# COMPUTING

*Spotlight on Assessment*

Proud to be part of

Bishop Chadwick
Catholic Education Trust

## WHY COMPUTING?

Digital technology is driving extraordinary global changes that some are calling the Fourth Industrial Revolution. Navigating these changes effectively and safely requires a significant understanding of digital literacy, information technology and computer science. This knowledge is also crucial if business, industry and individuals are to exploit the opportunities offered by this revolution.

**Research review series: Computing May 2022**

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We aim for our pupils to learn how:

- notice and engage with the developing digital world we live in.
- to become confident with the skills of computational thinking, problem solving and recognising ways to be innovative.
- to publish professional documentation on a range of familiar software, enriching and preparing children for their futures
- to use computational thinking and the ability to innovate so that they can understand and change with the advancements of today's world and tomorrow's future.

**"Computing is a practical and creative subject which is vitally important for all children's development throughout their educational journey. Computing helps to open a student's eyes to the developing digital world we live in."**

# CURRICULUM DESIGN

The computing curriculum is designed to determine whether pupils remember what they are taught and can apply that knowledge as intended.

## TEACHER TOOLKIT

### Assessment 'embedded' within the design

**Opportunities to know where pupils are with their learning and to identify and address any gaps.**

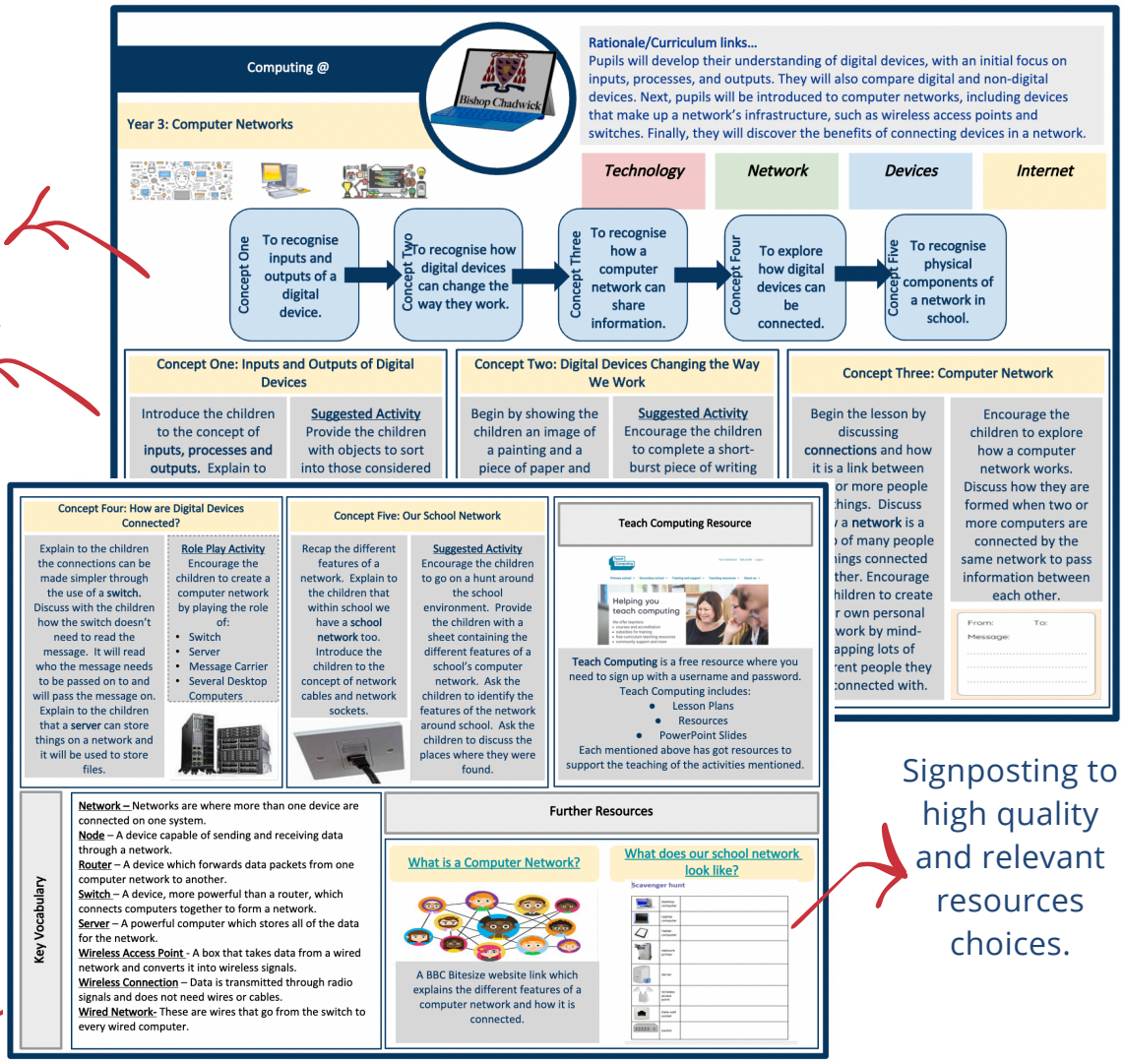
Concise rationale for intended learning with clear end points identified.

