Progression Grid for Computing

Please note:

- Repetition will be identified in **bold**.
- Blue words within the vocabulary section are those that we expect students to use and understand. Whilst those that are not in blue do not yet require a full understanding but should be used by both the teachers and pupils within lessons.

End Points for Key Stage One:

Declarative Knowledge (Knowing that...):

- Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- Use logical reasoning to predict the behaviour of simple programs
- Recognise common uses of information technology beyond school
- Identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.

Procedural Knowledge (Knowing how…):

- Create and debug simple programs
- Use technology purposefully to create, organise, store, manipulate and retrieve digital content
- Use technology safely and respectfully, keeping personal information private

	Computing Strand	Declarative Knowledge	Procedural Knowledge	Core Vocabulary
Year One	**Computer Science** (Year One)	**Programming and Algorithms.** • **Pupils should understand that programming involves giving instructions to either a physical device or digital device** and that there are differences and similarities in giving these instructions. • **Pupils should recognise that buttons or icons lead to a specific action of their robot or** sprite. • **Pupils** make reasonable predictions about **the behaviour of their robot or character** and begin to offer explanations for their ideas. • **Pupils can relate their understanding of** algorithms **to 'unplugged' activities.** **Data and Information** • Pupils begin to develop their understanding of how data can be inputted to a program. They understand the importance of labels when collecting data.	**Programming and Algorithms.** • **Pupils** understand **that their instructions** (algorithms) **cause actions in the device or software they are programming.** They begin to understand that instructions must be given in a correct order to reach a desired goal/outcome. • They should be able to select the appropriate commands to move their robot/sprite in the desired direction and begin to explore other controls via the coding blocks within a set software. • **Pupils** continue **to explore the use of patterns when programming.** • Pupils continue to explore how to correct errors within their code sequences. **Data and Information** • Pupils can identify the correct labels for a group of objects and begin to apply this knowledge.	Actions, **algorithms, arrow,** automatic, **background, backwards, behind, blocks, breaking things down** (decomposition), **bottom, change, characters,** code, collaborating, **colour,** content, **control**, copying, ***creating,*** debugging, default name, **delete,** diagonal, **drag, end, fast**, **forwards,** grid, grow, **hold, icon/button, in front, instructions, keyboard, location**, **left,** looks, **medium, middle, mistakes/**errors, **motion**, **move, order, page, patterns**, **persevering**, position, **prediction/predicting** (logic), **program,** programmer, **project,** record, redo, **repeat,** reset, **right, save**, **select, sequence,** shrink, **size, slow,** sounds, **speed,** sprite, **stage**, **start/play/go, steps, stop, tap, text, top,** tools, **turn,** ***tinkering,*** **undo**, **wait/pause.**

	Information Technology (Year One)	• Pupils understand that when they press a key on a keyboard it creates a corresponding action on a screen. • They understand that a mouse or touchpad works in relation to a cursor on a screen. • They understand that there are safe search engines which are appropriate for their age (such as Kiddle). **Devices** • Children begin to understand what a computer is. • They start to understand how different parts of a computer work together e.g., how a keyboard is connected to a computer screen. • Pupils understand that some devices have wires, and some are wireless. • They know that technology needs a power source. • They begin to explore the terms 'software' and 'hardware'. • Pupils begin to understand that a device can be 'online' or 'offline'. • They begin to acknowledge that the internet is an important aspect of using computers.	• They can type a short piece of text on Microsoft Word and know how to edit font elements. Pupils include the correct formatting for their text such as capital letters and full stops. • Pupils use their basic knowledge of a keyboard to type independently. They know how to add and remove text and begin to explore simple font changes via the toolbar. • They can log-in and out of a computer and know how to turn a device on and off. • They can use a mouse or touchpad to direct the onscreen cursor to the correct location. • They know how to navigate and use Kiddle to conduct research on a set project. **Devices** • Children learn to identify buttons that provide instructions to the device. • They can provide examples of computers in the world around us and when we might use them. • They begin to identify devices which are wired or wireless. • Pupils can identify the technology they use at home and can provide simple examples of how devices communicate with one another (by use of the internet).	Communicate, computer, cursor, buttons, device, edit, hardware, key, keyboard, location, internet, mouse, navigate, offline, online, research, screen, search engines, software, technology, text, touchpad, typing, wires, wireless,
	At the beginning of each half-term a 'knowledge map' on Project Evolve will be completed to highlight any cohort specific requirements for this strand.			
	Digital Literacy (Year One)	**Self- Image and Identity:** • Pupils begin to understand that there are some people online who could make someone feel negative emotions. • They begin to understand what a trusted adult is. **Online Relationships:** • **Pupils understand some of the different ways to communicate on the internet.** • Pupils explore how some people may feel differently about content that is shared online. **Online Reputation:** • **Pupils** develop a more secure understanding **of how personal information about themselves can be put on/shared online**.	**Self- Image and Identity:** • **They can identify who can support them when they feel sad, uncomfortable, embarrassed, or upset.** **Online Relationships:** • They can identify when they should ask permission to do something online and begin to recognise why this is important. **Online Reputation:** • They start to identify what information should not be shared online and who they should ask about sharing information with others.	Appear, content, copied, digital, emotions, healthy, information, impact, password, permission, personal, protect, real, sharing, trusted, unhealthy, unkind.

