



Subject Concept Map – Computing 2021 - 2022



Year group	Key Computing Composites				
	Computer Science	Digital literacy	Information Technology	On Line Safety	Data Handling
Year 1- Oak	Moving a robot Programming animations	Technology around us	Digital painting Digital writing	Technology around us	Grouping data
Year 2- Beech	Robot algorithms Programming quizzes	Information technology around us	Digital photography Making music	Information technology around us	Pictograms
Year 3 - Sycamore	Sequencing sounds Events and actions in programmes	Connecting computers	Stop frame animation Desktop publishing	Connecting computers	Branching databases
Year 4- Hazel	Repetition in games Repetition in shapes	The internet	Audio editing Photo editing	The internet	Databases
Year 5 - Maple	Selection in physical computing Selections in quizzes	Sharing information	Vector Drawing Video Editing	Sharing information	Flat-file data bases
Year 6 – Chestnut	Variables in games Sensing	Internet communication	3D Modelling Webpage creation	Internet communication	Introduction to spreadsheets

Key Computing Composites

Computer Science	Information Technology	Digital Literacy	On Line Safety	Data Handling
<p>The study of computers and computing including their theoretical and algorithmic foundations hardware and software and their uses for processing information</p>	<p>The use of computers to store retrieve, transmit and manipulate data or information</p>	<p>Refers to an individual ability to find, evaluate and compose clear information through writing and other media on various digital platforms.</p>	<p>Learning to be safe on the internet and maximising awareness of personal safety and security risk to private information</p>	<p>The process of gathering recording and presenting information in a way that is helpful to others for instance graphs or charts</p>

Year group	Key computing vocabulary				
	Computer Science	Digital Literacy	Information technology	On Line Safety	Data Handling
Year 1- Oak	Instructions Buttons Robots Forwards Backwards	Technology Devices Keyboard Mouse Desktop	Paint Typing Keyboard Italics, bold, underline	Rules Online Private information Passwords	Groups Label Data
Year 2- Beech	Instructions Programme Predict Algorithm Debug	Technology Devises Purpose	Editing Saving Retrieving Camera Photography	Appropriate Inappropriate Digital footprint Passwords	Grouping Data pictogram
Year 3 - Sycamore	Sequence Instructions Sequence debugging Test and Improve Commands Programming	School network Search tools Websites	Publisher Animation Multi media Audience Documents	Sharing information Abuse Report E safety Secure passwords	Branching data base Selection Questionnaire
Year 4- Hazel	Algorithm Debug Repetition Quizzes Sequence	Networks Reliability Information Collection	Editing Photography Creating Modifying purpose	Sharing information Abuse Report E safety Secure passwords	Data Bases Data base searches Inaccurate data
Year 5 - Maple	Selection Physical computing Debug Algorithm Quizzes Loops	Computing devices Internet parts Collaboration Responsibility Searching strategies Webpages	Editing Vector drawing Creating Modifying Purpose	Social media Responsibly digital citizens Communication Virus threats Messaging	Complex searches Analyse information Interpret
Year 6 - Chestnut	Selection Physical computing Debug Algorithm Quizzes Loops Sense	Information Connecting devices Different audiences Research strategies Search result rankings Acknowledge resources	Website creation Audience Copyright Appropriate online tools	Social media Responsibly digital citizens Communication Virus threats Messaging Bias	Spreadsheets Analyse

Year group	Computing Passport – Knowledge and Skills Progression				
<p>Year 1- Oak</p> <p>Components</p> <p>Knowledge</p>	<p>Computer Science I create a series of instructions I plan a journey for a programmable toy</p>	<p>Digital literacy I create digital content I store digital content I retrieve digital content I use a website I can identify technological devices in the classroom</p>	<p>Information Technology I can paint a digital image I can type and use a keyboard appropriately</p>	<p>On line safety I understand they need to follow certain rules to remain safe when visiting places online I begin to understand that if you create something you own it I learn that many websites ask for information that is private & discuss how to responsibly handle such requests I explore how email can be used to communicate with real people within their schools, families & communities I learn that directory sites with alphabetical listings offer one way to find things on the Internet</p>	<p>Data Handling I take photographs, video and record sound to record learning experiences I group similar objects together. I can contribute to and interpret a pictogram</p>
<p>Skills</p>	<p>I follow the school's safer internet rules I use the search engines agreed by the school I know what to do if I find something I'm unsure of (including identifying people who can help me; minimising screen; online reporting using school system) I use the internet for learning and communicating with others, making choices when navigating through sites I send and receive emails as a class I recognise advertising on websites and learn to ignore it I use password to access the secure network</p>				

