Four Areas of Disciplinary and Substantive Knowledge which Underpin the Sutton Park Primary School Computing Curriculum

Our assessment framework is structured to set out progression in four elements of the computing curriculum. This framework is designed to inform how we plan for children to progress year by year and assess how well they are improving. This should be used alongside the co-design documentation, in particular, references to specific software, programmes and resources which support the curriculum and the development and the use of key vocabulary. Progression is a cumulative experience of using and applying disciplinary and procedural knowledge gained ("knowledge") and made secure by repeated practice in different contexts. Learning is embedded by the application of what has previously been learned and remembered into new contexts.

Programming
At Sutton Park, we provide opportunities for pupils to understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation. They learn to programme devices and software to achieve specific effects. As they become more experienced, their programming is applied to more complex tasks and across a greater range of software. *As they develop their knowledge of algorithms and how they work within software, pupils begin to analyse problems and errors in computational terms and have repeated practical experience of de-bugging, editing and correcting computer programs in order to solve identified problems, refine and modify outcomes, and identify ways of making programmes more efficient.*
Sharing information
From the earliest opportunities, pupils learn to use and apply information technology across a range of contexts and for a range of purposes. As they become more experienced, they learn to edit and evaluate their work reflecting both purpose and audience.
Technology in our lives
Pupils learn to evaluate and apply information technology, including new or unfamiliar technologies. As their use of the internet becomes more sophisticated, multi-dimensional and individual, they learn how to evaluate the accuracy and the trustworthiness of information.
E-Safety
Throughout the primary years, pupils learn to use technology safely and respectfully. Their understanding of e-safety issues is developed through regular responsible use of software applications and the internet. As their experience develops, they learn to follow appropriate rules about safe use of the internet, software and social media, what constitutes acceptable and unacceptable behaviour and how to report issues and any concerns they have. This is explicitly modelled by teachers in class.

Programming					
Y1	Y2	Y3	Y4	Y5	Y6
Create a simple algorithm. Use a simple algorithm to perform a task and evaluate how effective the algorithm is. (Beebots)	Create an algorithm appropriate to a planned task. Refine (de-bug) an algorithm for effectiveness. Identify what makes an algorithm efficient.	Use a block language to create a program to achieve a specific outcome. Refine and review a pre-written algorithm.	Use a block language to create a program to achieve a specific outcome. Use logical reasoning to detect and fix errors in programmes.	Use a block language to create a program to achieve a specific outcome. Decompose longer and more complex programmes to detect and debug errors.	Use a block language to create a program to achieve a specific outcome. Simplify code to make it more efficient. Apply decomposition skills in a variety of contexts, justifying decisions made. Identify links between how algorithms in different programmes operate.

Sharing information					
Y1	Y2	Y3	Y4	Y5	Y6
Create, edit, store and retrieve information using a range of technologies.	Create, edit, store and retrieve information for a given purpose, paying attention to the intended audience.	Plan how to input information into a given application. Evaluate the end result against the desired outcome.	Plan how to input information appropriately and effectively into a given application. Evaluate the end result against the desired outcome, giving and acting on feedback.	Plan how to input information combining different applications. Evaluate the quality of work throughout the process, adapting plans as necessary.	Plan how to input information combining different applications, on different devices. Evaluate the quality of work throughout the process, adapting plans as necessary.

Technology in our lives					
Y1	Y2	Y3	Y4	Y5	Y6
Identify ways in which technology benefits people's lives, their own and others'.	Identify how and why different people use technology to communicate information.	Know that the internet is a giant network of information. Identify how the school's network operates within the internet.	Know that information on the internet is owned.	Show that they can search online accurately. Show that they can reflect and act on the results of a search.	Show that they can plan how to search online accurately. Show that they can reflect on the trustworthiness of the information resulting from a search.

E-Safety					
Y1	Y2	Y3	Y4	Y5	Y6
Know that they and adults have responsibility for keeping themselves safe online. Know why technology is monitored and filtered for safety.	Know what constitutes personal information. Show knowledge of how to keep personal information safe, both online and in the real world.	Know what constitutes acceptable and unacceptable (including naïve) behaviours when using technology. Know how and to whom to report unacceptable behaviour.	Know and show understanding of the rules of online behaviour. Know and show understanding of the consequences of online behaviour.	Know that online activity creates a digital footprint which never goes away. Know and understand that online decisions can have an impact on people's futures.	Know and show understanding of acceptable and unacceptable behaviour when using social media.

How learning in the Early Years Foundation Stage provides the range of experiences and a secure knowledge base, on which the KS1 curriculum in Computing builds.

