					75	Lesson 75: Integration activities					
31			Appraising National and International Laws on Cybersecurity	Learners state national and international laws or acts that are related to protecting and regulating activities in the cyberspace.	76	Lessson 76: International laws or acts on digital technology	Explain the importance of laws and acts to regulate activities related to the creation and use of data and digital technologies. Outline international laws and acts related to the use of digital technology. State the purpose of a given international law or act.				
					77	Lessson 77: National laws or policies on digital technology	State national laws or policies aimed at regulating the use of digital technology in Cameroon and their respective goals Discuss some elements of law No 2010-12 of 21st December State penalties of some information and communication technology malpractice in Cameroon				
32					78	Lesson 78: National and international bodies regulating the use of ICT	Outline international bodies that regulate the use of ICT and their respective goals Outline national bodies in Cameroon that regulate the use of ICT and their respective goals				
					79	Lesson 79: Integration activities					

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				80	Lesson 80: Notions on misinformation and disinformation	Differentiate between misinformation and disinformation. State factors of information biases (data algorithms, censorship, editorial choices, personal limitations). Explain the concepts of misinformation, disinformation, deepfake, infodemic, clickbait.				
33		Evaluating the credibility and reliability of information	Given a problem with factors related to the reliability and credibility of information, learners propose strategies of verifying the information. The strategies proposed should be pertinent, coherent, and logical.	81	Lesson 81: Analysis of online information	Identify the author and source of a given information found online. Identify sponsored content online. Analyse information in order to detect its purpose or interest.				
				82	Lesson 82: Identifying the credibility of information	Explain strategies for verifying the credibility and reliability of information Propose national and international sources of getting credible information				
				83	Lesson 83: Integration activities					
34		Avoiding computer related health issues	Given a problem or a situation related to avoiding computer related issues, learners evaluate the workplace, practices and habits of users based on standards and report on elements to reinforce and elements to adjust. The recommendations should express appropriate practices and health issues that can arise for not respecting these practices.	84	Lesson 84: Computer related health hazards	Describe different types of computer related health hazards. Outline major causes of computer related health hazards.				
				85	Lesson 85: Computer ergonomics: best practices in the design of items and workplace setup	Identify wrong equipment placement and design in a computing environment. Explain how the design of equipment and workplace setup can help prevent computer related health injuries				
				86	Lesson 86: Computer ergonomics: workplace habits and exercises	Identify wrong user posture and habits in a computing environment Explain how the workplace habits and exercises can help prevent computer related health injuries				
35				87	Lesson 87: Integration activities					
				88	Lesson 88: Integration activities					
					Evaluation					
					Remediation					
36					**Remediation**					
						END OF PROGRAM				

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