Broadening Horizons

We aim to broaden horizons by introducing software tools that can be used for a wide range of purposes. Many of the tools introduced are free and available for students to use at home. We ensure that students understand how software can be used in the real world, e.g. to plan an event or manage finances. We also introduce students to hardware and software that many students may not have access to outside of school, including Micro:bits, the Adobe suite, Microsoft Office, Chromebooks and PCs.

Careers

We run a series of 'Careers in the Curriculum' weeks in our school. For ICT, this week takes place in December. Students take part in a number of activities to encourage them to think about how what they learn in the classroom can be applied in a number of future careers including: IT Manager, Software Developer, Data Scientist, Web Developer and Information Security Analyst.

Immerse Yourself

Craig n Dave Videos

Students have access to a revision website called "Smart Revise" by Craig n Dave. This contains a range of multiple choice questions, exam style questions and flashcards.

The set of videos - which can be accessed via the QR code above covers the Computer Science course in more detail.

Praise and Reward

Our rewards system can be broadly split into four categories: classroom level, subject level, school level and privilege rewards. We'll focus on classroom and subject rewards here - for more information about our rewards schemes, please see our website.

CLASSROOM LEVEL REWARDS

Awarded for: working hard, taking risks and rising to a challenge, making mistakes and learning from them, helping others, and taking pride in the school community.

Rewarded by: praise postcards, positive phone calls to parents/carers, positive text messages home, and lesson based prizes.

SUBJECT LEVEL REWARDS

Reward scheme: Star of the Week, curriculum awards (Subject/School Way, participation, working with pride, embracing the whole curriculum), high flyer, extra mile, most improved.

Rewarded by: names displayed on reward boards, certificates, social media posts.

Contact

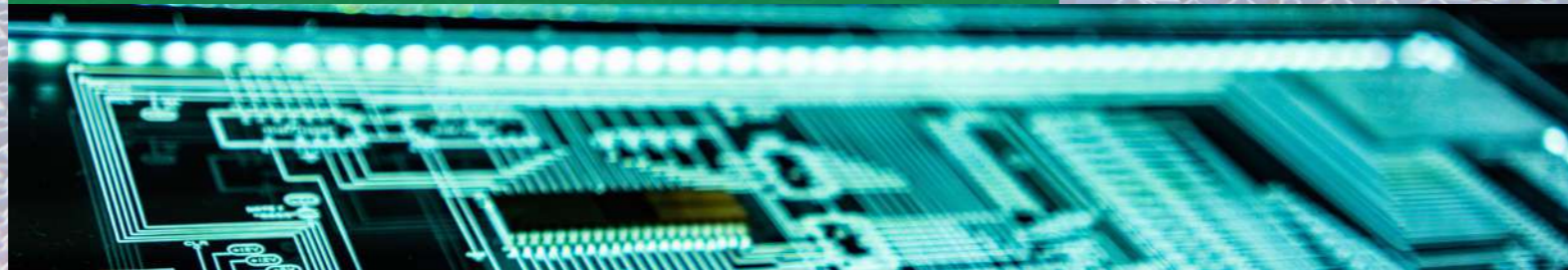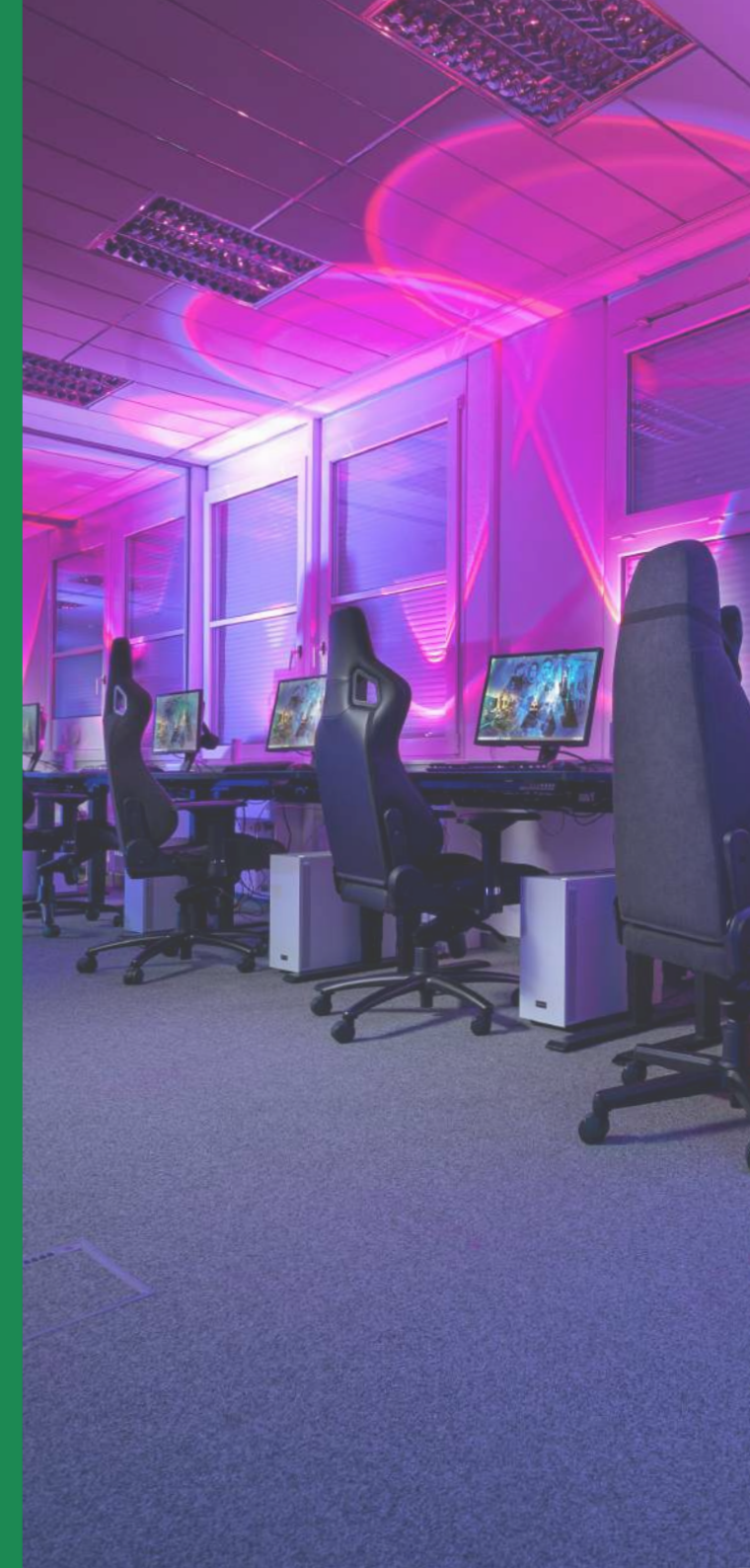Nick Lilleker
WPT ICT
Subject Director
nlilleker@wickersley.net

