



YEAR 11 GCSE COMPUTER SCIENCE SPRING TERM 2 – PAPER 2

'An ambitious curriculum that meets the needs of all'

Medium Term Planning – Logic and Languages

Curriculum Intent	Pupils will be taught the following National Curriculum guidelines this term:
<p>Skills/Assessment Objective Links</p>	<p>At the end of this Unit all students should be able to:</p> <ul style="list-style-type: none"> • Construct truth tables for the following logic gates: <ul style="list-style-type: none"> – NOT – AND – OR • Understand how to make maintainable programs including: <ul style="list-style-type: none"> – Naming conventions – Indentation <p>Most students will be able to:</p> <ul style="list-style-type: none"> • Construct truth tables for simple logic circuits • Create, modify and interpret simple logic circuit diagrams • Describe defensive design considerations: <ul style="list-style-type: none"> – Input validation – Anticipating misuse – Authentication • Understand how to make maintainable programs including: <ul style="list-style-type: none"> – Commenting • Understand the purpose of testing including: <ul style="list-style-type: none"> – Iterative testing – Final/terminal testing • Identify syntax and logic errors • Select and use suitable test data including: <ul style="list-style-type: none"> – Normal – Boundary – Invalid – Erroneous • Understand the purpose of translators • Describe the characteristics of a compiler and interpreter <p>Some students will be able to:</p> <ul style="list-style-type: none"> • Interpret the results of truth tables • Understand how to make maintainable programs including: <ul style="list-style-type: none"> – The use of sub programs • Describe the characteristics and purpose of different levels of programming language, including: <ul style="list-style-type: none"> – Low-level languages – High-level languages
<p>Numeracy</p>	<p>Number, decimal numbers, integers</p>
<p>Literacy</p>	<p>Vocabulary Tier 3: Defensive design, anticipating misuse, authentication, validation, maintainability, sub programs, naming conventions, indentation, commenting, testing, iterative testing, final/terminal testing, syntax, syntax error, logic error, test data, normal, boundary, erroneous, test plan, AND, OR, NOT, truth table, logical operators, logic gates, logic diagrams, conjunction, disjunction, negation, high-level language, low-level language, translators, compiler, interpreter, compiler, interpreter, Integrated Development Environment (IDE), editors, error diagnostics, run-time environment.</p> <p>Vocabulary Tier 2: testing, anticipation, edit, run, logic, test, normal, invalid,</p> <p>Reading: Worksheets, presentations, answer sheets, exam questions, mark scheme, further reading for homework</p>

	<p>Writing: Answer on the worksheet via word</p> <p>Oracy: listening and using tier 3 words</p>
Becoming future ready	<p>Careers/Employability:</p> <ul style="list-style-type: none"> ▪ Software Architect. ▪ Data Scientist. ▪ Machine Learning Engineer. ▪ Blockchain Developer ▪ Cybersecurity Engineer. ▪ Cloud Solutions Architect. ▪ AI Research Scientist. ▪ Full-Stack Developer.
Adaptation	<p>Throughout this topic, quality first teaching will provide differentiation:</p>
QFT/SEND Provision	<p>By product: Learners are asked to present outcomes in a different way via pieces of writing, targeted questioning, models and drawings and speaking.</p> <p>By resource: Worksheets are well presented and accessible. Instructions are clearly outlined and separate from the information so that pupils know where to begin and end. Handouts are differentiated by outcome. Resources used will appeal to the range of preferred learning styles of pupils e.g. visual, auditory or kinesthetic learners. Scaffolding of tasks – word frames.</p> <p>By Intervention: By providing different levels of supervision and support</p> <p>By Progressive Questioning: Exploring pupils' understanding through interactive dialogue using Blooms Taxonomy.</p> <p>By Grouping: According to prior attainment, gender, social preference, preferred learning style.</p> <p>By Task: Pupils identify targets which are meaningful to them via feedback sheets</p> <p>By Offering Optional Activities: In class or as homework, to extend learning.</p> <p>This QFT/SEND provision will be explicit within the lesson by lesson schemes of work.</p>
Implementation Curriculum Delivery	<p>To be able to:</p>
Learning Outcomes (Knowledge)	<p>Topic 1 Logic diagrams and truth tables</p> <p>Construct truth tables for the following logic gates:</p> <ul style="list-style-type: none"> – NOT – AND – OR <p>Construct truth tables for simple logic circuits</p> <p>Interpret the results of truth tables</p> <p>Create, modify and interpret simple logic circuit diagrams</p> <p>Topic 2 Defensive design</p> <p>Describe defensive design considerations:</p> <ul style="list-style-type: none"> – Input validation – Anticipating misuse – Authentication <p>Understand how to make maintainable programs including:</p> <ul style="list-style-type: none"> – The use of sub programs – Naming conventions – Indentation – Commenting <p>Topic 3 Errors and testing</p> <p>Understand the purpose of testing including:</p> <ul style="list-style-type: none"> – Iterative testing – Final/terminal testing <p>Identify syntax and logic errors</p> <p>Select and use suitable test data including:</p> <ul style="list-style-type: none"> – Normal – Boundary – Invalid – Erroneous

**Topic 4 Translators and facilities**

Describe the characteristics and purpose of different levels of programming language, including:

- Low-level languages
- High-level languages

Understand the purpose of translators

Describe the characteristics of a compiler and interpreter

Topic 5 Integrated Development Environments (IDEs)

Understand the use of an Integrated Development Environment (IDE) to develop programs, including the following:

- Editors
- Error diagnostics
- Run-time environment

End of unit assessment

Current learning to be developed in the future within:

Links to all areas of programming

Assessment

See assessment maps for formative and summative assessment opportunities.

Impact

Review assessment results and target pupils that require further support via:-

- Learning conversation
- Changing seating plan
- Plan lessons to address areas of concern in assessment
- Targeted homework based on low performance areas identified in the assessment and marked pieces
- Stretch and challenge high ability pupils by identifying ambitious next steps to expand knowledge

Create a feedback sheet for each student

Each student identifies areas of Green, Amber and Red using Mark Assessment on their feedback sheet

Complete NOW task on areas identified as Amber and Red