



**ST. MARY'S R.C.**  
HIGH SCHOOL

**Subject Position Statement**  
Computer Science

## Computer Science – Position Statement

### Context & Background

Computer Science at St. Mary's is taught by 3 members of staff. The Head of Department is a subject specialist and teaches both Key Stage 3 and 4. The KS3 teachers are both well-established teachers and have attended a Teach Computing training course specifically designed for non-subject specialists.

The curriculum, lesson planning and assessment is carried out by the Head of Department. Feedback is given by the members of department with regards to how pupils have engaged with each unit of work and any improvements which can be made are identified. This includes changing units of work or reordering the scheme of work.

Our ambition is to ensure that all pupils develop core computing, ICT and digital literacy skills as well as improving their resilience, curiosity and problem solving skills.

### Curriculum

The scheme of work for all year groups is reviewed each year, involving all teachers in the department to ensure suitability, quality and compliance with statutory requirements of the National Curriculum. Pupils have visibility of the Learning Journey which is a visual representation of the scheme of work which can be seen below. In Key Stage 3 pupils have 1 hour of computer science every week. In Key Stage 4 this extends to 5 hours over a two week timetable.

SEND adaptations within the subject consist of giving pupils starter code, modelling solutions on the board while pupils are working and giving them specific websites to use when carrying out research tasks.

The KS3 curriculum has been developed to ensure pupils develop key ICT skills, computational thinking skills and have a solid baseline knowledge for GCSE. In addition to this they are introduced to topics which are not assessed on the GCSE course, such as animation using Blender, to make them aware of career opportunities that are available to them.

### At Key Stage 4 Computer Science pupils:

- Understand more deeply fundamental Computer Science concepts, e.g. abstraction, decomposition, logic, algorithms, and data representation;
- Analyse problems in computational terms by practically solving such problems, including designing, writing and debugging programs;
- Learn to think creatively, innovatively, analytically, logically and critically understand the components that make up digital systems; and will
- Understand the impacts of digital technology to the individual and to wider society and apply mathematical skills relevant to computer science.

The KS4 scheme of work is developed to prepare pupils for the OCR J277 examination.

