Curriculum Map: **Computing** **Year 4**

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	
	Computer Science Open Espresso Coding 2.0 - Block Coding Level 4 – Repetition and loops • Know and understand the definitions of the unit's key vocabulary, and in particular: background, code, bug, debug, sprite, and algorithm.	• Experiment with variables • To use infinite and conditional loops to program the movement of objects • To create an animation using loops, variables and conditions • To use a variable to create a timer	

Autumn 1	• Understand how computers use repetition and loops to do things over and over again • Understand that code can be made to execute in a particular order called a sequence • Know that computers use variables to count things and keep track of what is going on • Know that 'if statements' select different pieces of code to execute depending on what happens to other objects (selection)	• To debug programs	
Autumn 2	**Information Technology - Stop Motion Studio** • To understand how simple animation techniques work • Research history of animation and know how computer software has improved animation techniques • Describe how stop-motion animation works • Know that stop motion is a technique where objects are physically manipulated in small increments between photographed frames • Explain why some animations are better than others • Set up a camera for stop-motion animation (focus, position) • Create a stop-motion animation preferably related to Olympic themes • Review the effectiveness of an animation	• To plan a stop motion animation • To explain how computer software has improved animation techniques • To practise taking clear photos • To create stop motion animation • To peer assess using an online tool • Follow the e-safety rules (see key knowledge) and tell a teacher if they see an image that concerns them.	
Spring 1	**Information Technology - Introduction to data loggers (sound)** • Know what a data logger is and how it can be used • Select, use and combine a variety of software (including internet services) on a range of digital devices to collect, analyse, evaluate and present data and information	• Pose questions and collect specific data • Use technology to collect, edit and organise ideas and data • To insert data into a spreadsheet • To use a formula to calculate data • Collaborate and share ideas to achieve an agreed outcome • Evaluate own work and modify accordingly • Select appropriate resources to present work • Use appropriate tools to present data • Plan and create a database	**Science – Sound** **Math – Data Handling**
Summer	**Digital Literacy - Blogging** • To become familiar with blogs as a medium and a genre of writing.	• Become familiar with blogs as a medium and a genre of writing. • Create a sequence of blog posts on a theme.	

	• Understand that there are two ways of viewing a blog post while editing its content: the WYSIWYG view (what you see is what you get - how the post will look as a web page) and the HTML view. • Blogs need the internet and a web server to work. A web server is a computer that stores the HTML data of a web page, and sends it back in response to a request so that the page can be viewed. • Hyperlinks are texts or images that link (open or move to) other content when clicked. • When searching for images and other content online, search engines select results based on the keywords that are typed in. • Creative Commons is a copyright licensing scheme in which content (like images and video) can be re-used without additional permission. • Understands that information they put online leaves a trail, or what is called a digital footprint • Criteria for writing an effective blog post includes: - having a specific audience in mind. - focusing on a key topic. - writing well, with good spelling and punctuation. - using engaging language. - varying content when writing a series of posts, to keep the blog interesting. • It is important to think carefully before posting anything online, and to think carefully about what you write, including not posting personal details such as surnames or photographs, and not posting content that is personally critical of others e.g. personal attacks on friends/teachers/the school. • Examples of unacceptable comments include deliberately mean/upsetting comments sent to get a reaction ('trolling') and spam comments which offer sales or link sales to your post. • Concerns about content or contact on blog posts and comments can be reported privately to childline and/or CEOP.	• Comment on the blog posts of others, showing an understanding of how to do so safely and responsibly • Incorporate additional media into a blog post, such as images, audio or video. • Use search technologies to find relevant and appropriately licensed media for a blog post. • Develop a critical reflective view of a range of media, including text	**English - Pupils plan, draft and evaluate their own and others' writing in this unit**.

Online Safety Lessons (1 per half term)	**Online Safety** • To know what cyberbullying is and how to address it • To understand how a search engine works • To understand the term 'plagiarism' and how to avoid it • To know why it is dangerous to share certain information online • To understand what digital citizenship is	• To identify how a message can hurt someone's feelings • To know how to respond to a hurtful message or comment online • To use a search engine accurately and safely • To explain how to use other people's work respectfully • To identify the information that I shouldn't share online • To create a safe online profile • To explain how to be a responsible digital citizen	**PSHE**

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.