Curriculum Map: **Computing**   **Year 6**

Below outlines the learning focus for each term

KS2 End Points:

Problem solving
-design, write and debug programs that accomplish specific goals
-control or simulate physical systems
-solve problems by decomposing them into smaller parts
Programming
-use sequence, selection, and repetition in programs and to work with variables
-work with various forms of input and output
Logical thinking
-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
-understand how networks can provide multiple services, such as the world wide web.
Creating content
-select, use and combine a variety of software (including internet services) on a range of digital devices
-design and create a range of programs, systems and content that accomplish given goals
-collect, analyse, evaluate and present data and information
Searching
-use search technologies effectively
-appreciate how search results are selected and ranked
E-safety
-use technology safely,
respectfully and responsibly
recognise acceptable/ unacceptable behaviour
-know a range of ways to report concerns and inappropriate behaviour
-be discerning in evaluating digital content
understand the opportunities networks offer for communication and collaboration

Term	Learning Focus		Cross Curricular links
	Knowledge	**Skills**	

Autumn 1	**Computer Science**
	Espresso Coding 2.0 - More complex variables
	• To use variables in more complex ways;
	  ❖ to change the properties of shapes on the screen
	  ❖ create an advanced balloon popping game which becomes more difficult as higher scores are reached
	  ❖ to write code for a shop till
	  ❖ to make a realistic stopwatch
	• To manipulate inputs to create useful outputs.
	• To understand that variables can be used to create logical
		• Use an ask command block
		• Create an interactive graph
		• Use variables to perform calculations
		• Test and debug programs
			Math – Data Handling

	statements that are either true or false (Boolean expressions) • Improve code by symmetrically testing and debugging it		
Autumn 2	**Digital Literacy – Virtual Connected** • Understand how to have a civil discussion online - online discussion works best with clear ground rules about how the discussion should be conducted. Typically, these rules include avoidance of personal attacks and a climate of mutual respect and tolerance, even when people disagree. • Google (and other search engines) select results based on the keywords typed in. • Search engines also select results based on the number and quality of inbound links. • Hyperlinks are a central part of the World Wide Web, as they connect pages to each other. They are very important because they provide visitors with a wealth of related information and because of the role they play in the ranking of sites by search engines. • Fake news (a fictional, or partly fictional, story presented as news) is a common problem due to the ease of creating online content and the amplifying effect of social media. People pass on fictional stories without realising they have been made up. • Due to fake news, a critical perspective is important when reading online content, including checking for evidence, questioning credibility/reliability of sources and plausibility of a story. If there is no evidence to support a claim this is a strong indication that it could be fake news. [Children should know the definitions of plausible and reliable from the key vocabulary] • A neutral point of view (as opposed to a biased view) is a balanced perspective where all sides of an argument are presented fairly. Deleting comments from people that disagree would be an example of bias. • Many people linking to a site will result in a higher ranking on Google and can make a site seem more reliable, when it could still be 'fake news'. • The minimum age for many social media accounts is 13. This is because there is special legal protection for the personal data of children under 13. • There are different forms of cyberbullying or online bullying, for example harassment (sending threatening	• Use search technologies to find information on a topic. • Write a post on a topic. • Add hyperlinks to a post. • Recognise the importance of respect and tolerance in online discussions. • Comment on others' posts, respectfully and responsibly. * • Argue effectively, including using credible sources to evidence and support views. • Counter an argument respectfully.* • Judge the reliability of an online source.* • Know how to deal with online bullying, including who to go to.	**English - Persuasive writing and debate links, proofreading work, correcting GPS errors.** **History/Geography/RE - evaluating sources for plausibility and reliability is important in history, geography and RE.**

