Whitehill Junior School Computing Curriculum
Overview and information 2020

At Whitehill, we aim to enthuse and encourage our children to develop their interest in all aspects of the computing world. We offer a broad range of units across all four year groups that build on and develop understanding from previous years.

We believe that this approach will allow our children to understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation. The quality teaching of coding will allow everyone to be able to analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems.

At Whitehill, we embrace all new technologies, but it is also important to look at the old and the unfamiliar. This allows our children to become familiar with real world situations where different technologies and platforms are used within industry. It also allows them to evaluate the different technologies that maybe available for them to use and then they can best chose the solution that is right for them as individuals, to help them the problems they face.

E-Safety and creativity are at the core of what we do and it is our aim to produce competent, confident and creative users of information and communication technology.

Year Group	Autumn	Spring	Summer
3	**Authoring** Pupils investigate computing storage capacities and ways of saving data. They develop understanding of the school network and operating systems. They use varied resources to create digital content, creating and manipulating images and words. They select and use software to create non-linear content for specific audiences and objectives.	**Bringing Images to Life** Pupils develop understanding of digital images. They transform and edit images, respecting copyright and ownership. They explore stop animation creating their own versions. They produce programmed animations, using sequence, repeat and selection.	**Developing Communication** Pupils use online communication tools such as email and blogs to support collaborative learning, safely and respectfully. They begin to investigate the technology used in digital communication networks. They use simple sound editing software to record and manipulate sound clips.
4	**Programming and Games** Pupils explore simulations, investigating the structure and exploring how they might be programmed. They begin to note that abstraction can simplify them. They decompose tasks, creating and debug algorithms and understanding how algorithms support the programming process. They write, test, debug and refine programs to achieve specific objectives, using sequence, repetition and procedures. They explore selection in digital and natural systems.	**Keeping Informed** Pupils understand the difference between data and information. They use sensors, data-loggers and other tools as part of their investigations. They use branching and flat-file databases to enter, organise and search data, deriving information that they present in different forms.	**Accuracy Counts** Pupils discuss computer networks including the internet and the services it offers. They explore how search engines work and what influences results, evaluating search engines and using sources. They learn about the threat from computer viruses and develop understanding of intellectual property and relate this to their own content. They use spreadsheet software to create graphs and to explore number patterns.
5	**Robotics and Systems** Pupils investigate automated systems in the wider world and the use of sensors within them. They consider natural systems and use abstraction to represent them. They create, test, debug and refine algorithms, pseudocode and the related programs using sequence, selection, repetition and variables. They program physical devices, controlling inputs and outputs, relating to their study of automated systems	**Data Matters** Pupils investigate the concept of "big data" and its use in the world. They review file types and protection. They explore binary form and develop understanding of computer networks. They search more efficiently and investigate their digital footprints (or 'digital tattoos'), building safe and responsible use of online spaces. They create and search flat-file databases, developing accuracy and efficiency.	**Sound Works** Pupils review how digital sound is used in the world and how it has developed over time. They create multi-track sound recordings for specific audiences, incorporating different content and demonstrating their understanding of the rules for copyright. They use programming languages to create their own sound clips

6	**Staying Connected** Pupils develop safe and appropriate use of online technologies, considering what they can use and what information is shared about them. They create blogs for school projects, checking and uploading digital content. They understand how a wiki works and the benefits of collaborative working. They know the school's Online Safety rules and are proactive in encouraging other Pupils to keep safe online.	**Information Models** Pupils develop expertise in spreadsheets, using both formulae and functions. They import and analyse data collected on data-loggers. They use conditional formatting to vary the format of cells and create tools for specific user needs. They create models, identifying variables and using what-if modelling.	**Morphing Image** Pupils use 3D graphical modelling to create and explore objects. They review operating systems. They evaluate films and animations, going on to create live film or animations for specific audiences. They demonstrate their understanding of copyright and ownership