		• They begin to recognise that information can stay on the internet/online for a very long time and that this could be copied by other people. **Online Bullying:** • Pupils have a more secure understanding **of the differences and similarities of being unkind online and in real life.** **Managing online information:** • Pupils understand that we can use devices to search for information and to explore the internet. **Health, well-being and lifestyle:** • **Pupils understand and can discuss what rules are** and why we use them. **Privacy and Security:** • **Pupils** have a good **understanding of what 'personal information' is and who they can share this information with.** • Pupils develop a simple understanding of passwords and how they can be used to protect us (information, accounts and devices). **Copyright and Ownership:** • **Pupils understand that** physical **work they create belongs to them** and that this also applies to work produced using technology.	**Online Bullying:** • They begin to recognise how they should behave online and how their behaviour can impact others. They begin to offer examples to justify their thinking. **Managing online information:** • They begin to recognise that we may encounter things that we like or dislike and that not everything online may be real. • They know who to get help from if content appears that they are unsure of. **Health, well-being and lifestyle:** • **They can identify ways in which they can be used to keep them safe and healthy within and beyond the home when using technology/devices.** **Privacy and Security:** • **They are able to identify** 'trusted adults' within their lives. • They recognise the importance of asking an adult's permission before sharing personal information online. **Copyright and Ownership:** • They can begin to explain why a piece of technology based work belongs to them.	
Year Two	**Computer Science** (Year Two)	• **Pupils should understand that programming involves giving instructions to either a physical device or digital device and that there are differences and similarities in giving these instructions.** • **Pupils should recognise that buttons or icons lead to a specific action of their robot or sprite.** • **Pupils** make reasonable predictions about **the behaviour of their robot or character** and provide simple justifications for their ideas.	• **Pupils understand that their instructions (algorithms) cause actions in the device or software they are programming** and that algorithms **must be given** in a correct sequence **to reach a desired goal/outcome.** • **They should be able to select the appropriate commands** via the use of the colour coded blocks in order to control the motions, looks, sounds and other controls related to their sprite.	Actions, **algorithms**, arrow, **automatic**, background, backwards, behind, blocks, breaking things down (**decomposition**), bottom, bug, change, characters, code, **collaborating**, colour, content, continuous/forever **control**, copying/duplicate, ***creating***, cut, **debugging**, **default name**, delete, design, **diagonal**, drag, edit, **end**, fast, forwards, grid, grow, hardware, hide, **hold**, **icon/button**, in front, instructions, keyboard, location, left, looks, loop, medium, middle, mistakes/errors, motion, move, nested loop, number pad, order, page, paste, patterns, **persevering**, **position**, prediction/predicting (**logic**), presentation mode, process, **program**, **programmer**,