<p>Year 2- Beech</p> <p>Components</p> <p>Knowledge</p>	<p>Computer Science</p> <p>I use a range of instructions (Direction, Angles, Turns)</p> <p>I test and amend a set of instructions</p> <p>I find errors and amend (debug)</p> <p>I write a simple programme and test it</p> <p>I predict what the outcome of a simple program will be (logical reasoning)</p> <p>I understand that algorithms are used on digital devices</p> <p>I understand that programs require precise instructions</p>	<p>Digital literacy</p> <p>I organise digital content</p> <p>I retrieve and manipulate digital content</p> <p>I can navigate the web to complete simple searches</p> <p>I know how technology is used in school and outside of school</p>	<p>Information Technology</p> <p>I use technology respectfully</p> <p>I know where to go for help if I am concerned</p> <p>I know how technology is used in school and outside of school</p> <p>I can edit media such as images and music</p>	<p>On line safety</p> <p>Stay safe online by choosing websites that are good for them to visit & not inappropriate sites</p> <p>Explore what cyber-bullying means & what to do when they encounter it</p> <p>Know that if they put information online it leaves a digital footprint or "trail" & they need to manage it so it's not hurtful</p> <p>Understand that keyword searching is an effective way to locate online information & how to select keywords to produce the best search results</p> <p>Discuss criteria for rating informational websites a site.</p> <p>Realise that not all websites are equally good sources of information</p>	<p>Data Handling</p> <p>Take and save photographs, video & record sound to capture learning</p> <p>Ask questions and consider how they will collect information</p> <p>Collect data, generate graphs and charts to find answers</p> <p>Save & retrieve the data to show to others</p>
<p>Skills</p>	<p>I follow the school's safer internet rules</p> <p>I use the search engines agreed by the school</p> <p>I know what to do if I find something I'm unsure of (including identifying people who can help me; minimising screen; online reporting using school system)</p> <p>I use the internet for learning and communicating with others, making choices when navigating through sites</p> <p>I send and receive emails as a class</p> <p>I recognise advertising on websites and learn to ignore it</p> <p>I use password to access the secure network</p>				

<p>Year 3 - Sycamore</p> <p>Components</p> <p>Knowledge</p>	<p>Computer Science I design a sequence of instructions I write programs that accomplish specific goals I work with forms of input I work with various form of output</p>	<p>Digital literacy I use a range of software for similar purposes I collect information I design and create content I present information I search for information on the web in different ways</p>	<p>Information Technology I understand computer networks do and how they provide multiple services I decide where it is best to use technology and where it adds little of more value. I can use stop frame animation. I can use desktop publisher.</p>	<p>On line safety Agree sensible e-safety rules for the classroom Choose a secure password for age-appropriate websites Discuss what actions could be taken if they are uncomfortable or upset online e.g. Report Abuse button Talk about what games they enjoying playing and what good choices are when playing games e.g. content, screen time</p>	<p>Data Handling Find out information from a pre-prepared database, asking straightforward questions Contribute towards a database Construct and use a branching database Record data in a variety of ways Present data for others</p>
<p>Skills</p>	<p>I follow the school's safer internet rules I recognise the difference between the work of others which has been copied (plagiarism) and re structuring and re presenting materials in ways which are unique and new I identify when e mails should not be opened and when an attachment may not be safe I explain and demonstrate how to use an e mail safely I use different search engines</p>				

<p>Year 4- Hazel Components</p> <p>Knowledge</p>	<p>Computer Science I experiment with variables to control models I give an on screen robot specific instructions that takes them from A to B I make an accurate prediction and explain why I believe something will happen I de bug a program</p>	<p>Digital literacy I select and sue software to accomplish given goals I collect and present data I produce and upload a media</p>	<p>Information Technology I recognise acceptable and unacceptable behaviour using technology I can edit photos and audio.</p>	<p>On line safety Agree sensible e-safety rules for the classroom Choose a secure password for age-appropriate websites Discuss what actions could be taken if they are uncomfortable or upset online e.g. Report Abuse button Talk about what games they enjoying playing and what good choices are when playing games e.g. content, screen time</p>	<p>Data Handling Plan and create a database to answer questions Identify different types of data Ask questions carrying out simple searches on a database Identify inaccurate data Present data in appropriate format for an audience</p>
<p>Skills</p>	<p>I follow the school's safer internet rules I recognise the difference between the work of others which has been copied (plagiarism) and re structuring and re presenting materials in ways which are unique and new I identify when e mails should not be opened and when an attachment may not be safe I explain and demonstrate how to use an e mail safely I use different search engines</p>				

