Progression of Knowledge, Skills and Understanding - Computing

Autumn Term Spring Term Summer Term

Information Technology		
This document links to Purple Mash.	**Year 1** *Suggested links to Unit 1.2/1.3/1.6/1.8*	**Year 2** *Links to Unit 2.3/2.4/2.6/2.7/2.8*
Skills: (Applicable lessons in brackets)	Name, save and retrieve work (1.2/1.3/1.6/1.8) Sort sound, pictures and text (1.2) Change content on a file such as text, sound and images (1.3/1.6/1.8) Add sound, pictures and text to a program such as 2Create a Story (1.6)	Name, save and retrieve my work (2.3/2.4/2.6/2.7/2.8 & most units) Include photos, text and sounds in my creations (2.8/2.6) Organise data e.g. using a database such as 2Investigate (2.3/2.4) Find data using specific searches e.g. using 2Investigate (2.4/2.5) Use several programs to organise information e.g. use binary trees such as 2Question or spreadsheets such as 2Calculate (2.4/2.8) Edit digital data such as data in music composition software like 2 sequence (2.7 and most units)
Prior Knowledge:	• *Can the children use a keyboard?* • *Do the children know how to save their work?* • *Do the children know how to access their username and password?* • *Do the children understand what is meant by sound, text and pictures?*	• *Have the children used a database or physical binary tree in maths or science?* • *Have they used a search engine before?* • *Do they know what a musical composition is?* • *Can they make a composition with instruments?* • *Do they understand that by saving and retrieving their work they can edit it and improve it?*

Computer Science		
	Year 1 *Use Coding unit 1.7 supported with units 1.4/1.5*	**Year 2** *Coding Unit 2.1*
Skills: (Applicable lessons in brackets)	Explain that an algorithm is a set of instructions (1.4/1.5) Knows that a computer program turns an algorithm into a code that the computer can understand (1.4/1.7) Debug to work out what is wrong when the steps are out of order in instructions (1.4/1.5) Understand that if something does not work out how it should it is because my code is incorrect. (1.7) Try to fix my code if it isn't working properly (1.7) Make good guesses of what is going to happen in a program. For example, where the turtle might go. (1.5/1.7)	Explain an algorithm is a set of instructions to complete a task. (2.1) Know I need to carefully plan my algorithm so it will work when I make it into code. (2.1) Design a simple program using 2Code that achieves a purpose. (2.1) Say what will happen in a program. (2.1) Spot something in a program that has an action or effect (does something).(2.1) Find and correct some errors in my program (Debugging). (2.1)
Prior Knowledge:	• Can the children talk about what an instruction is? • What is an algorithm? • What does debug mean? • Have they used or followed instructions before?	• What is an algorithm? Why is it useful in computing? • Can the children talk about why it is important to be able to fix a code that is not working properly? • Do they understand what code blocks, objects and actions are?

Digital Literacy		
	Year 1 *Use Units 1.1 and 1.9*	**Year 2** *Use Units 2.2 and 2.5*
Skills: (Applicable lessons in brackets)	Keep my login safe. (1.1 and most units) Save my work in a safe place such as 'My Work' folder. (1.1 and most units) Say what technology is. (1.9) Say what examples of technology are in school. (1.9) Say what examples of technology are at home. (1.9) Know that a chair uses old technology, and a smart phone uses new technology. (1.9)	Know the consequences of not searching online safely. (2.2,/2.5) Report unkind behaviour and things that upset me online, to a trusted adult. (2.2) Share work and communicate electronically – for example using 2Email or the display boards. (2.2 and others) Give examples of things that should not be included in my digital footprint. (2.2) Find information I need using a search engine. (2.5)
Prior Knowledge:	• Can the children talk about technology they have at home and in school? • Can they talk about how technology helps us in our daily lives? • Do the children know why we have logins and passwords? • What do the children currently know about being safe online? • What can they do if they are worried about something they see online?	• Do they know what emails are? • Have they used a search bar? What does it do? • Have they heard of a digital footprint? • Do they know what the internet is? • Who can they talk to if they are worried about online safety?

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APPENDIX

Glossary

Algorithm – A set of instructions for a computer, split in to little steps

Coding – Writing the language used to give instructions to computers

Cyberbullying – Unkind words and things done on the internet

De-bug – Fixing a sequence in a computer program

E-Safety – Doing things to make sure you are safe when using the internet

Program/Sequence – A set of step by step instructions to make a computer do a task

Computing National Curriculum Objectives

Relative to Information Technology

Use technology purposefully to create, organise, store, manipulate and retrieve digital content.

Relative to Computer Science

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

Relative to Digital Literacy

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

<u>Supporting Notes</u>

It is vital that the teaching of computing takes place over a dedicated block of time to ensure the embedding of knowledge, skills and understanding.

Each Unit on Purple Mash has its own knowledge organiser listing specific vocabulary, key learning and key questions for that specific unit.

You may access the concept maps for each unit to ascertain the prior knowledge the children have related to the unit focus.

