Computing Curriculum Intents Churnet View Middle School

The Computing curriculum at Churnet View Middle School aims to dispel any common misconceptions about Computing, and instead instil in our students a genuine interest and excitement for the subject. We believe that Computing has the potential to provide numerous opportunities and life skills, and it is our hope that our students will go on to use their knowledge of Computing to make a positive difference in the world.

Our curriculum covers all aspects of Computing, from fundamental concepts such as algorithms and programming, to more applied topics such as digital citizenship and cyber-security. In each lesson, students are given the chance to explore innovative ideas and concepts, and to apply their knowledge in creative and innovative ways. Our ultimate goal is to ensure that our students leave Churnet View Middle School with a well-rounded understanding of Computing, and the confidence to use their skills in whatever context they choose. In Churnet View the Teach Computing Curriculum is delivered and uses the National Centre for Computing Education's computing taxonomy to ensure comprehensive coverage of the subject. This has been developed through a thorough review of the KS1–4 computing programme of study, and the GCSE and A level computer science specifications across all awarding bodies.

All learning intents can be described through a high-level taxonomy of ten strands, ordered alphabetically as follows:

Algorithms — Be able to understand, design, create, and evaluate algorithms

Computer networks — Understand how networks can be used to retrieve and share information, and how they come with associated risks

Computer systems — Understand what a computer is, and how its constituent parts function together as a whole

Creating media — Select and create a range of media including text, images, sounds, and video

Data and information — Understand how data is stored, organised, and used to represent real-world artefacts and scenarios

Design and development — Understand the activities involved in planning, creating, and evaluating computing artefacts

Effective use of tools — Use software tools to support computing work

Impact of technology — Understand how individuals, systems, and society interact with computer systems

Programming — Create software to allow computers to solve problems

Safety and security — Understand risks when using technology, and how to protect individuals and systems The taxonomy supplies categories and an organised view of content to encapsulate the discipline of computing. Whilst all strands are present at all phases, they are not always taught explicitly.

By the end of year 6	By the end of year 8

Computing Studies	The Computing curriculum Intent is that, by the end of year 6, pupils will be able to: Design and write programs that carry out specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts; use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs; understand computer networks including the internet, how they can supply multiple services such as email and the world wide web and the opportunities they offer for communication and collaboration; understand how instructions are stored and executed within a computer system; understand how data is represented and processed inside a computer; evaluate information systems, including whether they are fit for purpose, usable, reliable and secure; be responsible, competent, confident and creative users of information and communication technology. The Computing curriculum is built for all children to be computational thinkers. This means they can flexibly apply the powerful ideas of computer science, which underpin all digital technologies, to solve complex problems. They can dissect problems into their component parts, identify patterns and relationships, generalise from what they already know to make deductions and develop innovative solutions. As children progress through KS2, they will deepen their understanding of these ideas and how to use them in increasingly sophisticated ways. By the end of Year 6, children will be confident in applying them across a range of other curricular areas to solve problems they encounter in their everyday lives.	The central intent of the Computing curriculum is for students to develop their computational thinking skills. By the end of Year 8, students should be able to use these skills to solve problems and design programs. In addition, they should be able to understand how computers work, and be aware of ethical issues surrounding computing. By developing these skills, students will be well-prepared to use computers in their future studies and careers. By the end of Year 8, students would have developed their ability to think computationally. This involves decomposing problems into smaller parts, recognising patterns and generalisations, and using abstraction and modularisation to manage complexity. By the end of Year 8, students should be able to apply these concepts to design solutions to problems. They should also be able to evaluate existing digital solutions, and consider the ethical implications of computing. In addition, they should be familiar with a range of software tools and programming languages, and be able to use them to create working programs. Ultimately, the goal is for students to develop an understanding of how computing can be used to solve problems and add value in the real world.