Spring	**Computer Science** Espresso Coding 2.0 - Block Coding Level 6 – Object properties • Make programs using more complex algorithms, selecting when to use sequences, selection, repetition and a range of inputs and outputs. • How computers use property values and parameters to store information about objects • Use their knowledge of coordinates, conditional events, random numbers and variables to create a game. • To write code to detect the properties of objects and apply these to other objects. • Develop understanding of object properties by creating a football simulation game • Detect properties of objects and apply these to other objects • Improve code by symmetrically testing and debugging it	• Use a timer loop with a 'random' variable set to a random range • Program the rocket to move around the screen • Program a ball to move • Set the ball's speed and heading to match those of the mouse pointer • Use knowledge about variables and conditional events to create a golf simulation game • Test and debug programs	
Summer 1	**Creating content** • Collect, analyse, evaluate and present data and information • To understand and demonstrate the need for accuracy when creating databases. • To relate and discuss the use of spreadsheets to situations in the wider world	• To enter data and formulas into a spreadsheet • To present data based on calculations by inserting a graph • To use formulas to calculate totals and averages • To sort data by different criteria • To create a formula to solve a specific problem (using figures and cell references) • To replicate formulas over several cells • To plan and calculate a spending budget	
Summer 2	**Information Technology – Publishers** • A magazine has a target audience. For a school magazine, this would be parents/carers, other members of the school community and pupils themselves. • Images in a magazine (as opposed to text) may be photographs, illustrations or diagrams. • It is best to use high-resolution images in a magazine, so that the quality is as good as possible. • Creative Commons is a copyright licensing scheme in	• Help plan and develop pages for a magazine. • Use collaborative software to plan and create a magazine. . • Word-process text to a good standard. • Find and add images and other media to my pages. • Spot and correct errors in content. • Understand the principles of good design. • Provide constructive feedback to others.	**English - this provides a meaningful experience in which pupils write for a specific audience while honing spelling, punctuation and grammar**

	which content (like images and video) can be re-used without additional permission. • Templates can be used in desktop publishing software. Templates have defined font styles and help to keep the font consistent across many pages. * • Shared folders should be well organised, for example with files named to indicate the content within. It is important to work respectfully and responsibly when using shared resources. • Documents can be exported as PDF files ('Portable Document Format' files). • A PDF file can be used to review a magazine as it enables you to see what a printed magazine would look like and can be shared easily online while allowing comments to be managed easily. • Some corrections and feedback marked onto the magazine might require discussion (for example wanting an author to add an extra paragraph to fill space) and others would not (for example spelling mistakes). • ePub is an example of an eBook format.	• Compare the cost of printing options	**skills.** **Art and design - the design elements of the project can draw on pupils' own talents developed in art and design.**

Intent

We know that computing and digital technology is going to play a pivotal role in our children's lives and as a result we aim to develop 'thinkers of the future'. We aim for our children to be digital creators rather than just consumers when using technology and to equip them to navigate the rapid and extraordinary changes taking place in digital technology effectively and safely.

Our curriculum, encompassing computer science, information technology, digital literacy and online safety, is progressive, ambitious and carefully sequenced. Children know that they need to face and overcome challenge in computing lessons; they accept that they will fail, will need to persevere and develop skills as logical, computational thinkers. We offer children access to a wide range of software, platforms and devices to help them, using technology as a tool for both creativity and learning. We want our children to be active participants in the digital world, whilst ensuring they are respectful, responsible and confident users; children will constantly be made aware of measures they can take to keep themselves, and others, safe online.

Implementation

Our children follow a carefully structured Computing curriculum which has been designed to ensure children know more, do more and remember more as they progress through our school. Our content is supported by advice, requirements and guidelines presented in the National Curriculum.

Computing is taught weekly. Detailed medium-term planning supports teaching, ensures continuity and carefully plans for progression and depth. Children have opportunities to use high quality resources and materials to support their learning. Wider Curriculum links and opportunities for the safe use of digital systems are considered in wider curriculum planning.

Our computing curriculum is inclusive for all children; each lesson is sequenced so that it builds on the learning from the previous session. Where appropriate, activities

are scaffolded so that all children can succeed, children may be provided with extra resources and support, such as visual prompts, so that they can reach the same learning points as the rest of the class.

Impact
A high quality computing education aims to develop a range of programming and technological skills that are transferable to other curriculum areas, including Science, Mathematics, English and History. As pupils progress through KS1 and KS2 children will become increasingly confident in:

- The application of their digital skills,
- Becoming increasingly efficient and effective communicators, collaborators and analysts,
- Showing imagination and creativity in their use of ICT in different aspects of their learning and life beyond school.
- E-safety and the risks involved when using the internet.

The impact of the computing curriculum is assessed continuously against the age-related expectations in computing for each year group. In doing so, we are ensuring that the necessary support is provided for all children to have a good understanding of the primary computing curriculum whilst allowing us to effectively differentiate tasks for students.

Other methods of judging the impact of the computing curriculum offered are through the following methods:

- Pupil discussions and interviewing the pupils about their learning (pupil voice).
- Monitoring planning of lessons by the subject lead and providing feedback.
- Photo evidence and images of the pupils' practical learning.
- Monitoring of children's work.