		• **Pupils can relate their understanding of algorithms to 'unplugged' activities.** They can create their own examples to demonstrate their broader understanding of this concept. Children in Year 2 begin to make comparisons between algorithms that are used for various equipment types. For example, they could discuss how they draw a shape on Scratch Jr and how they use a robot to draw the same shape. **<u>Data and Information</u>** • Pupils begin to develop their understanding of what the term 'data' means and how we use tally charts to collect data. • They will be introduced to 'attributes' to help them to organise data.	*They should also acknowledge that these transferable skills can be used when programming other types of equipment e.g. in order to move robots according to their own programming needs. • **Pupils** understand the **use of patterns when programming** and start to apply this knowledge in their codes. • Pupils begin to attempt independent debugging of any errors that may occur. **<u>Data and Information</u>** • Pupils continue to present data in the form of pictograms and block diagrams.	programming area, **project,** receives, **record, redo, repeat, reset,** remove, **right,** rotate, **save, select,** send, sensors, set, **sequence, shrink, size, slow,** software, **sounds, speed,** spin, **sprite, stage, start/play/go, steps, stop, switch,** sync, **tap, text, top, tools, turn, *<u>tinkering,</u>*** trigger, **undo, wait/pause.**
	Information Technology (Year Two)	• Pupils have a growing knowledge of additional keyboard keys that can help improve their formatting skills. • **Pupils** begin to learn how to **press a** combination of **keys on a keyboard** as a shortcut for an action. • **They understand that a mouse or touchpad works in relation to a cursor on a screen.** • They understand that there are safe search engines which are appropriate for their age (such as Kiddle). • Pupils understand the importance of saving their digital work and how to keep it safe on a shared device. • They learn how pressing a particular function enables you to print work from your screen. **<u>Information Technology & Devices</u>** • **Children** understand **what a computer is.** • **They** know **how different parts of a computer work together e.g., how a keyboard is connected to a computer screen.** • **Pupils understand that some devices have wires, and some are wireless.** • **They know that technology needs a power source.** • They begin to explore the terms 'software' and 'hardware'. • Pupils begin to understand that a device can be 'online' or 'offline'. • They begin to acknowledge that the internet is an important aspect of using computers.	• **Pupils use their basic knowledge of a keyboard to type independently. They know how to add and remove text and** how to complete **simple font changes via the toolbar**. • **They can log-in and out of a computer and know how to turn a device on and off.** • **They can use a mouse or touchpad to direct the onscreen cursor to the correct location.** • **They know how to** independently **navigate and use Kiddle to conduct research on a set project.** • Pupils learn how to independently open, close and save their documents. **<u>Information Technology & Devices</u>** • **Children learn to identify buttons that provide instructions to the device.** • **They can provide examples of computers in the world around us and when we might use them.** • **They** can **identify devices which are wired or wireless.** • Pupils can identify purposes of information technology at **home**, in school and beyond school.	Close, combination, communicate, **computer, cursor, buttons, device, edit,** formatting, font, function, **hardware, key, keyboard, location,** image, information, **internet, mouse, navigate, offline, online,** open, print, purpose, **research, screen, search engines,** save, shortcut, slide, **software, technology, text,** toolbar, **touchpad, typing, wires, wireless.**

		• Pupils understand that a computer is part of information technology. • They begin to recognise common types of technology and when they might choose to use certain **hardware or software** for an activity.		
	At the beginning of each half-term a 'knowledge map' on Project Evolve will be completed to highlight any cohort specific requirements for this strand.			
	Digital Literacy (Year Two)	**Self- Image and Identity:** • Pupils can explain how an online identity can be different to an offline/ in person identity. **Online Relationships:** • **Pupils** have a secure **understanding of how technology can be used to communicate with others** and how online relationships might be created with people they do not know offline. They begin to understand how forming relationships online can be risky and who they can ask for help if something happens to them online (which makes them feel a negative emotion or when something happens online without their consent). **Online Reputation:** • **Pupils** have a secure understanding **of how personal information about themselves can be put on/shared online.** • They continue to explore what personal information should not be shared online and **who they should ask about sharing information with others.** **Online Bullying:** • Pupils have a secure understanding **of the differences and similarities of being unkind online and in real life.** They understand **how they should behave online and how their behaviour can impact others.** Pupils can begin to explain the term 'bullying' and start to recognise how it may happen. **Managing online information:** • **Pupils understand that we can use devices to search for information and to explore the internet. They recognise that we may encounter things that we like or dislike and that not everything online may be** true	**Self- Image and Identity:** • They can think of scenarios where someone might feel **negative emotions online** and can give examples of **trusted adults** who might be able to help. **Online Relationships:** • They know that **they should ask a trusted adult before sharing personal information online.** **Online Reputation:** • They recognise **that information can stay on the internet/online for a very long time and that this could be** seen and **copied by other people.** **Online Bullying:** • Pupils can discuss where people can get help if they are being bullied. • They can begin to recognise the emotions associated with bullying and know that the person being bullied is not to blame.	Activated, **appear,** bullying, **content,** consent, **copied,** devices, **digital, emotions** (positive and negative), guidance, **healthy,** identity**, information, impact, password, permission, personal, protect, real,** risky, **sharing,** strategies, true, **trusted, unhealthy, unkind.**

