WICKERSLEY PARTNERSHIP TRUST.

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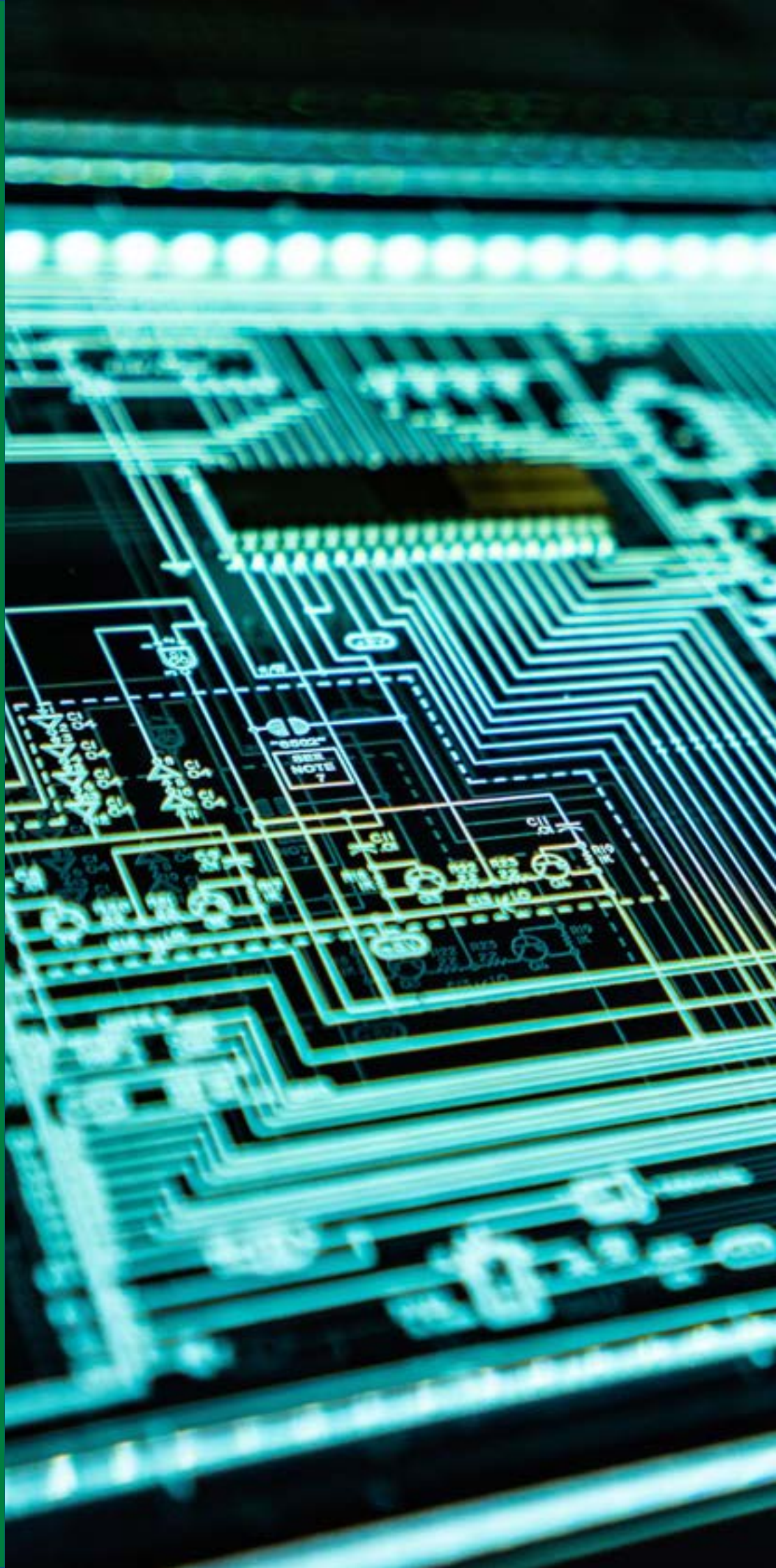
COMPUTER SCIENCE

Curriculum Newsletter

YEAR 10



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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 at KS3 is to deliver an engaging and challenging curriculum through outstanding teaching and learning. Our aim is for students to develop skills and knowledge in digital technologies and computer science, to prepare them for a future in a world where the use of this technology is fully embodied.

Year 10 Curriculum

Systems Architecture

The purpose of the CPU, common CPU components and the von neumann architecture. How common characteristics of CPUs affect their performance such as clock speed, cache size and number of cores.

Memory and Storage

Primary storage, the purpose of RAM and ROM.

Secondary storage, common storage technologies and suitable storage devices for a given purpose. Virtual memory, units of data storage and data capacity requirements, conversion between Binary, Denary and Hexadecimal, Representation of characters, images and sounds in binary.

Computer Networks, Connections and Protocols

Factors that affect the performance of networks, the roles of computers in a client-server and a peer-to peer network, network hardware, DNS, the cloud, network topologies, protocols and Layers.

Network Security

Forms of attack including Malware, Social engineering, Brute-force attacks and Denial of service attacks. Common prevention methods including Penetration testing, Anti-malware software Firewalls and encryption.

Systems Software

The purpose and functionality of operating systems, including user interface, Memory management, Peripheral management and drivers. The purpose and functionality of utility software including Encryption software, Defragmentation and Data compression.

Ethical, Legal, Cultural and Environmental Impacts of Digital Technology

Impacts of digital technology on wider society including Ethical issues, Legal issue, Cultural issues, Environmental issues and Privacy issues. Legislation relevant to Computer Science including The Data Protection Act, Computer Misuse Act, Copyright Designs and Patents Act and Software licences (i.e. open source and proprietary)

Python Programming

The final topic in Year 10 is python programming, in preparation for computational thinking, algorithms and programming topics in Year 11.

Assessment Points

GCSE Computer Science (9-1) - J277 - OCR.

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. Year 10 mock exams take place during the spring and consist of exam style questions from the units they have been studying throughout Year 10.

Immerse Yourself

BBC Bitesize OCR Computer Science

- Develop Skills
- Online Tests
- Computer Science Revision at home

OCR Seneca Revision

- Get Revising Quicker!
- Large Variety of Topics
- Study Support and Revision

These are some great educational tools to help students when revising.

If they are struggling with topics in lessons or want to enhance their learning in the classroom then these links are an ideal place to cover content at home.

Test Your Knowledge...

This BBC Bitesize OCR Computer Science quiz is a fantastic way to memorise relevant terms to help you with your studies. Click on the icon below to start!

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.

Broadening Horizons

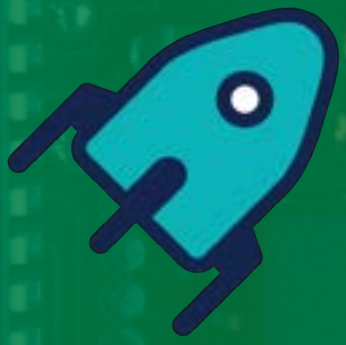
We aim to broaden horizons by introducing software tools that can be used for a wide range of purposes. Many of the tools introduced are free and available for students to use at home.

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.

Computer Networks: Computer Science

This video discusses computer networks, and how they grew from small groups of connected computers on LAN networks to eventually larger worldwide networks like the ARPANET and even the Internet we know today. Click on the logo to find out more!

Software Development Work Experience



This programme will help you experience the industry, explore the careers available, and learn more about working in software development through a series of workplace projects, which all take place virtually. Click on the logo to find out more!

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.

Click on the logo below to hear about a career in Cyber Security!

BBC Bitesize

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.

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 click on the title to fill out a short feedback form.