Federation of Kirkby Malzeard and St Nicholas CE School
Knowledge and Skills Progression Document
Computing

Computing curriculum design in brief:

Computing is delivered across the federation on a two-year cycle, under the three strands of ==digital literacy==, ==computer science== and ==information technology==.
We start with the child and move from what they know outwards; because of this, and because of our commitment to safeguarding our children, the autumn term always starts with digital literacy, where children learn how to keep themselves safe in an ever changing digital world.
This aspect of internet safety is also explored through our PSHE curriculum throughout the year.

The federation uses the Purple Mash Computing mixed age planned curriculum.

Substantive and disciplinary knowledge in computing
Substantive knowledge in computing is understanding how to use technology, how to be safe and knowing how to program. This is developed through deliberate practice and by children applying their knowledge of how to be computational thinkers.
"Computational thinking is an important life skill, which all pupils now need to develop. It is central to both living in and understanding our digitally enriched world. It is a cognitive process involving logical reasoning by which problems are solved across the whole curriculum and through life in general."
(Computing at School, 2015)

Disciplinary knowledge in computing is the use and interpretation of substantive knowledge in order to develop original digital content and programs.

Creativity Computing is an area of the curriculum that has many opportunities for children to demonstrate creativity through developing their own programs, systems and digital content whilst applying their developing computational thinking.

Computing has opportunities for natural cross-curricular learning; examples include presenting data in tables, researching in History or writing instructions in English.
Where possible, certain units are best delivered through interdisciplinary teaching, linking the context of the lesson to relevant subjects. Units which lend themselves to this are highlighted for the teacher, in order that they can use their discretion as to where best in the year this unit would fit. Teachers may also move other units around <u>within the year</u>, other than the digital literacy units which must stay in the Autumn Term.

KS1 –CYCLE A	**Autumn Term** **Digital Literacy**	**Spring Term** **Computer Science**	**Summer Term** **Information Technology**
	Unit 1.1 Online Safety & Exploring Purple Mash Number of lessons – 4 Unit 2.5 Effective Searching Number of lessons – 3 Unit 1.9 Technology outside school Number of lessons – 2	Unit 1.4 Lego Builders Number of lessons – 3 Unit 1.7 Coding Number of lessons – 6	Unit 2.1 Coding Number of lessons – 5 Unit 1.8 Spreadsheets Number of lessons – 3
Interdisciplinary learning	Unit 1.2 Grouping & Sorting (Classification – Maths or Science) Number of lessons – 2 Unit 2.6 Creating Pictures (Link to art curriculum) Lesson 3 and 4		
Ongoing learning	**Revisit internet safety at the start of each term**		
Vocabulary	**See Purple Mash Progression documents**		

Science Knowledge and Skills Learning Journey

KS1 CYCLE B	Autumn Term Digital Literacy	Spring Term Information Technology	Summer Term Information Technology
	Unit 1.1 Online Safety & Exploring Purple Mash Number of lessons – 4 Unit 2.2 Online Safety Number of lessons – 3 Computer Science Unit 1.5 Maze Explorers Number of lessons – 3	Unit 2.4 Questioning Number of lessons – 5 Unit 2.3 Spreadsheets Number of lessons – 4	Unit 2.8 Presenting Ideas Number of lessons – 4 Unit 1.6 Animated Story Books Number of lessons – 5
Interdisciplinary learning These units can be delivered as stand-alone or through other relevant subjects	Unit 2.7 Making Music – BH to deliver Number of lessons – 3 Unit 1.3 Pictograms Maths Number of lessons – 3		
Ongoing learning	Revisit internet safety at the start of each term		
Vocabulary	See Purple Mash Progression documents		