		or **real**. Pupils begin to explore what 'voice activated searching' is and understand that it is not a real person. **Health, well-being and lifestyle:** • Pupils begin to explore simple guidance associated with using technology and devices within different environments/settings. **Privacy and Security:** • **Pupils** have a secure **understanding of what 'personal information' is and who they can share this information with.** Pupils begin to develop an understanding of the difference between something being 'private' online and 'keeping things private'. They have a good understanding of passwords and how they can be used to protect us (information, accounts and devices). They recognise the importance of asking an adult's permission before sharing personal information online and begin to acknowledge the types of devices found within their homes that are connected to the internet. **Copyright and Ownership:** • Pupils understand that physical work they create belongs to them and that this also applies to work produced using technology. • Pupils recognise that content which is found online may belong to other people and they understand that they cannot copy it as their own.	**Health, well-being and lifestyle:** • They can begin to describe suitable strategies to help balance their online and offline time. **Privacy and Security:** • **They are able to identify 'trusted adults' within their lives.**	

End Points for Key Stage Two:

Declarative Knowledge (Knowing that…):

- Use logical reasoning to explain how some simple algorithms work
- 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
- Recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

Procedural Knowledge (Knowing how…) :

- 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 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

Year Three	**Computer Science** (Year Three)	**The main programming focus for Year 3 is Sequencing.** • **Pupils should understand that programming** involves giving specific linear instructions **to either a physical or digital device and that there are differences and similarities in giving these instructions.** • Pupils begin to understand that they can combine start and input events in their algorithms to create more complex programs. They also recognise that programs can be controlled using a keyboard and/or mouse. • Pupils understand that **buttons or icons lead to a specific action of their robot, sprite** or 'object'. They recognise that not all programs use the same types of coding blocks and understand that although the visual icons for these may be different the functions are the same. • Pupils know how to make logical **predictions about the behaviour of their robot or** sprite. They can provide at least one known fact to support the justification and explanation of their ideas. • Pupils recognise the importance of patterns within their codes and learn how to apply this knowledge to achieve desired outcomes with regards to movement and direction. **<u>Data and Information</u>** • **Pupils** understand the **term 'data'**. • **They can recall the different ways they have sorted and collected data to date (labels, tally charts).** • **They understand the term 'attributes of data' and know how this helps them to organise data.** • Pupils develop an understanding of how to create and use a branching database. They understand the importance of creating an identification tool when using branching databases. **<u>Networks (making connections)</u>**	• Pupils continue to develop their understanding of programming and algorithms by creating simple programs. • They should recognise that algorithms include input actions and these result in corresponding outputs/outcomes. • Pupils can independently solve simple errors within their end of unit debugging scenarios. They can identify where the error occurred and how to resolve it. **<u>Data and Information</u>** • Pupils continue to use j2e to present data in the form of pictograms and block diagrams. • They can use yes/no questions to gain information about data attributes and know how to sort objects into groups based on these. • Pupils know how to create physical and digital branching databases. They can give an example of how branching databases can be used in 'real-world' scenarios. **<u>Networks (making connections)</u>**	In addition to being secure with the KS1 vocabulary… **Actions, algorithms, arrow, automatic, background, backwards, behind, blocks, breaking things down (decomposition), bottom, bug, change, characters, code, collaborating, colour, content, continuous/forever control, copying/duplicate, *creating*, cut, debugging, default name, delete, design, diagonal, drag, edit, end, fast, forwards, grid, grow,** hardware, hide, **hold, icon/button, in front, instructions, keyboard, location, left, looks, loop, medium, middle, mistakes/errors, motion, move, nested loop, number pad, order, page,** paste, **patterns, persevering, position, prediction/predicting (logic),** presentation mode, **process, program, programmer, programming area, project, receives, record, redo, repeat, reset, remove, right, rotate, save, select, send, sensors, set, sequence, shrink, size, slow, software, sounds, speed, spin, stage, start/play/go, steps, stop, switch, sync, tap, text, top, tools, turn, *tinkering*, trigger, undo, wait/pause.** Students should learn the following terms: Ada Lovelace, attributes, block diagrams, Charles Babbage, connections, combine, data (branching), error, functions, identification, input, internet, linear, networks, output, organise, pictograms, process, server, sequence, wireless access point (WAP), visual.