Planning for the curriculum and children's learning in the Early Years Foundation Stage uses the elements of the EYFS statutory framework rather than the subject disciplines of the National Curriculum. This planning is supported by the use of the non-statutory Development Matters guidance.

Children's experiences and learning involving computer technology in Early Years are reflected in all the areas of learning – Communication and Language, Personal Social and Emotional Development, Physical Development, Literacy, Mathematics, Understanding the World and Expressive Arts and Design. The foundations for what the Computing curriculum will develop in KS1 are found in children's use of a range of technologies for authentic purposes, learning in particular how to make devices function in different ways, and how to access and manipulate images and digital media in response to their ideas and interests.

The EYFS curriculum starts with the child's experience in their family and in their immediate environment. It is highly likely that children start in our settings having had early experiences using technology. They probably own devices of their own and/or have regular access to the internet.
It is also highly likely that our youngest pupils consume more information than they are creating. Because of this, in our settings we use technology in purposeful ways across all the areas of learning so that children can create rather than consume. This will balance the scale or even tip it in favour of creating with technology in the same way children create with other resources in our enabling Early Years environments. We need to teach them how to create with technology in the way same we teach them to create with other tools.

As well as developing their skills in creating using technology, the experiences children gain from the EYFS curriculum are rich in opportunities to solve real problems, to make choices to support their ideas and to articulate their thinking within their play and within structured activities. The way in which the curriculum is designed and experienced by the children supports the development of the characteristics of effective learning in EYFS: playing and exploring, active learning and creating and thinking critically.

In particular thinking logically and identifying cause and effect are foundational to what lies at the centre of the subject discipline of Computing.

By the end of Y1			
Programming	**Sharing information**	**Technology in our lives**	**E-Safety**
Create a simple algorithm. Use a simple algorithm to perform a task and evaluate how effective the algorithm is. (Beebots)	Create, edit, store and retrieve information using a range of technologies	Identify ways in which technology benefits people's lives, their own and others'.	Know that they and adults have responsibility for keeping themselves safe online. Know why technology is monitored and filtered for safety.

By the end of Y2			
Programming	**Sharing information**	**Technology in our lives**	**E-Safety**
Create an algorithm appropriate to a planned task. Refine (de-bug) an algorithm for effectiveness. Identify what makes an algorithm efficient.	Create, edit, store and retrieve information for a given purpose, paying attention to the intended audience.	Identify how and why different people use technology to communicate information.	Know what constitutes personal information. Show knowledge of how to keep personal information safe, both online and in the real world.

By the end of Y3			
Programming	**Sharing information**	**Technology in our lives**	**E-Safety**
Use a block language to create a program to achieve a specific outcome. Refine and review a pre-written algorithm.	Plan how to input information into a given application. Evaluate the end result against the desired outcome.	Know that the internet is a giant network of information. Identify how the school's network operates within the internet.	Know what constitutes acceptable and unacceptable (including naïve) behaviours when using technology. Know how and to whom to report unacceptable behaviour.

By the end of Y4			
Programming	**Sharing information**	**Technology in our lives**	**E-Safety**
Use a block language to create a program to achieve a specific outcome. Use logical reasoning to detect and fix errors in programmes.	Plan how to input information appropriately and effectively into a given application. Evaluate the end result against the desired outcome, giving and acting on feedback.	Know that information on the internet is owned.	Know and show understanding of the rules of online behaviour. Know and show understanding of the consequences of online behaviour.

By the end of Y5			
Programming	**Sharing information**	**Technology in our lives**	**E-Safety**
Use a block language to create a program to achieve a specific outcome. Decompose longer and more complex programmes to detect and debug errors.	Plan how to input information combining different applications. Evaluate the quality of work throughout the process, adapting plans as necessary.	Show that they can search online accurately. Show that they can reflect and act on the results of a search.	Know that online activity creates a digital footprint which never goes away. Know and understand that online decisions can have an impact on people's futures.

By the end of Y6			
Programming	**Sharing information**	**Technology in our lives**	**E-Safety**
Use a block language to create a program to achieve a specific outcome. Simplify code to make it more efficient. Apply decomposition skills in a variety of contexts, justifying decisions made. Identify links between how algorithms in different programmes operate.	Plan how to input information combining different applications, on different devices. Evaluate the quality of work throughout the process, adapting plans as necessary.	Show that they can plan how to search online accurately. Show that they can reflect on the trustworthiness of the information resulting from a search.	Know and show understanding of acceptable and unacceptable behaviour when using social media.