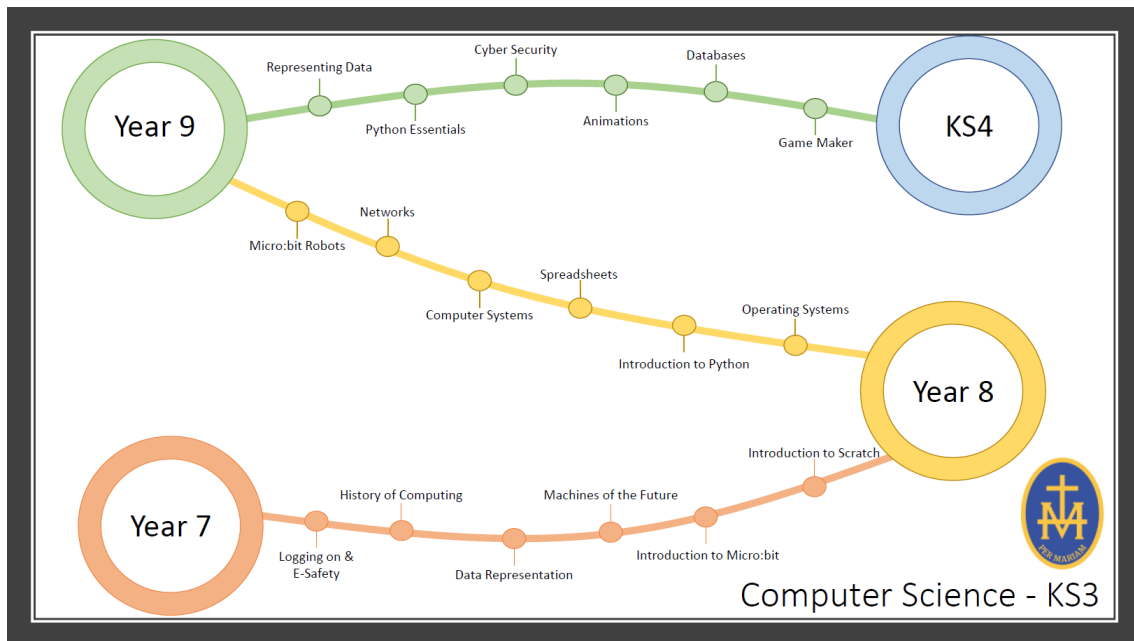


Figure 1 - Key Stage 3 Learning Journey

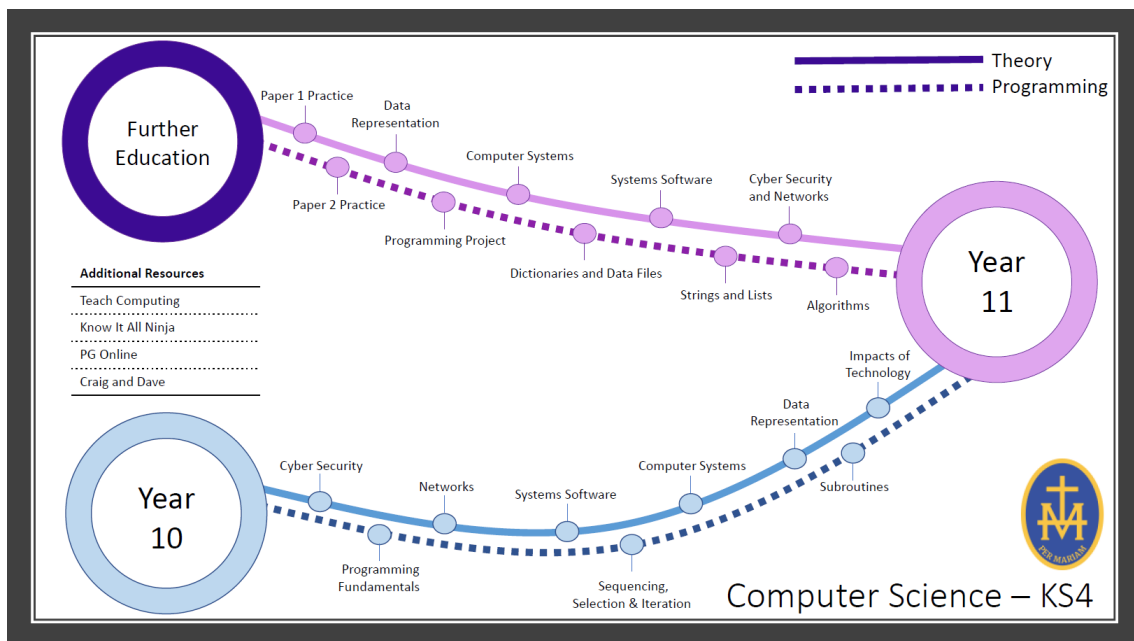


Figure 2 - Key Stage 4 Learning Journey

To ensure long-term retention of knowledge we revisit prior learning by implementing a spiral curriculum, thus ensuring we constantly build upon previous knowledge. We use responsive teaching, questioning, knowledge-based assessments, deliberate and guided practice to check student understanding. Resources are selected to support, assess, develop and consolidate knowledge and skills to facilitate progression.

### Assessment in computer science takes many forms:

- At KS3 termly assessments are posted on *MS Teams*. This ensures all classes are completing the same assessment within the same week. These assessments are automatically marked and then reviewed and graded by HoD once the whole year group has completed it.
- KS4 assessment consists of exam style questions taken from past papers. All exam-style written assessments are modelled on GCSE questions from past and current exam papers and use exam board marks schemes. KS4 pupils also use *Know It All Ninja* for instant assessment and feedback.
- Within the department, teachers are expected to carry out formative assessment, or live marking, which enables teachers and pupils to discuss particular issues and for teachers to offer specific feedback which can be acted on immediately.
- Formative assessment also takes the form of homework, using *Educake*, and quick quizzes. These enable pupils to consolidate their learning and demonstrate their understanding of particular topics.

Pupils show progress in tracking, formal/informal assessments of facts/keywords, and end-of-unit tests.

Following on from Key Stage 4, most pupils who wish to pursue a career in computer science go on to study an A level in computer science or choose Computer Games Development & Cyber Security or ICT as a vocational course at college.

### Approaches to Pedagogy

Throughout the curriculum a wide range of pedagogies are implemented. Coding lessons include PRIMM, Parsons Problems and live modelling to support pupils of all levels. This teaches the pupils to read and understand code before they are expected to code independently. Theory lessons are designed to start with teacher led discussion, introducing new ideas to pupils, which then develops into student led learning. Pupils are given the opportunity to explore and deepen their understanding of these concepts and present them in a way which works best for them individually.

Each year pupils take part in project based learning. This is a 6 week long project which covers key software development stages (analysis, design, implementation, testing, and evaluation) and allows pupils to be creative with their designs and programs within the project guidelines.

The curriculum implements physical computing using Microbits and Kitronik robots. This supports program comprehension by providing physical clues to a programs purpose.

## Enrichment

The world of technology and career opportunities within the computing sector is incredibly vast. It is not possible to cover all these areas within lessons therefore additional clubs are run to support pupils and give them the opportunity to develop their interests further, which are open to all pupils. We are currently running a Blender club which has 10 pupils attending, a KS3 coding club with 17 pupils, and 3 KS3 pupils who are exploring *Sketchup*. We have collaborated with a local school and taken year 7 pupils to a *CyberFirst* Trailblazers event which was enjoyed by the pupils who attended. In addition to this we take part in the *Girls CyberFirst* event in the autumn term. In 2022, 25 year 8 girls signed up to this event.

Documents available in support of the above:

- i. *Department Development Plan*
- ii. *Department Review Report*
- iii. *Exam Analysis (Progress & Attainment)*
- iv. *Cultural Capital Audit*
- v. *Participation Data*