		• Pupils explore how input and output devices work as part of a process. • They learn how to identify these on/in a device or as part of a device. • Pupils begin to understand how digital devices are connected to one another. • They begin to understand the term 'networks' and how there are key components such as a 'server' and 'wireless access point'. • Pupils begin to understand that information is passed through several connections.	• Pupils recognise the difference and similarities when working on a digital device and with non-digital tools. • They can design their own device based on a design brief. • Pupils can identify connected devices around them and can explain how they are connected together.	
	Information Technology (Year Three)	• Pupils have a good understanding of the importance of a keyboard function on a device. • **They understand** when they might want to use a **mouse** over a **touchpad.** • **They understand** the importance of using **safe search engines which are appropriate for their age (such as Kiddle).** • Pupils understand the importance of saving their digital work and how to keep it safe on a shared device. •	• Children understand how to confidently use a keyboard to format and create text on any given document. • They can type with an increased pace and greater accuracy. • Pupils begin to understand how to select appropriate information from a given search on a search engine. • They can **independently open, close and save their documents** using appropriate titles for their work**.** • They can independently print their work to annotate drafts with suggested improvements.	Accuracy, annotate, appropriate, **close, combination, communicate,** computer, cursor, buttons, device, document, edit, **formatting, font, function,** hardware, key, keyboard, location, **image, information,** internet, improvements, mouse, navigate, offline, online, **open,** pace, **print, purpose,** purposeful, research, screen, search engines, **save, shortcut, slide,** software, specific, technology, text, titles, **toolbar,** touchpad, typing, wires, wireless.
	At the beginning of each half-term a 'knowledge map' on Project Evolve will be completed to highlight any cohort specific requirements for this strand.			
	Digital Literacy (Year Three)	**Self- Image and Identity:** • Pupils can explain the term 'identity' and can offer an example with their explanation. • They will begin to explore how people represent themselves online. • They begin to understand that people may change their identify online depending on their use of online systems, platforms and devices. • Pupils begin to develop an understanding of why someone might change their identity online. **Online Relationships:** • **Pupils have a secure understanding of how technology can be used to communicate with others and how online relationships might be created with people they do not know offline.** • They know how people with similar likes/ interests can get together online and understand how 'knowing someone online' is different to 'knowing someone offline'.	**Online Relationships:** • **Pupils understand who they can ask for help if something happens to them online which makes them feel a negative emotion or when something happens online without their consent.** • They also understand that their actions can hurt someone else's' feelings and know that they must ask people's permission to share content online.	**Activated,** actions, appear, autocomplete, behaviour, belief, **bullying,** content, consent**,** communicate, **copied, devices,** digital, emotions **(positive and negative),** fact, feelings, **guidance,** healthy, **identity**, information, internet, impact, opinion, password, permission, personal, platform, pressure, private, protect, real, represent, restrictions, **risky,** sharing, **strategies,** similar, transactions, **true,** trusted, unhealthy, unkind.

		• Pupils continue to develop their understanding of trust online and begin to explore how this is different to liking someone online. **Online Reputation:** • **Pupils have a secure understanding of how personal information about themselves can be put on/shared online. They recognise that information can stay on the internet/online for a very long time and that this could be seen and copied by other people.** • Pupils begin to understand the need to be careful when sharing personal information online. **Online Bullying:** • **Pupils understand how they should behave online and how their behaviour can impact others.** • **Pupils** understand **the term 'bullying' and** recognise **how it may happen.** • **They can** recognise **the emotions associated with bullying and know that the person being bullied is not to blame.** **Managing online information:** • Pupils begin to understand how to use key phrases to gather accurate and reliable information from search engines. • They begin to explore their understanding of 'autocomplete' functions and how they can identify an appropriate suggestion. **Health, well-being and lifestyle:** • Pupils understand how spending too much time on technology can negatively impact their health and well-being. • They begin to explore positive and negative examples of prolonged screen time.	**Online Reputation:** • They begin to explore how to search for information about others and can give examples of individuals who may not want to share details online. • Pupils can identify who they can speak to about sharing personal information online. **Online Bullying:** • They can discuss the importance of behaving appropriately online and can provide examples of how bullying may present online. • **Pupils can discuss where people can get help if they are being bullied.** **Managing online information:** • Pupils recognise that you can buy and sell things on the internet and that they should ask permission from an adult before engaging in any transactions. • They can begin to explain the difference between the terms 'belief', 'opinion' and 'fact'. Pupils are able to identify where examples of these terms may be found online and begin to understand that not all opinions are shared by others. • They know who they can talk to if they see content online that may make them experience a negative emotion such as worry. **Health, well-being and lifestyle:** • They understand that they do not need to engage with an activity because of pressure from others and can identify a person they can talk to about this.	