Clearly defined sequential components to learning.

Clear directional instructions for teachers to ensuring explicit teaching of computing

Vocabulary rich, subject-specific terminology to develop understanding of the technical language.

Signposting to high quality and relevant resources choices.




Lesson sequences are provided as a guide to ensuring sequential learning across a unit and within a particular aspect of computing. This allows for agreed knowledge content and consistency. It also provides interactive links to ensure the use of high quality and accurate teaching resources to avoid misconceptions developing over time.

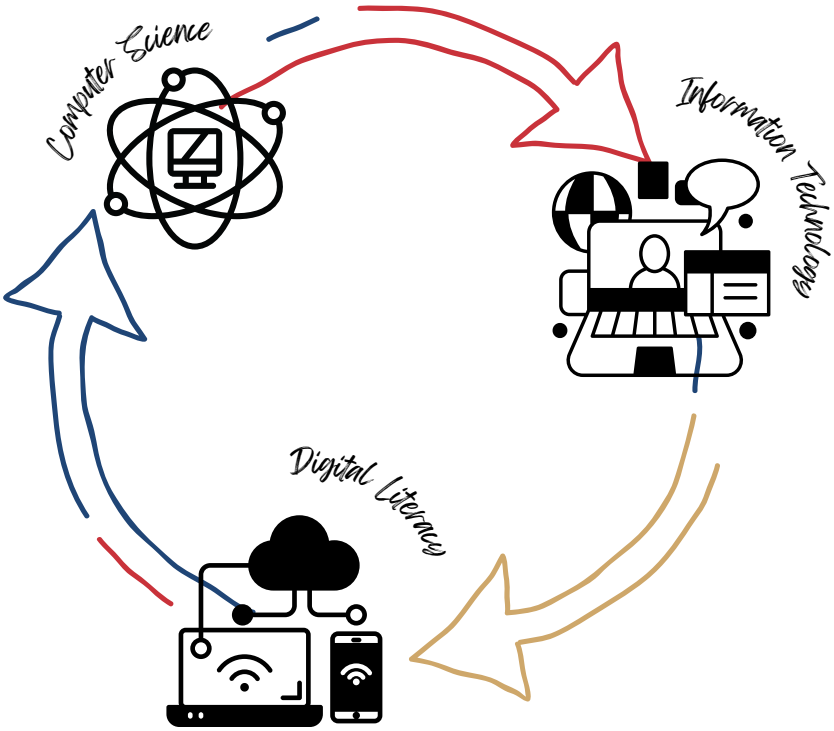
The curriculum identifies precise end points in line with the 3 pillars of computing, allowing teachers to effectively track pupil progress over time. It builds, incrementally, pupils' declarative ('knowing that') and procedural knowledge ('knowing how') over time to effectively target misconceptions.

