SUBJECT: Computing

YEAR GROUP	Year 7					
Rationale	The year 7 computing curriculum is designed to develop the resilience and independent learning abilities of our pupils. Giving them a broad experience of the different strands of computing including; Digital Literacy, Computer Science and Information Technology. The curriculum is designed to give pupils confidence in the IT systems of school such as: email, teams and OneDrive to enable them to successfully use them in other curriculum areas.					
	Autumn Term 1	**Autumn Term 2**	**Spring Term 1**	**Spring Term 2**	**Summer Term 1**	**Summer Term 2**
Topic/Unit	**E-Safety - Online Dangers**	**Binary & Security**	**Make Code Programming**		**Spreadsheets**	**Computational Thinking**
Knowledge	<u>Digital Literacy</u> Pupils develop an understanding of the school network. Pupils will develop knowledge and understand of the school network and how to use it safely and effectively. Pupils will learn about the ever growing issues with the use of social networks, how to protect themselves online and what to do if they are ever faced with such online dangers. The key issues focussed on will be cyber bullying, personal information and online strangers/ exploitation.	<u>Computer Science</u> Pupils will develop knowledge of how computers actually work and the language of computers. This includes the number system that the computer understands, how to convert between base 2, base 10 and base 16 system and how we as humans are able to interact with these machines. In addition to this pupils will develop knowledge on cryptography and security methods.	<u>Computer Science</u> Learn how to solve a range of computational programming problems using a block based programming language (Makecode arcade). Pupils will develop knowledge of a range of programming concepts including: Input, output, variables, constants, selection, iteration and the use of basic data structures. Pupils will create programs that replicate those of real world physical systems that can react to input, process the input then output accordingly.		<u>Information Technology</u> Pupils will develop knowledge of spreadsheets including what a spreadsheet is, how they work, and the benefits of using them in addition to how they can help an organisation run. Pupils will develop the knowledge required to allow them to create a spreadsheet in excel including; adding data, formatting a spreadsheet, adding functions and formulae. Additionally pupils will gain some knowledge of financing and budgeting.	Pupils will develop their theoretical understanding of Algorithms including what an algorithm is and the important role they play in society. They will build up their knowledge of the concepts of abstraction and decomposition and understand the importance of these in problem solving. Pupils will develop knowledge of flowcharts/pseudocode and begin to understand how these are used in computer programming when designing and programming solutions. Pupils will also develop their understanding further of the importance of efficiency in algorithms and develop knowledge of how to make algorithms more efficient.