		• Pupils begin to explore age restrictions and why it is important to follow this guidance. **Privacy and Security:** • **Pupils have a secure understanding of what 'personal information' is and who they can share this information with.** • Pupils begin to develop an understanding simple strategies they can use for creating and keeping passwords private. **Copyright and Ownership:** • **Pupils recognise that content which is found online may belong to other people and they understand that they cannot copy it as their own.**	**Privacy and Security:** • **Pupils are able to identify 'trusted adults' within their lives.** • They can identify trusted individuals who they may want to share private information with and also know that they can talk to these people about feeling pressured or unsure about sharing information. • Pupils can identify **the types of devices found within their homes that are connected to the internet** and begin to explore how connected devices can collect and share anyone's information. **Copyright and Ownership:** • They can identify why sharing someone's work from the internet without permission isn't fair and how problems could arise from doing so.	
Year Four	**Computer Science** (Year Four)	**The main programming focus for Year 4 is Repetition.** • **Pupils** will have a secure understanding that **programming involves giving specific linear instructions to either a physical or digital device and that there are differences and similarities in giving these instructions.** • They can use logical reasoning to discuss how changing a value can effect a command. • Pupils understand the importance of using a template when working out their desired algorithm. • Pupils begin to recognise patterns and repeats within everyday life and when coding. They can explain what 'repeat' means within a given programming context. • Pupils can confidently predict an outcome from looking at a 'snippet of code' and can justify their thinking. • Pupils can differentiate between 'count-controlled' and an 'infinite' repetition loop. • They begin to understand that different programming languages can be used to run more than one process at any one time. **<u>Data and Information</u>** • **Pupils understand the term 'data'**.	• Pupils begin to explore the use of typing when programming a computer. They learn how to create a program in a text-based language. • They can create 'code snippets' independently when using Logo software. • Pupils begin to learn how to use a count-controlled loop to produce a set outcome. They can then debug programs in order to make improvements. • Pupils learn how to modify code (specifically loops) to alter the desired outcome. • They can independently create a design that includes two or more loops which run simultaneously. **<u>Data and Information</u>**	By the end of Year 4 the students should have a secure understanding of all the vocabulary used in KS1 and the following: Ada Lovelace**, attributes,** block diagrams, Charles Babbage**, connections, combine,** command, count-controlled, **data (**branching**),** data logger, data points, data sets, digital citizen, **error,** experiences, **functions, identification,** infinite, **input, internet,** logging intervals, **linear,** media, **networks, output, organise,** owners, pictograms**, process,** reasoning, repeat, repetition, server, **sequence,** simultaneously, Sir Timothy Berners-Lee, snippet, template, website, wireless access point (WAP), World Wide Web (WWW), **visual.**

