Computing: Year Group: 5

Prior Learning Year 4	Year 5 Learning	Year 6 Future Learning	Vocabulary - Subject Specific	Linked Vocabulary
Computer Science: When turning a real-life situation into an algorithm, the pupil's design shows that they are thinking of the required task and how to accomplish this in code using coding structures for selection and repetition. Children make more intuitive attempts to debug their own programs. Pupils use of timers to achieve repetition effects are becoming more logical and are integrated into their program designs. They understand 'if statements' for selection and attempt to combine these with other coding structures including variables to achieve the effects that they design in their programs. As well as understanding how variables can be used to store information while a program is executing, they are able to use and manipulate the value of variables. Pupils can trace code and use step-through methods to identify errors in code and make logical attempts to correct this. In programs such as Logo, they can 'read' programs with several steps and predict the outcome accurately. Pupils will apply their knowledge and understanding of networks, to appreciate the internet as a	**Computer Science:** Children may attempt to turn more complex real-life situations into algorithms for a program by deconstructing it into manageable parts. Children are able to test and debug their programs as they go and can use logical methods to identify the approximate cause of any bug but may need some support identifying the specific line of code. Children can translate algorithms that include sequence, selection and repetition into code with increasing ease and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures. They are combining sequence, selection and repetition with other coding structures to achieve their algorithm design. When children code, they are beginning to think about their code structure in terms of the ability to debug and interpret the code later, e.g. the use of tabs to organise code and the naming of variables. Pupils will develop their understanding of computer systems and how information is transferred between systems and devices. Learners will consider small-scale systems as well as large-scale systems. They will explain the input, output, and process aspects of a variety of different real-world systems.	**Computer Science:** Pupils will be introduced to the Micro: bit where they will design their own code that will be used to perform different outputs. Pupils will apply their skills of debugging, sequencing, selection, repetition and variables. It offers the opportunity to use all of these constructs in a different, but still familiar environment whilst also utilising a physical device. Pupils will learn about the World Wide Web as a communication tool. First, they will learn how we find information on the World Wide Web, through learning how search engines work (including how they select and rank results) and what influences searching, and through comparing different search engines. They will then investigate different methods of communication, before focusing on internet-based communication. Finally, they will evaluate which methods of internet communication to use for particular purposes. Pupils will recognise that digital systems represent all types of data using number codes that ultimately are patterns of 1s and 0s (called binary digits, which is why they are called digital systems). They will also represent whole numbers in binary, for example counting in binary from zero to 15, or writing a friend's age in binary.	Rows, spreadsheet, columns, data, format, formula, advance mode, formula bar, formula wizard, 'How many?' tool, totalling tool, variable, Abstraction, action, algorithm, concatenation, debug/ debugging, decomposition, efficient, flowchart, event, function, input, object, output, nesting, properties, physical system, repeat, selection, sequence, simplify, timer, variable, Arrange, avatar, chart, collaborative, data, database, field, group, record, database report, search, sort, statistics, Citation, collaborate, communication, copyright, creative commons licence, encrypt, identity theft, malware, ownership, PEGI ratings, phishing, passwords, personal information, reliable source, SMART rules, spoof, validity.	Rows, spreadsheet, columns, data, format, action, decomposition, efficient, flowchart, event, function, object, nesting, properties, repeat, selection, sequence, simplify, timer, variable, Arrange, avatar, chart, collaborative, data, database, field, group, record, database report, search, sort, statistics, collaborate, communication, copyright, creative commons licence, identity theft, ownership, ratings, passwords, personal information, reliable source, spoof, validity.

network of networks which need to be kept secure.
They will learn that the World Wide Web is part of the internet, and be given opportunities to explore the World Wide Web for themselves to learn about who owns content and what they can access, add, and create.
Finally, they will evaluate online content to decide how honest, accurate, or reliable it is, and understand the consequences of false information.

Information Technology
Pupils will understand the function, features and layout of a search engine. They can appraise selected webpages for credibility and information at a basic level.
Pupils are able to make improvements to digital solutions based on feedback.
Pupils make informed software choice when presenting information and data.
Pupils create linked content using a range of software such as 2Connect and 2Publish+.
Pupils share digital content within their community e.g. using virtual display boards.

Digital Literacy:
Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact
See 'Online Safety'.

Pupils will also take part in a collaborative online project with other class members and develop their skills in working together online.

Information Technology
Pupils search with greater complexity for digital content when using a search engine.
Pupils are able to explain in some detail how credible a webpage is and the information it contains.
Pupils will use the Purple Mash application '2Design' to design and print their own 3D model.
Pupils will create their own database that will then be used to group and organise data e.g. through the Year 5 history unit where they can create data for Egyptian gods.

Digital Literacy:
Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact
See 'Online Safety'.

Information Technology
Pupils will be supported in organising data into columns and rows to create their own data set.
They will be taught the importance of formatting data to support calculations, while also being introduced to formulas and will begin to understand how they can be used to produce calculated data.

Digital Literacy:
Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact
See 'Online Safety'.

Common Misconceptions	Key Questions:	Famous People Links

- Misunderstanding of key vocabulary. - Tools and their functions. - Use of simulations. - Debugging accuracy. - Use of different variables. - Sharing. - Plagiarism / sources.	- How would you add a formula so that the cell shows the product of two other cells? - What would you use in 2Calculate to have a cell that automatically calculates the number of days since a certain date? - Explain what a spreadsheet model of a real-life situation is and what it can be used for? - What does simulating a physical system means? - Describe how you would use variables to make a timer countdown and a scorepad for a game. - Give examples of how you could use the Launch command in 2Code. - What do the terms decomposition and abstraction mean? Use examples to explain them. - What is a database? - Why is the collaborative feature important? - In what ways can I sort information in a database? - Who do I tell if I see anything online that makes me upset or scared? - Why are passwords so important? - Why is it important to reference sources in my work?	- Charles Babbage – First person to make a mechanical computer. - Alan Turing – Mathematician who famously helped break Germany's Enigma code by design a computer to decipher the code. - John Von Neumann – Mathematician who developed computer architecture. E.g. memory (RAM). - Douglas Engelbart – pioneer in the development of modern computers. - Steve Jobs – Co-founder of Apple which invented iPad, iPhone, Apple Mac. - Philip Don Estridge – Developed the first IBM personal computer which paved the way for universal parts/ peripherals. - Bill Gates – Founder of Microsoft. - Tim Berners-Lee – invented the WWW. - https://www.sutori.com/en/story/famous-people-in-computer-history--TcHp7hWrDd1ZfLW2zQfxCs5h

Assessment Opportunities/Final Assessment

- FFT – Termly Assessments
- Continuous assessment (AfL / formative).