Isaac Computer Science

This is an overview of the OCR A Level Computer Science specification.

Scan the QR code to check it out!

COMPUTER SCIENCE
Curriculum Newsletter

YEAR 12

Curriculum Intent

In Computing we aim to provide an engaging, challenging, well sequenced curriculum which is broad and balanced, covering a range of computing and ICT topics. We aim to develop our students into 21st Century Digital Citizens who are able to use digital technology safely and responsibly, and to teach students both how to use technology effectively, with an understanding of how it works.

We aim to engender a love of learning, self-belief and aspiration through 4 key intentions:

- The Removal of Barriers to Learning
- Developing Skills for Learning
- Developing Personal Attributes
- Enriching Student Experiences and Broadening their Horizons

The Computing and IT Department's core purpose is to deliver an engaging and challenging curriculum through outstanding teaching and learning. Our aim is for students to develop skills and knowledge to prepare them for a future in a world where the use of technology is fully embodied.

Year 12 Curriculum

In Year 12 the following topics are covered:

The Characteristics of Contemporary Processors, Input, Output and Storage Devices
The structure and function of the CPU is explored, looking at the key components, factors affecting performance, different CPU architectures and instruction sets.

Software and Software Development
In this topic we focus on the different types of software and the different methodologies used to develop software. Systems software is explored, looking at functions of the operating system, memory management, interrupts, scheduling and multitasking.

Exchanging Data
Here we look at compression, encryption and hashing - this includes lossy and lossless compression, run length encoding and dictionary coding for lossless compression and symmetric and asymmetric encryption. This topic also includes relational databases where the fundamental principles are covered.

Elements of Computational Thinking
Here we build an understanding of what is meant by computational thinking, focussing on thinking abstractly, thinking ahead, thinking procedurally, thinking logically and thinking concurrently to develop a structured and methodical approach to problem solving.

Problem Solving & Programming
This topic is about how computers can be used to solve problems and programs can be written to solve them. We look at programming techniques including recursion and object orientation. We also cover computational methods such as decomposition, backtracking, data mining, heuristics, performance modelling, pipelining and visualisations.

Programming Project
Towards the end of Y12, students will begin to explore the programming project which makes up 20% of their final grade. Students will be expected to analyse, design, develop, test, evaluate and document a program written in a suitable programming language. The underlying approach to the project is to apply the principles of computational thinking to a practical coding problem. Students are expected to apply appropriate principles from an agile development approach to the project development.

THE COMPUTING WAY

SUBJECT WAYS

Have your say!

At WPT we're always looking for feedback. If you have any thoughts/opinions on this Curriculum Newsletter, its content or the curriculum in general, please scan the QR code to fill out a short feedback form.

Assessment Points

A Level Computer Science - H446 - OCR
Formal assessment for this course comes at the end of Year 13, where students will sit 2 exams (worth 40% each) and submit a piece of coursework (worth 20%). In Year 12, students are assessed at the end of each topic, roughly once per half term. Assessments are in a variety of formats including short and long answer written questions, multiple choice questions and practical tasks. In addition to end of topic assessments, students sit a mini mock in January, followed by a full mock in May.

The Computing Way

The Computing Way is designed to help students become young subject specialists and has a key focus on the vital skills needed to achieve their full potential in this subject area.