Science Knowledge and Skills Learning Journey

YEAR 3/4 CYCLE A	Autumn Term Digital Literacy	Spring Term Computer Science	Summer Term Information Technology
	Unit 3.2 Online safety Number of lessons – 3 Unit 3.5 Email (including email safety) Number of lessons – 6	Coding Number of lessons –6 Main Programs – 2Code	Unit 3.7 Simulations Number of lessons – 3 Unit 3.4 T ouch Typing Number of lessons – 4 Unit 3.3 Spreadsheets Number of lessons – 3
Interdisciplinary learning These units can be delivered as stand-alone or through other relevant subjects	Unit 3.8 Graphing (Maths) Number of lessons – 3 Unit 3.6 Branching Databases (Science) Number of lessons – 4		
Ongoing learning	Revisit internet safety at the start of each term		
Vocabulary	See Purple Mash Progression documents		

Science Knowledge and Skills Learning Journey

YEAR 3/4 Cycle B	Autumn Term Digital Literacy	Spring Term Computer Science	Summer Term Information Technology
	Unit 4.2 Online safety Number of lessons – 4 Unit 4.7 Effective Search Number of lessons – 3	Coding Number of lessons – 6 Main Programs – 2Code Unit 4.5 Logo Number of lessons – 4	Unit 4.6 Animation Number of lessons – 3 Unit 4.3 Spreadsheets Number of lessons – 6
Interdisciplinary learning These units can be delivered as stand-alone or through other relevant subjects	Unit 4.4 Writing for different audiences (English – news report) Number of lessons – 5		
Ongoing learning	Revisit internet safety at the start of each term		
Vocabulary	See Purple Mash Progression documents		

Science Knowledge and Skills Learning Journey

Coding Breakdown

YEAR 3 & 4 - CYCLE A					
Using Flowcharts Unit 3.1, Lesson 1	Using Timers Unit 3.1, Lesson 2	'if' statements Unit 4.1, Lesson 2	Coordinates Unit 4.1, Lesson 3	Code, Test and Debug – Unit 3.1, Lesson 4	Design, Code, Test and Debug Unit 4.1, Lesson 1
YEAR 3 & 4 - CYCLE B					
Using Repeat Unit 3.1, Lesson 3	Repeat Until and 'if/else' Statements Unit 4.1, Lesson 4	Number Variables Unit 4.1, Lesson 5	Design and Make an Interactive scene Unit 3.1, Lesson 5-6		Making a Playable game – Unit 4.1, Lesson 6

YEAR 5/6 CYCLE A	Autumn Term Digital Literacy	Spring Term Computer Science	Summer Term Computer Science
	Unit 5.2 Online safety Number of lessons – 3	Coding Number of lessons – 6 Main Programs – 2Code	Unit 5.5 Game Creator Number of lessons – 5
Interdisciplinary learning **These units can be delivered as stand-alone or through other relevant subjects**			
Ongoing learning	**Revisit internet safety at the start of each term**		
Vocabulary	**See Purple Mash Progression documents**		

Science Knowledge and Skills Learning Journey

YEAR 5/6 CYCLE B	**Autumn Term** **Digital Literacy**	**Spring Term** **Computer Science**	**Summer Term** **Computer Science**
	Unit 6.2 Online safety Number of lessons – 2 Unit 6.4 Blogging Number of lessons – 4	Coding Number of lessons – 6 Main Programs – 2Code	Unit 6.5 Text Adventures Number of lessons – 5
Interdisciplinary learning **These units can be delivered as stand-alone or through other relevant subjects**			
Ongoing learning	**Revisit internet safety at the start of each term**		
Vocabulary	**See Purple Mash Progression documents**		

Science Knowledge and Skills Learning Journey

Coding Breakdown

YEAR 5 & 6 - CYCLE A					
Coding Efficiently Unit 5.1, Lesson 1	Simulating a physical system Unit 5.1, Lesson 2	Friction and Functions Unit 5.1, Lesson 4	Introducing Strings Unit 5.1, Lesson 5	Text Variable and Concatenation Unit 5.1, Lesson 6	User Input Unit 6.1, Lesson 5
YEAR 5 & 6 - CYCLE B					
Designing and writing a more complex program Unit 6.1, Lessons 1 & 2		Decomposition and Abstraction Unit 5.1, Lesson 3	Using Functions Unit 6.1, Lesson 3	Flowcharts and control simulations Unit 6.1, Lesson 4	Text Adventure Unit 6.1, Lesson 6