<p>Year 5 - Maple Components</p> <p>Knowledge</p>	<p>Computer Science I combine sequences of instructions and procedures to turn devices on and off I use technology to control an external device I design algorithms that use repetition and 2 way selection</p>	<p>Digital literacy I analyse information I evaluate information I understand how search results are selected and ranked</p>	<p>Information Technology I understand that you have to make choices when using technology and that not everything is true and / or safe.</p> <p>I can create vector drawings.</p> <p>I can edit videos.</p>	<p>On line safety Agree sensible e-safety rules for the classroom Discuss their own personal use of the Internet and choices they make Discuss how to protect devices from virus threats. Discuss the importance of keeping an adult informed about what you're doing online, and how to report concerns Explore using the safe and responsible use of online communication tools e.g. blogs, messaging</p>	<p>Data Handling Carry out complex searches (e.g. using and/or; \leq / \geq) Solve problems and present answers using data tools Analyse information and question data</p>
<p>Skills</p>	<p>I follow the school's safer internet rules I make safe choices about the use of technology I use technology in ways which minimise risk eg) responsible use of online discussion etc I create strong passwords and manage them so that they remain strong I independently, and with regard for e safety select and use appropriate communication tools to solve problems by collaborating and communicating with others within and beyond school I competently use the internet as a search tool I reference information sources I use appropriate strategies for finding, critically evaluating, validating and verifying information eg) using different keywords, skim reading to check for relevance of information, cross checking with different websites or other non ICT resources I use knowledge of the meaning of different domain names and common website extensions eg) co.uk; com;ac;sch;gov;net to support validation of information</p>				

<p>Year 6 – Chestnut</p> <p>Components</p> <p>Knowledge</p>	<p>Computer Science</p> <p>I design and solution by breaking a problem up</p> <p>I recognise that different solutions can exist for the same problem</p> <p>I use logical reasoning to detect errors in algorithms</p> <p>I use selection in programs</p> <p>I work with variables</p> <p>I explain how an algorithm works</p> <p>I explore 'What if' questions by planning different scenarios for controlled devices</p>	<p>Digital literacy</p> <p>I select use and combine software on a range of digital devices</p> <p>I use a range of technology for a specific project</p>	<p>Information Technology</p> <p>I discuss the risks of online use of technology</p> <p>I identify how to minimise risks</p> <p>I can design my own webpage</p> <p>I can digitally create 3d Models</p>	<p>On line safety</p> <p>Agree sensible e-safety rules for the classroom</p> <p>Discuss their own personal use of the Internet and choices they make Discuss how to protect devices from virus threats</p> <p>Discuss the importance of keeping an adult informed about what you're doing online, and how to report concerns</p> <p>Explore using the safe and responsible use of online communication tools e.g. blogs, messaging</p>	<p>Data Handling</p> <p>Use the whole data process – generate, process, interpret, store, and present information – realising the need for accuracy and checking plausibility</p> <p>Select appropriate data tool</p> <p>Identify and present results</p> <p>Interrogate a database, refining searches to provide answers to questions</p> <p>Collect and record information using spreadsheets and databases</p>
<p>Skills</p>	<p>I follow the school's safer internet rules</p> <p>I make safe choices about the use of technology</p> <p>I use technology in ways which minimise risk eg) responsible use of online discussion etc</p> <p>I create strong passwords and manage them so that they remain strong</p> <p>I independently, and with regard for e safety select and use appropriate communication tools to solve problems by collaborating and communicating with others within and beyond school</p> <p>I competently us the internet as a search tool</p> <p>I reference information sources</p> <p>I use appropriate strategies for finding, critically evaluating, validating and verifying information eg) using different key words, skim reading to check for relevance of information, cross checking with different websites or other non ICT resources</p> <p>I use knowledge of the meaning of different domain names and common website extensions eg) co.uk; com;ac;sch;gov;net to support validation of information</p>				

