Westfields JUNIOR SCHOOL

Computing Curriculum
Progression of Skills and Knowledge

At Westfields Junior School, we aim to prepare our children for their future by giving them the opportunities to gain knowledge and develop skills that will equip them for an ever changing digital world. Knowledge and understanding of ICT is of increasing importance for children's future both at home and for employment. Our Computing curriculum focuses on a progression of skills in digital literacy, computer science and information technology to ensure that children become competent in safely using, as well as understanding, technology. We believe that computing is an essential part of the curriculum; a subject that not only stands alone but is woven and should be an integral of all learning especially with its links to other curriculum subjects. This is why we provide a wealth of learning opportunities and transferrable skills explicitly within the Computing lesson as well as across our whole curriculum.

The National Curriculum for Computing
Years 3 - 6

Pupils should be taught to:

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- 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; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration
- use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

SKILLS	Progression of Skills			
	Year 3	**Year 4**	**Year 5**	**Year 6**
Computer science Coding	• Plan an algorithm using a template. • Identify and describe what simple Scratch coding blocks mean e.g. press green flag means it will start, the repeat forever means it will keep doing it. • Import backgrounds and sprites. • Transfer a plan into Scratch coding blocks.	• Use algorithms to achieve a specific goal. • Decompose the purpose and aims of a Scratch game. • Design and write a plan/algorithm for a specific goal. • Create a stage and a Sprite e.g. when creating the game.	• Decompose Scratch games, identifying the purpose of the game and what blocks may have been used. • Design and write a plan/algorithm for a specific goal on a range of software e.g. Flowol and Scratch. • Identify what the difference is between an input and output.	• Decompose any Scratch game into an algorithm. • Design a game with a clear theme and objective. • Design and import backgrounds and sprites to fit a game's purpose and theme. • Work with conditional commands and variables within a code e.g. if/else, scores, levels.

	• Debug any errors with their coding either with an adult or peers. • Evaluate what they did successfully and what they found hard.	• Identify and describe what repeat and forever loops are used for. • Use conditional coding blocks e.g. 'if touching' block. • Experiment with a range of sound and looks blocks. • Debug any errors with their coding either with an adult or peers. • Evaluate what they did successfully and what they found hard.	• Design and write a plan/algorithm to control a physical output e.g. when using the Crumble kit. • Use a repeat loop command with conditional commands. • Use coding blocks to control a sprite with keys. • Use variables to introduce keeping scores and changing levels. • Debug any errors with their coding either with peers or independently. • Evaluate what they did successfully and what they found hard.	• Use an algorithm to control multiple physical outputs simultaneously. • Debug algorithms when faced with errors. • Evaluate successes and suggest ways to improve next time.
Digital literacy Online Safety, Digital Research, Communication, Technology in the World				
Information technology skills Basic Skills, Text, Multimedia, Data Handling	• Log on to a network using a username and password. • Develop mouse control. • Develop touch-typing with two hands and complete Level 2 typing. • Open a new Microsoft Word document. • Save a document into a specified folder on a network. • Explore how to change font (colour, colour, size). • Use the align buttons and inserting text boxes to change the location of the text. • Explore Stop Motion software to create a short video clip.	• Explore a range of software on iPads identifying what final outcome can be created e.g. video trailer, poster. • Understand how to import images and videos into a range of software. • Open and save a new Microsoft Word document. • Insert tables, images, shapes and screenshots and know how to manipulate them. • Develop touch-typing with two hands and complete Level 4 typing. • Open and save a new Microsoft Publisher document.	• Use software to edit and manipulate an image e.g. changing colour, cropping, filter, beauty effects and discuss why people might do this online. • Open and save a Microsoft Excel document and save it in a specific network folder. • Use technical vocabulary use as cells, formula bar, columns, rows etc. • Enter data into a spreadsheet. • Use formula to calculate values. • Create graphs to show data. • Use conditional formatting to compare data. • Design an app for a specific audience and purpose.	• Open and save a PowerPoint presentation in a specified network folder. • Design a PowerPoint presentation about a specific topic, including themes, transitions and animations suitable for the topic. • Log into Prezi software online. • Open a novice template design and save a new Prezi. • Create a Prezi following the online instructions based on a specific topic. • Compare and evaluate which software they prefer and why. • Log in to a Google domain and create a website.