The design, intent and implementation of out curriculum enables our teachers to:

- provide ongoing feedback to assessment the knowledge and skills of pupils as identified in the curriculum and not generic competencies.
- ensure early identification of misconceptions.

## A THRESHOLD CURRICULUM

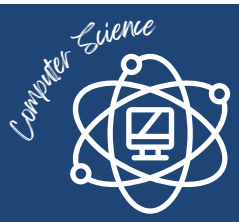
Threshold Concepts are carefully interleaved within the curriculum from EYFS to KS5 so that they are revisited and reinforced with different content and context attached to the concept over time. Pupils make progress in computing by knowing and remembering more about and, importantly, across each of these categories,




The 3 pillars of computing include:

- **Computer Science**
- **Information Technology**
- **Digital Literacy**

These do not sit separately from each other. Knowledge from each pillar complements the others and some subject content only exists at the interplay between these 3 pillars.




The key areas being taught within Computer Science across the Computing Curriculum include:

- Computational Thinking
- Coding and Programming
- Computer Networks

The core of computing is **Computer Science** as pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. In EYFS the children will be introduced to the concept of algorithms as a set of instructions to get a device to carry out a delegated command. This will be put into effect through the use of digital toys such as BeeBots and Code-a-Pillars. Within Key Stage One, the children will be introduced to algorithms on programs and will begin to develop the skills of debugging if a sequence of algorithms does not fulfil the desired outcome. The children will explore programming on iPads using Daisy the Dinosaur and they will also complete unplugged activities from Barefoot Computing. Within LKS2 the children will progress onto Scratch Jr where they will become familiar with the processes of sequencing and looping.They will tinker on the programs and they will begin to evaluate their work to explain how and why their commands fulfilled the desired outcome. As the children progress through into KS2, they will become confident with the use of Scratch and they will focus on selection. The children will become equipped with the skills to critically evaluate programming making comment on strengths and areas of improvement.


The key areas being taught within Information Technology across the Computing Curriculum include:

- Word Processing/Typing
- Presentations and Web Design
- Animation
- Video Creation
- Photography and Digital Art

**Information Technology** is critically important to be delivered effectively to all children in preparation for a digital world. The children will be equipped with the skills of using different programs to create professional documents for a purpose. Within this unit, the children will develop an importance of organising their documents so that they can access the necessary files when needed. In EYFS, the children will begin by exploring and experimenting with keyboards and digital mice to recognise that they form a computer used in our everyday lives.Within KS1, the children will complete a word processing unit with a focus on developing fluency with keyboard skills, an animation unit to promote creativity and a data unit with the benefit of a great cross curricular link to Maths. Within LKS2, the children will become confident with developing more in-depth skills such as copying and pasting and formatting pictures. They will recognise how to create PowerPoint Presentations for a targeted audience whilst also being introduced to a new concept of handling data within databases. As the children progress into KS2, they will develop their independence of completing a computer based project aimed at incorporating skills taught from previous years to document their project ideas. The children will be encouraged to show innovation through a choice of software and they will be provided with the opportunity to work collaboratively with their peers. Information Technology will be integrated through other curriculum areas so that children can understand that publishing of documents has got a purpose.


The key areas being taught within Digital Literacy across the Computing Curriculum include:

- Managing Online Information
- Health, Well-Being and Lifestyle
- Privacy and Security
- Copyright and Ownership

Due to an increasingly digital culture, pupils need to be equipped with the skills and knowledge to take a full and active part in computing in a safe and appropriate manner. They need to recognise necessary approaches and strategies to use to ensure that they can fulfil their potential in our ever-changing digital world. Digital Literacy is a threshold concept that cannot be taught in isolation and must be integrated into all areas of learning within computing so that out pupils can be fully prepared for any situation that may arise and can be equipped with necessary support mechanisms. From EYFS to KS2, the children will be taught Digital Literacy as a short activity within every lesson. There will be careful delivery of Digital Literacy through the teaching and delivery of Project Evolve. The resources will be filtered throughout all units of learning and they will be used when topical issues arise within school.