	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Skills	**Analytical** skills will be developed through analysing a range of scenarios and deciding what the best outcome would be. **Debating** skills will be developed through discussion and debate with peers on what outcome should be taken in particular scenarios. **Digital Literacy Literacy** skills will be developed as students produce a dialogue for a comic strip on the topic of e-safety. **Presentation** skills will be developed as pupil use software to produce a comic.	**Analytical** skills will be developed as pupils analyse and decrypt a range of cryptography challenges. **Computational thinking** skills will be developed as pupils develop understanding of how computers actually work. **Numeracy** skills will be developed as pupils are introduced to 2 new number bases and learn to covert between these. **Resilience** will be developed as pupils tackle a range of **problem solving** tasks.	**Abstraction and Decomposition** skills will be developed as pupils learn to break down complex worded problems into more simple problems to solve. **Debugging** skills will be developed throughout this unit when fixing errors in code. **Programming, Computational Thinking and Problem Solving** skills will be developed throughout this unit as they produce code for a range of different problems for a physical device. **Numeracy** skills will be developed as pupils create coded solutions that rely on simple arithmetic operators and simple expressions.		**Analytical** skills will be developed as pupils analyse a scenario in order to formulate the best IT solution. **Abstraction** skills will be developed as pupils read and scenarios and get rid of the unnecessary detail in order to identify what IT solution needs producing. **Design** skills will be developed as pupils create spreadsheets that look professional and as they learn how to presentation information in more ways. **Numeracy** skills will be developed as pupils create formulae and functions.	**Abstraction and Decomposition** skills will be developed as pupils learn to break down complex worded problems into more simple problems to solve. **Analytical** skills will be developed through analysing a range written problems. **Computational thinking** skills will be developed as pupils think about efficient ways to solve problems. **Numeracy** skills will be developed as pupils produce flowcharts and trace tables that use arithmetic operators.
	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Assess-ments	**Formative**: - Pupils will produce a comic strip that tells a story of how to stay safe online. This will be assessed based on the quality of content and digital literacy skills. Pupils will get chance to improve their comic strip based on teacher and peer feedback.	**Formative**: - Pupils will complete a formative assessment that compromises of a range of binary and security problem solving challenges. Pupils will get teacher feedback on this and will have the chance to make improvements.	**Formative**: - Pupils will independently program a game for the Meowbit and comment the code. Pupils will be given teacher feedback on this and will have chance to improve the game from the feedback given.		**Formative: -** Pupils will create a spreadsheet for a given scenario. This will assess their practical ability. Pupils will get teacher feedback on this and will have the opportunity to make improvements from the feedback.	**Formative**: - Pupils will solve a range of computational problems by producing/interpreting flowcharts. Pupils will be given teacher feedback on this and will have chance to improve their solutions.
	End of unit test: Summative test on the computer consisting multiple choice questions and open-ended questions on the topic of e-safety and the school network.(To be completed first week of Autumn Term 2 due to CATS)	**End of unit test**: Summative test on the computer consisting of multiple choice questions and open-ended questions on the topic of binary & security. This test will also compromise of 5 questions from the e-safety test.	**End of unit test:** Summative test on the computer consisting of multiple choice questions and open-ended questions on the different programming techniques.		**End of unit text:** Summative test on the computer consisting of multiple choice and open-ended questions on spreadsheet key terms and the theoretical aspects of spreadsheets.	**End of unit test:** Summative test on the computer consisting of multiple choice questions and open-ended questions on the different computational thinking concepts.

			This test will also compromise of 10 questions from the e-safety and binary topics.	This test will also compromise of 10 questions from the e-safety and binary topics	This test will also compromise of 20 questions from the e-safety, binary, spreadsheet and Meowbit topics
	NB: GL Assessments completed in computing lessons week 3,4 & 5.				
Homework	**Application –** Pupils given the task to remember their username and password and log in to office365 from home and send an email. **Preparation –** Pupils are given the task to gather/take photographs and produce a plan for their comic strip ready for completing the formative assessment task. **Preparation and Practice –** Pupils given the task to revise for their summative assessment. Suggested revision strategies provided to pupils and a knowledge organiser to aid revision.	**Practice –** Pupils given a Microsoft forms quiz consisting of a range of binary conversion questions to practice and aid retention. **Preparation and Practice –** Pupils given the task to revise for their summative assessment. Suggested revision strategies provided to pupils and a knowledge organiser to aid revision.	**Practice and Application –** Pupils given a coding task where they need to use the concept of selection to produce a solution to a problem. **Extension –** Pupils given the task to extend their learning further by completing a skills map within the make code arcade platform. **Preparation and Practice –** Pupils given the task to revise for their end of topic summative assessment. Suggested revision strategies provided to pupils and a knowledge organiser to aid revision.	**Research -** Pupils given the task to survey parents/carers/family/teacher to investigate how different people use spreadsheets to support them in work or other activities. **Preparation and Practice –** Pupils given the task to revise for their end of topic summative assessment. Suggested revision strategies provided to pupils and a knowledge organiser to aid revision.	**Practice –** Pupils given a range of logic problem solving tasks to enable them to practice and build skills required to create flowcharts and write algorithms **Preparation and Practice –** Pupils given the task to revise for their end of topic summative assessment. Suggested revision strategies provided to pupils and a knowledge organiser to aid revision.