Computing Curriculum – Categorising knowledge

Categorising knowledge in computing

Online safety aspects <u>underlined</u> throughout the document

	Computer science	Information technology						Digital Literacy	
	Coding and computational thinking	**Spreadsheets**	**Internet and email**	**Art and design**	**Music**	**Databases and graphing**	**Writing and presentation**	**Communication and networks**	**Curriculum connections**
EYFS	**Mathematics** **Number** **Numerical patterns**			**Expressive arts and design** **Creating with materials** **Being imaginative and expressive**			**Literacy** **Comprehension/Word reading/writing**	**Understanding the world** **Managing self**	
Milestone outcome									
Year 1	**Grouping and sorting** **Lego builders** **Maze explorers** **Coding** To understand that an algorithm is a set of instructions used to solve a problem or achieve an objective. To know an algorithm written for a computer is called a program. To identify when the steps of an algorithm are out of order. To write a simple algorithm. To understand that codes can have unexpected outcomes due to errors. To read code one line at a time and think about what the code will do.	**Spreadsheets** To collate, edit and store a range of simple content. To name, save and retrieve work and follow instructions to access online resources.	**<u>Online safety and exploring Purple Mash</u>** <u>To know the importance of keeping personal information safe.</u> <u>To take ownership of work and save in a private space.</u>	**Animated story books** To collate, edit and store a range of simple content.		**Pictograms** To collate, edit and store a range of simple content.		**Online safety and exploring Purple Mash** **Technology outside school** To know what is meant by technology and identify examples in and out of school. To explain when an object uses modern technology. <u>To know the importance of keeping personal information safe.</u> <u>To take ownership of work and save in a private space.</u>	
Year 2	**Coding** To explain that an algorithm is a set of instructions to complete a task. To design a program being precise with algorithms so	**Spreadsheets** To organise simple data using a database.	**Online safety** **Effective searching** <u>To retrieve relevant content using a search engine.</u>	**Creating pictures** To use a range of media in digital content including photos, text and sound.	**Making music** To edit more complex digital data such as music compositions.	**Questioning** To organise simple data using a database.	**Presenting ideas** To use a range of media in digital content including photos, text and sound.		

	that they can be converted into code. To create a simple program that achieves a purpose. To identify and correct some errors in code. To design programs that show awareness of logical steps. To identify the parts of a program that respond to events and the actions that will occur.	To retrieve specific data for simple searches. To make links between technology, coding and multimedia. To know how things are shared electronically.	To apply effective searching beyond the classroom and share this knowledge. To know the implications of inappropriate online searching. To understand how to reply to email safely. To know how to report inappropriate behaviours and content.	To make links between technology, coding and multimedia. To know how things are shared electronically.	To make links between technology, coding and multimedia. To know how things are shared electronically.	To retrieve specific data for simple searches. To make links between technology, coding and multimedia. To know how things are shared electronically.	To make links between technology, coding and multimedia. To know how things are shared electronically.		
Milestone outcome	**Children will know that an algorithm is a set of instructions used by a computer to complete a task. They will be able to create a simple program using algorithms and a logical set of steps.**	**Children will be able to organise simple databases and run searches on these and given models as well as understanding how these can be shared electronically.**	**Children will know how to keep personal information safe, how to search and respond to emails safely. They will know one way of reporting any inappropriate behaviours and content.**	**Children will have used a range of digital media to create pictures and stories and know how to share these electronically.**	**Children will have created simple music compositions using computers and know how to share these electronically.**	**Children will be able to organise simple databases and run searches on these and given models as well as understanding how these can be shared electronically.**	**Children will have used a range of digital media to present writing and know how to share this electronically.**	**Children will be able to identify a range of modern and older technology in school and in the wider world and explain its uses.**	
Year 3	**Coding** To turn a simple real-life situation into an algorithm for a program by deconstructing it into parts. To identify errors within code that prevent it from working properly and then fixing it. To design and code a program that follows a simple sequence. To understand the use of timer commands. To understand how variables can store information. To design a program that has logical, achievable steps To read programs with several steps and predict the outcome.	**Spreadsheets** To collect, analyse, evaluate and present data. To choose the most appropriate software for a given task.	**Online safety** **Email** To list a range of ways the internet can provide different methods of communication. To respond to emails, open and attach files and use appropriate email conventions. To carry out online searches to find simple digital content. To create purposeful content to attach to emails. To show the importance of having a secure password and the implications of not keeping it safe. To know more than one way of reporting unacceptable content and contact online.			**Branching databases** **Graphing** To collect, analyse, evaluate and present data. To choose the most appropriate software for a given task.	**Touch typing** To show an understanding of effective typing in order to quickly edit and complete documents or enter data.	**Simulations** To collect, analyse, evaluate and present data. To choose the most appropriate software for a given task.	
Year 4	**Coding** **Logo**	**Spreadsheets** To make improvements to digital solutions	**Online safety** **Effective search**	**Animation** To make improvements to digital solutions	**Making music (optional)** To make improvements to		**Writing for different audiences**	**Hardware investigators** To recognise the main component	

