Newchurch St Mary's Computing Programmes of Study.

Substantive Knowledge

Key Stage 1

- understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- create and debug simple programs use logical reasoning to predict the behaviour of simple programs
- use technology purposefully to create, organise, store, manipulate and retrieve digital content
- recognise common uses of information technology beyond school
- use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.

Key Stage 2

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- 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 provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration
- use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Disciplinary Knowledge

EYFS

ELG Personal Social and Emotional Development. Managing self.

- Be confident to try new activities and show independence, resilience and perseverance in the face of challenge.
- Explain the reasons for rules, know right from wrong and try to behave accordingly.

ELG Expressive Arts and Design. Creating with materials

- Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Key Stage 1 and Key Stage 2

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology

EYFS

Computing with EYFS will focus on the 7 areas of learning and will meet the needs of the children using 2 Simple software and plans.

KS1

Term	Cycle A	Cycle B
Autumn 1	Online Safety 1.1	Online Safety/Coding 2.2 & 2.1
Autumn 2	Grouping and sorting/Pictograms 1.2 & 1.3	Spreadsheets/effective searching 2.5
Spring 1	Programming/instructions 1.4 & 1.5	Questioning 2.4 (Database)
Spring 2	Animation 1.6	Creating Artwork 2.6
Summer 1	Coding 1.7	Making Music 2.7
Summer 2	Spreadsheets/Technology outside of school 1.8 & 1.9	Presenting ideas 2.8

KS2

Term	Year 1	Year 2	Year 3	Year 4
Autumn 1	Online Safety/Coding 3.2 & 3.1	Online safety/Coding 4.2 & 4.1	Online Safety/Coding 5.2 & 5.1	Online Safety/Coding 6.2 &6.1
Autumn 2	Typing and Spreadsheets 3.4 & 3.3	Spreadsheets 4.3	Spreadsheets 5.3	Spreadsheets 6.3
Spring 1	Email 3.5	Writing (Formatting) 4.4	Database 5.4	Blogging 6.4
Spring 2	Database 3.6	Instructions 4.5	Design on games 5.5	Coding 6.5
Summer 1	Simulation 3. 7	Animation 4.6	3D Models 5.6	Networks 6.6
Summer 2	Graphing 3.8	Searching/Hardware 4.7 & 4.8	Concept Maps 5.7	Quiz 6.7