With the exception of unit 1.1, these units can be taught in any order to meet the needs of your wider curriculum although as per our school proforma the skills are in a suggested order of progression.

Each lesson has a supporting slideshow. At the beginning of the slideshow there is a vocabulary overview for that specific lesson (and previous vocabulary reminders) and at the end there is an overview to test the children's recall of that vocabulary.

An overview guide of how Purple Mash can support the teaching of the required knowledge, skills and understanding

Autumn Term Spring Term Summer Term

Year 1	
Digital Literacy (Online Safety)	
Unit 1.1 – 4 lessons	Unit 1.9 – 2 lessons
Lesson 1 – Safe Logins	Lesson 1 – What is Technology?
Lesson 2 – My Work Area	Lesson 2 – Technology Outside School
Lesson 3 – Purple Mash Topics	
Lesson 4 - Purple Mash Tools	

Year 2	
Digital Literacy (Online Safety)	
Unit 2.2 – 3 lessons	Unit 2.5 – 3 lessons (use lesson 3 at your discretion)
Lesson 1 – Search and Sharing	Lesson 1 – Effective Searching
Lesson 2 – Email using 2respond	Lesson 2 – Searching the internet
Lesson 3 – Digital Footprint	Lesson 3 – Sharing Knowledge of the Internet and Effective Searching

Year 1	
Computer Science (Coding)	To support the teaching of coding…
Unit 1.7 – 6 lessons	Unit 1.4 – 3 lessons
Lesson 1 – Instructions	Lesson 1 – Following Instructions
Lesson 2 – Objects and Actions	Lesson 2 – Following and Creating Simple Instructions on the computer
Lesson 3 – Events	Lesson 3 – Following a Recipe
Lesson 4 – When Code Executes	
Lesson 5 – Setting the Scene	Unit 1.5 – 4 lessons
Lesson 6 – Using a Plan	Lesson 1 – Challenges 1 and 2
	Lesson 2 – Challenges 3 and 4
	Lesson 3 – Challenges 5 and 6
	Perhaps revisit Lesson 3 before continuing…
	Lesson 4 – Setting More Challenges

Year 2
Computer Science (Coding)
Unit 2.1– 6 lessons
Lesson 1 – Algorithms
Lesson 2 – Collision Detection
Lesson 3 – Using a Timer
Lesson 4 – Different Object Types
Lesson 5 – Buttons
Lesson 6 – ‘Smelly Code’ Debugging
These lessons may need more time that one session to really practice and embed the skills.

Year 1 Information Technology	
This can be far more cross-curricular as long as the knowledge, skills and understanding are taught explicitly. Terms have not been assigned to allow fluidity except those that would best suit the Summer Term. This is an overview of each unit to give an idea of topics covered.	
Unit 1.2 – Grouping and Sorting	Unit 1.8 - Spreadsheets
Lesson 1 – Sorting Away from the Computer	Lesson 1 – Introduction to Spreadsheets
Lesson 2 – Sorting on the Computer	Lesson 2 – Adding Images to a Spreadsheet and using the image toolbox
	Lesson 3 – Using the 'speak' and 'count ' tools in 2 calculate to count items
Unit 1.3 - Pictograms	
Lesson 1 – Data in Pictures	
Lesson 2 – Class Pictogram	
Lesson 3 – Recording results	
Unit 1.6 – Animated Stories	
Lesson 1 - Drawing and Creating	
Lesson 2 - Animation	
Lesson 3 – Sounds and More	
Lesson 4 – Making a Story	
Lesson 5 – Copy and Paste	

Year 2 Information Technology	
This can be far more cross-curricular as long as the knowledge, skills and understanding are taught explicitly. Terms have not been assigned to allow fluidity except those that would best suit the Summer Term. Coverage will also be dependent on the units accessed by year 1 previously. This is an overview of each unit to give an idea of topics covered.	
Unit 2.3 – Spreadsheets	Unit 2.7 – Making Music
Lesson 1 – Reviewing prior use of Spreadsheets	Lesson 1 – Introducing 2sequence
Lesson 2 – Copying and Pasting Totalling Tools	Lesson 2 – Making Music
Lesson 3 – Using a Spreadsheet to Add Amounts	Lesson 3 - Soundtracks
Lesson 4 – Creating a Table and Block Graph	
	Unit 2.8 – Presenting Ideas
Unit 2.4 - Questioning	Lesson 1 – Presenting a Story 3 different ways
Lesson 1 - Using and Creating Pictograms	Lesson 2 – Presenting Ideas as a Quiz
Lesson 2 – Asking Yes/No Questions	Lesson 3 – Making a Non-Fiction Fact File
Lesson 3 – Binary Trees	Lesson 4 – Making a Presentation
Lesson 4 – Using 2question – a Binary Tree computer-based	
Lesson 5 – Using 2investigate – a non-binary database	
Unit 2.6 – Creating Pictures (consider links with Art)	
Lesson 1 - Introduction and Impressionism	
Lesson 2 – Pointillist Art	
Lesson 3 – Piet Mondrian	
Lesson 4 – William Morris and Pattern	
Lesson 5 – Surrealism and eCollage	