Intent

At Whitley Park we use the Rising Stars - 'Switched On Computing' scheme which aims to instill and **develop** pupils' **understanding** of the concepts, practices and perspectives that support **programming** and other aspects of **computer science**, while providing lots of opportunities for **creative** and **collaborative** project work in which pupils can gain the **information technology skills** they'll need for now and in the future. Pupils will also understand the **implications of technology** for individuals and society as they become **digitally literate**. Pupils will learn through experimenting, discussion and making as well as though cross –curricular links.

Core Knowledge and Skills

In Key Stage 1, children will learn how to develop and record sequences as an algorithm and program a toy to follow it. They will also learn how to debug programs. They will be able to break down a process into simple and clear steps as an algorithm. They will know how to use different features of a video camera and how to capture moving images. Using the web, pupils will be able to find and use pictures and sort them according to a criteria or rule. Developing their camera skills, pupils will be able to use a digital camera or a camera app and edit or enhance photos taken. Children will be able to develop their communication skills using email, know how to compose, edit, format, and send them. Key Stage 1 children will be able to collect data using tick charts and produce basic charts using simple charting software.

In Key Stage 2, children will learn how to develop a number of strategies for finding errors in programs and how to recognise a number of common types of bug in software. They will begin to debug computer programs and, using this knowledge, begin to create educational computer games of their own that include sequences, selection, repetition and variables. Building on skills in videoing from Key Stage 1, they will be able to shoot live video, edit and include narration and begin to understand the quality of effective video. Further developing earlier skills of how email works, pupils will be able to experience video conferencing and become aware of broader issues surrounding emailing.

Pupils will learn some of the technical aspects of how the internet works and begin to use HTML tags, hyperlinks and simple coding for web pages. They will be developing their researching skills and understand how search engines select and rank results. Children will be able to use computer-based data logging, spreadsheets to create charts and analyse data to explore inconsistences and make predictions. Pupils will develop an understanding of turtle graphics as well as have an awareness of computer-generated art and appreciate the link between geometry and art. Key Stage 2 pupils will develop their researching skills to research the app market and then collaboratively design an interface for an app using wireframing tools to create prototypes.

	Initiating	**Building**	**Deepening**
	Year 1 and 2	Year 3 and 4	Year 5 & 6
Programming	**_Year 1_** Unit 1.1. We are treasure hunters. I can follow instructions. I can record a set of instructions. I can program a toy. I can give instructions. I know what input, program and output means for a robot toy. I can give examples of input, program and output. I can create a program. I can spot and correct mistakes in a program (debug). I can predict where a set of instructions will take a toy or person. I can look for ways to make a program work better.	**_Year 4_** Unit 4.1 We are software developers Developing a simple educational game I can design an interactive educational game. I can develop an interactive educational game. I can put Scratch blocks in the right order. I can use the _if/then/else_ block correctly. I can use the _random number_ block and use variables to work out the score. I can include sound in my game. I can correct mistakes in my game. I can plan my own way to program my game. I can use a countdown timer. I can use the mouse to control my game. I can explain how the algorithm of my game works.	**_Year 5_** Unit 5.1 We are game developers. Developing an interactive game I can create a storyboard or diagram for an algorithm for my game. I can create sound and graphics in Scratch for my game. I can put instructions in the right order for my game. I can find mistakes in my game. I can create and add music for my game. I can use selection and repetition in my game. I can correct mistakes in my game. I can listen to my partner's ideas about my game and make it better. I can add instructions to my game. I can break my game into smaller parts and work on them separately. I can animate my characters by creating different graphics for them. I can use variables in my game. I can explain how my game works. I can add comments to the script of my game.