	• Import a video and change the background using green screen software. • Combine a range of video and audio in iMovie to create a final video. • Open a new Microsoft PowerPoint document. • Save a document into a specified folder on a network. • Insert and edit a title page. • Change the style and theme of PowerPoint slides.	• Apply knowledge of Word and PowerPoint to create a final outcome on Publisher, including changing font, importing images, shapes etc. • Recall the shortcuts for Google and how they can help to research. • Open and save a new Microsoft PowerPoint document. • Insert multiple slides and include a range of transitions. • Insert images and shapes and include animations.	• Use Microsoft PowerPoint Skills to create a formal presentation including transitions and animations where suitable. • Design an interface on Balsamiq software. • Recognise what different folders and icons on email mean. • Open and reply to an email. • Attach a document to an email. • Identify spam messages and know how to deal with them appropriately.	• Select a theme to reflect their identity whilst keeping private information offline. • Write a blog post suitable for their age and account. • Use 2D primary software to create a 3D computer aided design render.

KNOWLEDGE	Progression of Knowledge			
	Year 3	**Year 4**	**Year 5**	**Year 6**
Computer science Coding	• Define what an algorithm is e.g. explain it is a series of instructions.	• Give examples of where algorithms are used in everyday life.	• Explain algorithms in a range of different ways e.g. Flowcharts, coding blocks and a set of instructions.	• Explain how multiple algorithms can work alongside each other to achieve a goal.
Digital literacy Online Safety, Digital Research, Communication, Technology in the World	• Know what the SMART rules are and explain what they mean. • Explain what the term 'identity' means and show ways that they can represent this online on a range of media to keep themselves safe e.g. gaming and social media. • Discuss who they can trust online and offline and know who to seek advice from if someone upsets them online. • Give examples of ways that people can communicate using technology (e.g. emoji, bitmoji, text talk). • Explain what bullying is and describe different types of bullying. • State rules about how to behave online e.g. saying kind words.	• Recall the SMART rules and explain how they would use them in a range of given scenarios. • Describe ways that someone's online identity can be different to their offline identity e.g. not having a picture of themselves but having an avatar. • Identify what a digital footprint is and how this can help others to make a judgement about them and find information about them. • Describe how to stay safe online by showing respect. • Give examples of where bullying can happen online and why thinking about what they post is important to avoid this.	• Explain the SMART rules including what they stand for and identify examples of how they apply them. • Devise their own digital footprint and describe why it matters. • Recognise and explain that people can copy, modify and alter someone's online identity and suggest why someone might do this. • Review who is part of their online community, how they can contribute to it positively and why some might choose not to communicate well online. • Identify cyberbullying, describing how this can affect someone's emotions and explain how to get help if it is happening to	• Give examples of how the media can shape ideas about gender and how to challenge and reject them appropriately. • Design a positive online profile and recognise how this can travel to create a positive digital footprint. • Define terms such as trolling, flaming and live streaming. • Recall problems that online impulsive communications can have offline and how to offer support to others online. • Propose ways to report cyberbullying in school or at home and know the steps of screenshot, block, delete and tell.

	• Recognise how spending too much time using technology can have a negative impact and suggest what else time could be spent on more positively. • Define what plagiarism is and explain why it is bad. • Define what a password is, why they are used and tell who it is safe to share these with.	• Estimate what a healthy balance of technology time is and evaluate their own usage. • Compare copyright and plagiarism and suggest some consequences of committing them. • Recall why they have passwords and describe some real-life situations e.g. hacking, explaining why these might happen.	someone they know or themselves. • Describe the impact that technology can have on sleep, how that can affect their bodies and give simple advice for how to manage this. • Recall some of the information that free apps can gather about people. • Know how to evaluate the reliability of a website and give tips on how to check.	• Identify the age-related symbols on media and describe their purpose. • Explain how technology can affect a healthy lifestyle both positively and negatively and recommend ways to self-regulate technology time. • Describe how apps gather information to sell and target advertise. • Design strong passwords and ways to manage them. • Explain how search engines work. • Critique how app designers influence and manipulate the user e.g. colourful, hiding times, rewards etc. • Identify bias on websites and explain how this can manipulate the reader.
Information technology skills Basic Skills, Text, Multimedia, Data Handling	• Recognise and describe some differences between blogs and factual websites.	• Understand how to import images and videos into a range of software. • Recall the shortcuts for Google and how they can help to research.	• Describe what a computer network is and why it is used. • Identify what an email is, where they are used and what they are used for. • Know how to log into an email account. • Understand the difference between reply, reply all and forward.	• Describe some terms and conditions of apps.