



Edition 5  
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# YEAR 11 COMPUTER SCIENCE

## Curriculum Newsletter

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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 11 Curriculum

### Algorithms

Key principles of computational thinking and problem solving, including abstraction, decomposition and algorithmic thinking. We then focus on designing, creating and refining algorithms, representing these using flowcharts, pseudocode and the python programming language. We cover a range of standard searching and sorting algorithms, including binary search and insertion sort, students will develop an understanding of the main steps of the algorithms and how to apply the algorithm to a data set.

### Programming Fundamentals

Building on the python programming skills from year 10, we cover programming fundamentals in further depth, developing a deeper understanding of variables, constants, operators, inputs, outputs, assignments, data types, programming constructs, arithmetic operators, Boolean operators and file handling. We also develop a basic understanding of databases, exploring the storing of data in tables and the use of SQL to search for data.

### Producing Robust Programs

In this topic, we build an understanding of the issues a programmer should consider to ensure that a program caters for all likely input values. We cover some of the key principles of defensive design and good practice around creating maintainable programs.

### Boolean Logic

Here we cover logic diagrams using the operators AND, OR and NOT. We learn how to create, complete or edit logic diagrams and truth tables for given scenarios.

### Programming Languages and Integrated Development Environments

Here we explore the differences between high- and low-level programming languages, the need for translators and the differences, benefits and drawbacks of using a compiler or an interpreter. We also look at the common tools and facilities available in an Integrated Development Environment (IDE) and how each of the tools and facilities can be used to help a programmer develop a program.

## 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 11 Mock Exams take place in December and March, students will sit papers that mirror the structure and content that will be assessed in their final exams in the summer.

## 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.



## Boolean Logic: Computer Science

Crash Course take a look at how transistors can be used to perform complex actions. With the just two states, on and off, the flow of electricity can be used to perform a number of logical operations, which are guided by a branch of mathematics called Boolean Algebra. Click on the logo to find out more!

## Computer Science - Wickersley Sixth Form

Wickersley Sixth Form's Computer Science A Level course covers a comprehensive range of computer science topics, including hardware, software, computational thinking and algorithms. 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 for more information on career options in Computing!



## 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.