	To turn a real-life situation into an algorithm using coding structures for selection and repetition. To identify errors within code that prevent it from working properly and then fixing it whilst creating algorithms. To write logical uses of timers in code. To use 'if' statements and combine these with other aspects of code. To use the values of variables within code. To use inputs and outputs in code. To design a program that has logical, achievable steps and uses 'if' statements, repetition and variables. To use step through methods to identify errors in code and correct them.	based on feedback. To make informed software choices when presenting information and data. To create and link content using a range of software. To share content digitally within the school community.	<u>To know the function, features and layout of a search engine.</u> <u>To appraise websites for credibility and information at a basic level.</u> <u>To explore key concepts related to online safety.</u> <u>To help others understand the importance of staying safe online.</u> <u>To know a range of ways to report inappropriate content and contact.</u>	based on feedback. To make informed software choices when presenting information and data. To create and link content using a range of software. To share content digitally within the school community	digital solutions based on feedback. To make informed software choices when presenting information and data. To create and link content using a range of software. To share content digitally within the school community		To make improvements to digital solutions based on feedback. To make informed software choices when presenting information and data. To create and link content using a range of software. To share content digitally within the school community	parts of hardware which allow computers to join and form networks. To understand that the internet can provide different methods of communication that are constantly improving.	
Milestone outcome	**Children will be able to turn a real life situation into a simple set of steps that can be coded. They can use variables, if statements and a selection of inputs and outputs.**	**Children will be able to choose from a range of spreadsheet software to present their data. They will be able to link this data across multiple documents and share this within the school community.**	**<u>Children will know that there are safe ways of using search engines and emails and will have shown that they can follow them. They will know several ways of reporting any inappropriate behaviours and content.</u>**	**Children will be able to use a software package to create a simple animation. They will be able to share this within the school community.**	**Children will have created more complex music compositions using computers and know how to share these electronically within the school community.**	**Children will be able to use graphing software in order to input, analyse and present data.**	**Children will be able to effectively touch type documents. They will understand how the internet offers a range of different audiences and how work will need to be presented differently to effectively engage them.**	**Children will be able to choose from different software packages in order to present a simulation of a problem. They will know that computers can join together to create networks and that the internet offers us a range of communication methods.**	
Year 5	**Coding** To turn more complex real-life situations into algorithms by deconstructing it. To test and debug programs whilst creating them and to use logical methods to identify bugs with some support.	**Spreadsheets** To make improvements to digital solutions based on feedback received and can comment on the success of the solution. To review solutions from others.	**<u>Online safety</u>** <u>To understand the value of computer networks and are aware of the range of dangers.</u> <u>To recognise personal information and explain how it should be kept safe.</u> <u>To search with greater complexity when using a search engine and explain how credible a website is.</u>	**Game creator** **3D modelling** To make improvements to digital solutions based on feedback received and can comment on the success of the solution.		**Databases** To make improvements to digital solutions based on feedback received and can comment on the success of the solution. To review solutions from others.	**Concept maps** To make improvements to digital solutions based on feedback received and can comment on the success of the solution. To review solutions from others. To collaboratively create content and solutions and share these		

	To write algorithms that use sequence, selection and repetition. To combine these algorithms with other aspects of code. To design code that is structured so debugging and interpreting are easier.	To collaboratively create content and solutions and share these solutions when completed.	To have a secure knowledge of common online safety rules. To demonstrate this knowledge by using different technologies and online services. To implicitly relate appropriate online behaviour to personal privacy and the wellbeing of others.	To review solutions from others. To collaboratively create content and solutions and share these solutions when completed.		To collaboratively create content and solutions and share these solutions when completed.	solutions when completed.		
Year 6	**Coding** **Text adventures** To turn more complex real-life situations into algorithms by identifying important aspects of the task and decomposing them into possible coding structures. To test and debug programs whilst creating them and to use logical methods to identify bugs without support. To create designs that include sequence, selection and repetition into code. To use nesting structures within code. To use a variety of variables, outputs such as sound and movement and use inputs from the user. To interpret programs in parts and make logical attempts to separate them to explain a complex algorithm.	**Spreadsheets** To make clear connections to the audience when creating and designing digital content. To use criteria to evaluate the quality of a digital solution and identify improvements and make refinements.	**Online safety** To apply filters when searching for digital content. To explain how credible a webpage is and the information it contains. To compare a range of digital content sources and rate them. To use critical thinking skills in use of online communication.				**Quizzing** **Blogging** To make clear connections to the audience when creating and designing digital content. To design and create a blog to become a content creator. To use criteria to evaluate the quality of a digital solution and identify improvements and make refinements.	**Networks** To explain in depth the difference between the internet and the World Wide Web. To know what a WAN and a LAN are and can explain how the internet is accessed in school.	
Milestone Outcome	**Children will be able to turn a real life situation into a complicated algorithm by decomposing the problem into a coding structure. They will be able to create designs that follow these steps including nesting structures, variables and a wide selection of inputs and outputs.**	**Children will be able to create complex databases. They will be able to evaluate how effective this solution was as well as the solutions of others. They will**	**Children will know that webpages do not have the same level of credibility and this can vary. They will understand how they can check this credibility as well as ranking these webpages by their trustworthiness. Children will know that there are a variety of ways to report inappropriate**	**Children will be able to create a game and a 3D model using a software package. They will be able to evaluate how effective this solution was as well as the**		**Children will be able to create a complex database using a software package. They will be able to evaluate how effective this solution was as well as the solutions of**	**Children will be able to create a concept map, quiz and a blog entry. They will be able to evaluate how effective this solution was as well as the solutions of others. They will understand how they can make improvements and**	**Children will understand the difference between a LAN and a WAN and explain how the internet is accessed in school.**	

		understand how they can make improvements and refinements to this solution.	**content and behaviour and that they should use their critical thinking skills to avoid putting themselves in danger.**	**solutions of others. They will understand how they can make improvements and refinements to this solution**		**others. They will understand how they can make improvements and refinements to this solution**	**refinements to this solution**		

This overview organises the curriculum into our main categorises to support the children with making important learning connections and support with building subject schema. If you would like further detail regarding this curriculum area please e-mail your enquiry to: admin@rivermead.wokingham.sch.uk with the subject “Computing Curriculum enquiry FAO Curriculum and Computing leader”