Computational Thinking	_**Year 1**_ Unit 1.2 We are TV chefs I can write and/or draw the steps of a recipe. I can change my recipe to make it better. I know what will happen when others use my recipe. I can use a video camera to record video. I can move files from the camera onto the computer. I can edit video.	_**Year 3**_ 3.2 We are bug fixers Finding and correcting bugs in programs I can correct 'off-by-one' mistakes in a program. I can make a simple drawing program work better. I can put the dialogue in a program in the right order. I can try out different variables in a simulator game's program. I can describe how a simple maths program works. I can describe how a simple drawing program works. I can describe how the dialogue in a program works. I can correct a program so the animation is more realistic. I can describe how a simulator game's program works. I can explain how I correct 'bugs' in a program. I can explain how the steps in a program are linked. I can explain how I correct the order of dialogue in a program. I can describe how a 'Pong'-style program works. I can suggest reasons for the 'bug' in the simulator game's program.	_**Year 6**_ Unit 6.2 We are project managers. I can make a list of the main steps of my project that need to be completed. I can make a list of the tasks of my project that need to be completed. I can make a list of the things I will need to complete the project. I can create original content for my app. I can judge how well the work on my app is going. I can spot and list the different parts of my app that will need to be created. I can see how the members of my group have different skills and talents. I can put the tasks of my project in an order that will work well. I can find content from other places to use in my app. I can use and credit content I use from other places correctly. I can work with my group to keep track of how well the project is going. I can see how to keep working on my skills to make the project a success. I can see how to improve the planning of the tasks in the project.
Creativity	_**Year 2**_ Unit 2.3 We are photographers I can take photos. I can take photos that are in focus. I can take high quality photos. I can decide if a photo is worth keeping. I can edit photos. I can edit photos to make them look better. I can choose my best photos for our class collection. I can talk about how I took, edited and chose my best photos. I can give helpful feedback to my friends. I know how to let my teacher know if I am worried about an image. I know that there are some photos I shouldn't put on the web.	_**Year 3**_ Unit 3.3 We are presenters Videoing performance I can work a video camera. I can record footage to use in my video. I can upload and edit my footage on a computer. I can record an audio commentary for my video. I can study sports programmes to learn how they are filmed. I can record high quality footage. I can record an audio commentary with useful information in it. I can export my final video in a standard format. I can look at my footage and decide what does and doesn't work. I can record original and interesting footage. I can use and explain data in my audio commentary. I can use more difficult editing tools, e.g. creating transitions.	_**Year 5**_ Unit 5.3 We are artists. Fusing geometry and art I can create a tessellating pattern. I can write a program to draw a simple shape. I can create a pattern using overlapping shapes. I can create a pattern using different repeated shapes. I can create a computer-generated image of a landscape. I can create a tessellating pattern using more complicated shapes. I can use repetition in Scratch to draw a complicated geometric shape. I can use the tile clone tool to create a pattern using different kinds of shapes. I can create a computer-generated image of a landscape that looks good. I can write blocks of script in Scratch to create a complicated geometric shape. I can explain how computers create realistic landscapes.

	Year 1	Year 4	Year 5
Computer Networks	_Year 1_ 1.4 We are collectors I can look for pictures on the web. I can copy a picture and put it in my presentation. I can move pictures in my presentation I can resize pictures. I can sort pictures in order of size. I can choose the best pictures for my collection. I know how to let my teacher know if I am worried about a picture. I know that there are some pictures I can copy and some that I can't. I can put pictures into groups. I can use yes or no questions to find a picture. I can see how drawings and photos are different. I can add labels to my presentation. I know I shouldn't put my name or a photo of myself on the web.	_Year 4_ Unit 4.4 We are HTML editors Editing and writing HTML I can see how the internet and the web are different. I can see that web pages are written in HTML. I can use some HTML tags. I can edit the HTML for a web page. I can create web pages that keep another person's details private. I can explain the parts of a URL. I can see how important links are for the web. I can use the ... tag correctly. I can create a web page by writing HTML. I can be safe and responsible when I create a web page. I can show I understand how HTTP works. I can show I know about the history of the web. I can use the <img/> and <iframe>...</iframe> tags.	_Year 5_ Unit 5.4 We are web developers. Creating a website about cyber safety I can check and comment on others' content. I can see how Google chooses and shows web pages in a search. I can name other search engines. I can create and organise others' content on e-safety and using technology properly. I can create and organise others' content for sharing worries about information seen and received on the web. I can create and organise others' content for using the web in the right/wrong way. I can credit others' information I use on the shared site. I can decide if web sources are balanced and of a good quality. I can proofread and correct mistakes in others' content. I can use tools to get the best results in my web searches. I can find and use information from different places to present a summary. I can make useful and large changes to others' content when necessary. I can explain how Google orders web pages in a search ('Page Rank').