		• Pupils develop an understanding of how and why data is collected over time. • They begin to explore how we use sensors to monitor the environment around us over a set period of time. • Pupils begin to explore how we can use data loggers (such as sensors) to answer questions. **<u>Networks</u>** • **Pupils** know **how input and output devices work as part of a process.** • **Pupils** understand **how digital devices are connected to one another.** • **They** consolidate their u**nderstanding of the term 'networks'.** • **Pupils** continue to explore how **information is passed through several connections.** • They acknowledge the importance of Sir Timothy Berners-Lee with regards to World Wide Web (WWW) and The Internet. • They understand that the WWW refers to the pages they see on a device or online and that The Internet is the network of connected computers that the WWW works on. • Pupils begin to understand that the internet is a 'network of networks' and that this involves messages being shared between networks. • They begin to understand where websites are stored and how they are uploaded on to the WWW. • Pupils acknowledge that they can be contributors to the WWW and that they have a responsibility to be a good digital citizen.	• Pupils use sensors to collect data. • They can begin to decipher data points, data sets and logging intervals with the guidance of an adult. **<u>Networks</u>** • **Pupils can identify connected devices around them and can explain how they are connected together.** • They can identify how to keep a network safe. • Pupils can describe parts of a network and explain how they connect together to form the internet. • They recognise the services that the internet can provide and can identify these from their own experiences. • Pupils know how to access websites on the WWW and can give examples of the media types found on it. • Pupils can identify the rules that are in place to protect content. • They know that the content and websites that they view have owners and they can give real-world examples to justify this.	
	Information Technology (Year Four)	• They begin to explore how to use photos and audio editing to create media. • Pupils understand the importance of the planning process when creating media content. • They recognise that they may need to create content for a certain audience instead of relying on their own preferences.	• Pupils can produce an animation with the support of an adult. • Pupils understand that messages can be communicated via text and images. • They can select their choice of wording and images to satisfy a set criteria. • Pupils can identify the icons/buttons they need to use to take a photograph, record an audio or add text to a project.	**Accuracy, annotate,** animation, **appropriate,** audio, audience, **close, combination, communicate,** computer, content, criteria, cursor, buttons, device, **document**, edit, **formatting, font, function,** hardware, key, keyboard, location, **image, information,** internet, **improvements,** messages, **mouse**, navigate, offline, online, **open, pace,** preferences, **print, purpose, purposeful,** research, screen, search engines, **save, shortcut, slide,** software, **specific,** technology, text, **titles**, **toolbar,** touchpad, typing, wires, wireless.
	At the beginning of each half-term a 'knowledge map' on Project Evolve will be completed to highlight any cohort specific requirements for this strand.			

	Digital Literacy (Year Four)	**Self- Image and Identity:** • Pupils understand how and why **people may change their identify online.** • They begin to explore how they are responsible for their own online identity and how this can be different to their offline identity. Pupils can describe how positive behaviour online can lead positive perceptions. **Online Relationships:** • Pupils understand the strategies they can use for a safe and fun experience within the digital world and the different environments this entails. • Pupils begin to recognise that the importance and relevance of shared online content may vary from one person to another. **Online Reputation:** • **Pupils have a secure understanding of how personal information about themselves can be put on/shared online.** • **They recognise that information can stay on the internet/online for a very long time and that this could be seen and copied by other people.** • Pupils understand that information online will have been created by others and this could be copied or shared to a wider audience. **Online Bullying:** • **Pupils understand the term 'bullying' and recognise how it may happen.** **Managing online information:**	**Self- Image and Identity:** • Pupils can describe how positive behaviour online can lead positive perceptions. They acknowledge that people online aren't always who they say they are and that there reasons why someone might pretend to have a different identity. **Online Relationships:** • They understand how to be respectful of others online and begin to recognise the difference between healthy and unhealthy online behaviours. **Online Reputation:** • **They recognise that information can stay on the internet/online for a very long time and that this could be seen and copied by other people.** • **They** know how **to search for information about others and** understand **the need to be careful when sharing personal information online.** **Online Bullying:** • Pupils can give specific examples of how people could be bullied online through a range of media. • **They can recognise the emotions associated with bullying and know that the person being bullied is not to blame.** • Pupils gain greater accuracy in identifying when someone is upset, hurt or angry online. • They understand that they have a responsibility to think carefully about the content they post and how it may affect their own reputation and others feelings. **Managing online information:**	**Activated, actions**, accuracy, **appear,** artificial intelligence, **autocomplete,** author, **behaviour, belief, bullying, content, consent, communicate, copied, devices, digital,** digital age, **emotions (positive and negative), fact,** 'fake news', **feelings, guidance, healthy, identity, information, internet, impact,** monitored, **opinion,** owner, ownership, **password,** perceptions, **permission, personal, platform, pressure, private,** probable, **protect, real,** relevance, **represent,** reputation, respectful, **restrictions, risky, sharing, strategies, similar**, techniques, **transactions, true, trusted, unhealthy, unkind.**

