Newport Girls' High School **Learning Overview**

Subject:	Computer Science	**Lead Teacher:**	Mr Ley	**Year:**	10

Curriculum organisation

Students are taught in option groups of around 20 for 2 hours per week, each with a computer to use. This will increase to 3 hours a week next year (2023/24) and so will change. The Syllabus followed is AQA Computer Science 8525 + VB.Net

Overview of Topics & Key Information

Term	Unit(s) of Work	Key Enquiry Questions	Key Content/ Terminology	Skills developed	How will your child be learning?
Autumn Term	L 8 – 9 Binary and Hex L10-11 ASCII and Text L12-13 Images L14 Sound L15-16 Compression	• How is data represented? • How do I convert to and from binary, hex and denary? • How do I add binary numbers? • How can I convert ASCII numbers to characters and vice versa? • How can I code a program to demonstrate text manipulation? • How can I calculate the size of a image/sound file? • How can I code a program to demonstrate file size calculations? • How can I compress data using RLE or Huffman coding?	• Binary • Hexadecimal • Denary • ASCII • String • Pixel • Resolution • Colour depth • Sample size • Audio bit depth • Run Length Encoding • Huffman coding	Basic programming skills: • Assignment • Selection • Iteration • Sequencing Advanced Programming skills: ASCII conversion String manipulation Structured Programming	By answering questions presented in worksheets, by doing past paper questions and by coding a program that illustrates the theory being learnt
Spring Term	L17 Arrays, 2D Arrays and Records	• How can I store related data in the same data structure? • What if there are multiple data types? • How can I work through the data in a 2D array?	• Rows • Columns • Records • Tuples	Advanced programming skills: • Extracting data from a 2D array using nested iteration	
Summer Term	L20-22 Additional Programming considerations L23 Random Numbers L24 Programming Projects	• How do I import data from a file into my program?? • How can I make sure only valid data is entered into my program? • How do I make sure my program does not crash • How do I generate random numbers in my program? • What coding project challenge should I choose? • How do I abstract the problem? • What are the sub tasks of my challenge? • How do I write up the project? • What are my user requirements? • What code snippets do I need? • How do I test my solution? • How do I evaluate my solution?	• Reading form files • Validation • Robust programming • Abstraction • Decomposition • Structured programming with appropriate advanced programming skills.	Very advanced programming skills (for GCSE) • Reading form files • Validation • Robust programming	By working through a class-based challenge together to code working solutions. By coding a project challenge that consolidates basic and advanced skills previously covered.

Equipment needed for lessons	How will learning and progress be assessed?
• Windows Personal Computer (provided)	• Peer and self-assessment • End of topic assessments (subject skills focus) • Whole School assessment week (May)

Extension & Enrichment opportunities	What can you do to support your child?
• Coding club and Digital Leaders (club) • Computer rooms open most lunchtimes • National Competitions (BEBRAS)	• Ensure there are digital resources they can use. (A normal windows PC is ideal). • Get your daughter to help you with digital tasks.

Inclusion
• Teachers follow student passports to ensure that the needs of all students with SEND are met. • Work is enlarged to the necessary size for visually impaired students. • Teachers will ensure that classrooms are quiet learning environments where possible and will dim lights to support students with sensory needs. • Students have the use of laptop if they have a SEND need whereby use of a laptop supports them. • Hearing impaired students are supported through use a radio aid and teachers ensure that students can lip read at all times during lessons. • Dyslexic students are encouraged to use coloured overlays when they are required to read long passages. • Use of dyslexic friendly fonts and coloured backgrounds used in PowerPoints/resources. • Students with ADHD are given movement breaks, fidget toys and lessons are 'chunked' to aid concentration. • Students are seated according to their needs, students work with the SENDCo to decide upon this.
Additional Inclusion for Computer Science
• Computer monitors can be adjusted for brightness and contrast to support students with sensory requirements • Spell check in Word gives support to Dyslexic students

If you have any questions about this Learning Overview, please contact the named Teacher above.