4. Year 11 Curriculum Plan

YEAR 11	HALF TERM 4	SUBJECT Computer Science	LEARNING

TOPIC	LEARNING OBJECTIVES	KEY VOCABULARY	LEARNING SEQUENCE	LINKED LEARNING	HOME LEARNING
SLR 2.4 Boolean logic					2.4 Simple logic diagrams
SLR 2.4 – Lesson 1, Simple logic diagrams	• Know how to make simple logic diagrams from Boolean expressions using AND, OR, NOT. KEY QUESTION: What are the symbols used in logic diagrams?	**Slides 218-223** Logic diagram, Logic gate, AND, OR, NOT, Truth table	SLR 2.4 Workbook Complete slides 2-7 Just for fun – this circuit is part of the arithmetic logic unit in the CPU. It adds two binary digits: 0+0=0, 0+1=1, 1+0=1, 1+1=0 carry 1. Give it a go by making it using https://logic.ly/demo/ SUPER CHALLENGE: Can you make the output of the carry the input to another adder circuit?		1.4 Truth tables 2.4 Combining Boolean operators
SLR 2.4 – Lesson 2, Applying logic operators and truth tables to solve problems	• Understand how to complete truth tables from one and two level logic diagrams. KEY QUESTION: How do you complete a truth table?		SLR 2.4 Workbook Complete slides 8-14 Mark your truth tables by drawing the logic diagrams on slides 8-14 using http://logic.ly/demo/ Use toggle switches for inputs and a light bulb for the output. Check that the output matches the inputs given for each of your truth tables.		2.4 Applying logical operators in truth tables
SLR 2.4 – Lesson 3, Create, complete or edit logic diagrams and truth tables	• Understand how to create, complete or edit logic diagrams and truth tables for given scenarios.		SLR 2.4 Workbook Complete slides 15-17		Revise what you have learnt in this unit

	KEY QUESTION: How do you create logic diagrams from truth tables?		Mark your truth tables by drawing the logic diagrams on slides 8-14 using http://logic.ly/demo/ Use toggle switches for inputs and a light bulb for the output. Check that the output matches the inputs given for each of your truth tables.		
Dedicated paper 2 exam revision lesson	Gain experience in answering computational thinking, algorithms and programming questions for component J277/02 using our dedicated exam Revision unit.		Progress with activities in the "Exam revision unit" folder		None for this lesson
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SLR 2.4 – End of topic test	End of topic test		Test - SLR 2.4		None for this lesson
SLR 2.4 – Action	Action / Response lessons		Chance for students to respond to feedback, improve workbooks, correct misunderstandings		None for this lesson
SLR 2.5 Programming languages and IDEs					2.5 Characteristics and purpose of different levels of programming language

SLR 2.5 – Lesson 1, Characteristics of languages	• Know the characteristics of high level and low level programming languages.
	• Understand the terms:
	  ○ Source code
	  ○ Assembly code
	  ○ Machine code
	
	KEY QUESTION:
	What are the differences between high and low level languages?
			SLR 2.5 Workbook
			Complete slides 2-4
			
			Solve as many Little Man Computer problems as you can
					None for this lesson

SLR 2.5 – Lesson 2, Low level programming	• Understand how to write programs in a low level language using assembly with Little Man Computer. KEY QUESTION: How do you write a program in assembly language?		SLR 2.5 Workbook Complete slide 5 Programming circle group activity (slide 6) Solve as many Little Man Computer problems as you can		2.5 The purpose of translators 2.5 Characteristics pf compilers and interpreters
SLR 2.5 – Lesson 3, Compilers and interpreters for translation	• Know what a translator does. • Understand the differences between compilers and interpreters. KEY QUESTION: How does code a programmer writes become binary a computer can execute?		SLR 2.5 Workbook Complete slides 6-7 Type the two programs to generate the prime numbers between 1 and 100 into Python and a BBC Micro emulator: https://bbc.godbolt.org/ Put a syntax error in line 120. Observe how each language handles the syntax errors differently: Python with a compiler and BBC Basic with an interpreter. Continue to solve as many Little Man Computer problems as you can.		2.5 IDEs
SLR 2.5 – Lesson 4, IDEs	• Know a range of facilities provided by an integrated development environment (IDE) to assist the programmer in writing code. KEY QUESTION: Why do programmers use IDEs?		SLR 2.5 Workbook Complete slides 8 Brainstorm a list of computer science words from the 2.5 topic. Create a cryptic crossword for someone else to solve from these words using: superteacherworksheets.com/generator-crossword-puzzle.html You will notice that possibly not all your words will fit into		Revise what you have learnt in this unit

			the crossword. That is because the output is only as good as the algorithm. Can you do a better job and fit all the words in?		
Dedicated paper 2 exam revision lesson	Gain experience in answering computational thinking, algorithms and programming questions for component J277/02 using our dedicated exam Revision unit.		Progress with activities in the "Exam revision unit" folder		None for this lesson
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SLR 2.5 – End of topic test	End of topic test		Test - SLR 2.5		None for this lesson
SLR 2.5 – Action	Action / Response lessons		Chance for students to respond to feedback, improve workbooks, correct misunderstandings		None for this lesson
Exam revision	This final term before Easter has been set aside for revision. Many resources to help with revision: • Further programming experience using our "Exam revision unit" • Additional time to complete the many programming challenges and super challenges presented throughout the SLR theory units and from our dedicated programming resources. • FREE site for students with videos and other helpful resources: https://student.craigndave.org/ It has a pin-sharp focus on the specification and every single bullet point is covered. visit https://smartrevise.craigndave.org/				
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