



We see **genius** in every child

Inspiring excellence, empowering global minds



Course Outline

ICT Year 8

Overview

At GEMS Wesgreen International Secondary School, our Vision is to educate and empower our students to be self-directed progressive learners who are confident, compassionate and accomplished global citizens. Our aim is to ensure all student leave Wesgreen proud of their achievements and contribution to school life having achieved their personal best.

This booklet has been created to help parents get an overview of the year ahead. As you scroll through, you will be introduced to all the important people in Grade 8, the Senior Leadership Team, Pastoral Leaders and Heads of Faculty; their expectations and aspirations for your children. This booklet will also serve as a guide and to provide individual subject curriculum information.

As a team, we hope to work in partnership with Parents and Students to ensure that each child receives the best in every aspect of their school life.

We are here to help, but as parents, you can:

- Provide a quiet work space
- Take an interest in your child's progress
- Give guidance with planning of work
- Monitor deadlines (use this booklet)
- Check the planner / weekly bulletin / emails
- Challenge the quality of work produced.
- Discuss any concerns with subject teachers, Head of Faculty or Head of Key Stage

**YEAR 8 INSPIRE COMPUTING (ICT) COURSE SYLLABUS
2024-2025**

Learning Outcomes

The syllabus combines theoretical and practical studies focusing on assessing knowledge and understanding of the basic principles of computer science, including some coverage of how these principles are applied when solving problems that relate to a particular situation and the practical application of computational thinking, whereby learners will create, use and adapt existing algorithms to solve problems in a particular situation.

	Term 1	Term 2	Term 3
Approximate Number of Lessons	17	11	13
Curriculum Content	<p>Students will study:</p> <ul style="list-style-type: none"> ✓ understand the properties of images and the difference between vector and bitmap images ✓ understand how colour is displayed in binary and the link between binary and pixel-based images ✓ the structure of binary data ✓ the storage capacities within a computer ✓ understand the difference between binary and denary ✓ how to calculate file sizes in base-2 and base-10 ✓ understand the concept of the Internet bandwidth and the impact on networks ✓ understand the purpose and use of different methods of compression 	<p>Students will study:</p> <ul style="list-style-type: none"> ✓ about the use of computer hardware and internal/external components ✓ about the use of wearable technology, how they impact society and how it may be developed for future needs ✓ to create a logo, based on specific needs to meet a target audience ✓ how data is stored within a spreadsheet ✓ understand the features of a spreadsheet software <ul style="list-style-type: none"> ○ formulas ○ functions ○ graphs/charts 	<p>Students will study:</p> <ul style="list-style-type: none"> ✓ how data is stored on a computer as well as the logic that is required to make them work. ✓ understand the purpose of computer surveillance in society ✓ understand the features of applications, operating systems and utility software used within computers
Cross-Curricular Links	<p>Art, Technology, Maths</p> <ul style="list-style-type: none"> ✓ creation of digital images as a vector-based or bitmap-based image ✓ problem solving, analysis of tasks and breaking down into smaller parts 	<p>Art, Technology, Maths</p> <ul style="list-style-type: none"> ✓ analysing the use hardware components ✓ creation of a digital logo, stored as a vector-based or bitmap-based image ✓ problem solving, analysis of spreadsheet data modelling 	<p>Technology, Maths</p> <ul style="list-style-type: none"> ✓ creation of simple Python programming scripts to be aware of the basic features of sequence, selection and iterative constructs ✓ problem solving, linking and analysis of Python code

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Interleaving Of Skills	<ul style="list-style-type: none"> ✓ problem solving through online competition. ✓ developing vector and bitmap images unit for developing personal skills ✓ use of the internet focused on the safe use of technology in the modern world 	<ul style="list-style-type: none"> ✓ use of internal computer components to build a PC from initial concept ✓ considering the impact of technology on individual and groups of users (society and community) ✓ presentation and use of formulas/functions to calculate results 	<ul style="list-style-type: none"> ✓ problem solving through monthly Python coding competitions. ✓ linking and developing Python programming unit for developing coding skills <ul style="list-style-type: none"> ○ Developing skills developed from Yr7 first in block coding and then basic transferable skills of python blocks
	Integral to KS4 course for ICT or Computer Science		
Literacy	Disciplinary literacy and key terms are identified with lesson resources and referred to with the lesson objectives. There is extensive use of subject specific vocabulary.		
	Key Words: vector, raster, bitmap, co-ordinates, image quality, scaling, geometric shapes, file size, storage, algorithm, pixel, resolution, binary, colour depth, denary, hexadecimal, bit, byte, base-2, base-10, bandwidth, network, router, compression, decompress, lossy, lossless, run length encoding	Key Words: CPU, hard drive, memory, motherboard, storage, components, Augmented Reality (AR), sensors, Virtual Reality (VR), wearable technology, bitmap, vector, marketing, transferability, colomns, rows, formulas, functions, formatting, graphs/charts, cell referencing, goal seek, modelling, what if scenarios, labelling	Key Words: abstraction, decomposition, pattern recognition, algorithms, Python, code, commands, instructions, sequencing, selection, iterative, loop, debug, error, logic error, syntax error, index, list, input, output, function, procedure, subprogram
Numeracy	Data Representation, Binary system, logic	Hardware and software knowledge	Algorithm development Using the computer as a calculator, programmed in Python language
Cultural Capital	The use of technology in our daily lives. Considering the benefits and drawbacks of technology used in the society as a whole.		
Linking Curriculum to Careers	Transferable Skills: Problem solving, identification of steps to solve problems, resilience, Graphic design, importance of design and developing a product from initial concept	Transferable Skills: Problem solving, identification of steps to solve problems, resilience, importance of design and developing a spreadsheet model from initial concept	Transferable Skills: Problem solving, importance of design and developing Python code, identification of steps to solve problems, testing solutions, evaluation of success

Assessment

Assessment will take place at the end of each half term. Students are expected to have completed their work for that term. All students will have been given an opportunity to improve their work during the term. All work submitted will be marked and given appropriate feedback. Regular class work and homework will be provided to students. Students will need to submit them in time as classwork/homework will be assessed. Weekly classwork, Group Activity, Project work, and Practical will all be a part of the student's assessment.

Formative: Throughout the units, the children will complete graded work, quizzes and programming activities which allows the teacher to assess the student's attainment and inform their planning.

For each unit the students complete a pre and post quiz. This allows us to see progress across the units.

Summative: At the end of each term we complete internal and standardized tests. This allows us to measure the students' progress throughout the term and year. At the end of the academic year, the students complete an open book project where their programming skills and use of different techniques will be tested.

Remote Learning: Students will be using MS Teams for live classes and all materials will be provided online along with instructional videos for additional assistance.

Recommended Reading List

Teach-iCT:

https://teach-ict.com/v/ks3/ks3_home.html

Isaac Computer Science (Advanced Resources):

<https://isaacomputerscience.org/>

BBC Bite size:

<http://www.bbc.co.uk/education/subjects/zvc9q6f>

<https://www.bbc.co.uk/bitesize/subjects/z8mtsbk>

Online Safety:

<https://www.thinkuknow.co.uk>

Python:

<https://www.python.org>

Code Academy:

<https://www.codecademy.com>

Games Programming:

<https://scratch.mit.edu>

Hour of Code:

<https://code.org/learn>