Communication and Collaboration	**_Year 2_** 2.5 We are detectives I can read an email. I can write and reply to an email. I can check my email for mistakes before I send it. I can see if an email and an attachment are from someone I know and trust. I can read and understand the headers of an email. I know how important it is to type an email address correctly. I can see how an email address has two parts. I can see that the domain name in an email address gives important information. I can take notes from an email in writing or using an audio recorder. I can create a spreadsheet. I can organise a spreadsheet so it shows me the information I need. I know what to do if I'm worried about opening an email. I know that I must always be careful about opening emails and attachments.	**_Year 3_** Unit 3.5 We are communicators Communicating safely on the internet I can see how email and video conferencing work on the internet. I can use email and video conferencing to communicate. I can write an email and speak on video to communicate with others. I can follow my school's rules and use email and video conferencing safely. I can see that the internet and the web are different. I can work with my partner well. I can show respect for my partner's ideas. I can let my teacher know if I am unsure about something in an email. I can work independently with my partner to plan our work. I can tell my partner what I think does and doesn't work. I can explain some of the dangers of emails and opening email attachments.	**_Year 6_** Unit 6.4 We are inter face designers. I can sketch my ideas for the design of my app. I can create screen layouts for my app using a wireframing tool. I can think about how people will use my app as I design it. I can see how important it is that everyone should be able to use an app. I can find media assets (e.g. buttons or backgrounds) for my app. I can sketch my ideas for a user-friendly design of my app. I can try to design my app so that anyone should be able to use it. I can create my own media assets for my app. I can explain how different parts of my app will work together. I can create user-friendly screen layouts for my app using a wireframing tool. I can create an attractive design to suit the way people will use my app. I can follow examples of good design to make sure anyone can use my app. I can find and credit media assets I use from other places correctly.
Productivity	**_Year 2_** 2.6 We are zoologists I can take photos of bugs. I can take photos of bugs that are in focus and of high quality. I can edit my photos (e.g. cropping). I can label my photos and rate them. I can move my photos onto the computer or to a website. I can use yes or no questions to decide which group a bug fits into. I can create a chart. I can add a title and label the axes of my chart. I can change the way my chart looks. I can show my results in different types of charts. I can use a digital map to find a place. I can use GPS to show where I found my bugs. I can add photos to a digital map. I can add information about my bugs to a digital map I can create a presentation showing my research. I can present my research to my friends.	**_Year 4_** Unit 4.6 We are meteorologists. Presenting the weather I can use weather measurement equipment safely. I can enter weather data in a spreadsheet. I can take digital photos. I can create simple charts. I can make predictions about the weather. I can create a presentation for my weather forecast. I can use weather measurement equipment accurately. I can describe the weather. I can make sensible predictions about the weather. I can add measurements and descriptions to photos. I can present an interesting and useful weather forecast to my classmates. I can spot weather data that looks unusual. I can make accurate predictions. I can see what some of the problems are in predicting the weather.	**_Year 6_** Unit 6.3 We are market researchers. I can create a marketing flyer which includes images and text. I can create a website for my app which includes images and text. I can record my own video or find video and content from elsewhere for my app advert. I can create a persuasive and well-designed marketing flyer for my app. I can plan and create a well-designed and user-friendly website for my app. I can see how important e-safety is and that I am responsible for content I create. I can edit my own and others' content for my app advert. I can choose software that is best suited for making my flyer. I can choose the best hosting and development platform for my website. I can follow the rules for creating and presenting content for a website. I can choose the best software and hardware available to me to create my advert.