		• Pupils learn how to analyse information to make informed judgements about the probable accuracy of the content they access. • **Pupils** understand **that you can buy and sell things on the internet and** can begin to recognise the techniques that might be used to encourage people to buy things. • Pupils begin to explore the concept of artificial intelligence and how this can be used within a digital setting. **Health, well-being and lifestyle:** • **Pupils understand how spending too much time on technology can negatively impact their health and well-being.** **Privacy and Security:** • Pupils have a secure understanding of **strategies** that **they can use** to keep personal information private. • They begin to understand that the internet is never fully private and that it is monitored. • Pupils begin to consider how online services can store information about them with their consent as part of the digital age of consent. **Copyright and Ownership:** • **Pupils recognise that content which is found online may belong to other people and they understand that they cannot copy it as their own**.	• Pupils understand how to safely search for information on a wide range of devices and platforms. • Pupils understand that opinions and beliefs are not true just because lots of people share or say that they are. • They understand the term 'fake news'. **Health, well-being and lifestyle:** • Pupils acknowledge that technology can be a distraction from other things and this may impact individuals in a positive or negative way. • Pupils identify situations where people may want to limit their use of technology/screen time. **Privacy and Security:** • They have a secure understanding of a trusted adult(s) within their lives. **Copyright and Ownership:** • They know why they need to consider the content ownership and whether they have the right to reuse it. • Pupils know the types of content they must not use without permission from the author/owner.	
Year Five	**Computer Science** (Year Five)	**The main programming focus for Year 5 is Selection.** • **Pupils have a secure understanding of sequencing and repetition** and can use this knowledge to write programs. • They understand that when a certain condition is met a loop can stop and that loops can also be used repeatedly to search for condition requirements.	• Pupils can complete unplugged activities with the support of an adult/peer to demonstrate their substantive knowledge of a concept. • They can create a program within Scratch which uses selection. • Pupils can transfer their knowledge from a digital software platform to create a selection program for a hardware device.	By the end of Year 5 the students should have a secure understanding of all the vocabulary used lower KS2… **Ada Lovelace, attributes, block diagrams, Charles Babbage, connections, combine, command, count-controlled, data (branching), data logger, data points, data sets, digital citizen, error, experiences, functions, identification, infinite, input, internet, logging intervals, linear, media, networks, output, organise, owners, pictograms, process, reasoning, repeat, repetition, server, sequence, simultaneously, Sir Timothy**

		• Pupils develop a knowledge of 'if…then…else…' statements and how these are used within selection when programming. • Pupils can design a physical project that uses selection. They offer verbal reasoning as to why they have selected specific code and can predict the outcome of their program. • They begin to develop an understanding of how a program flow can branch depending on a set condition(s). • Pupils consider how other users may make use of their program. • They develop an awareness of how a setup code can be used in a program. **Data and Information** • Pupils begin to explore flat-file databases to organise data into records. • They begin to explore the process required to create data records digitally and how to produce a set graphic to present their data. • Pupils begin to acknowledge 'real-world' examples of when flat-file databases may be used.	• Pupils understand the importance of testing and evaluating their programs. • Pupils can independently identify errors/'bugs' within their code and know how to use decomposition and debugging in order to make improvements. **Data and Information** • They can use tools within a database to order and answer questions about data. • Pupils can follow instructions to create graphs and charts from their data set. • They can use the graphs and charts to help them solve problems.	**Berners-Lee, snippet, template, website, wireless access point (WAP), World Wide Web (WWW), visual.** …and should learn the following terms: Branch, charts, condition, flat-file, graphic, graphs, micro:bit, program flow, requirements, selection, statements, users.
	Information Technology (Year Five)	• **Pupils understand the importance of the planning process when creating media content.**	• **Pupils understand that messages can be communicated via text and images.** • **They can select their choice of wording and images to satisfy a set criteria.**	**Accuracy, annotate, appropriate, audio, audience, close, combination,** comments, **communicate, computer, content, criteria, cursor,** blog, **buttons, device, document, edit, formatting, font, function, hardware, key, keyboard, location, image, information, internet, improvements, messages, mouse, navigate, offline, online, open, pace, preferences, print, purpose, purposeful, research, screen, search engines, save, shortcut, slide, software, specific, technology, text, titles, toolbar, touchpad, typing, wires, wireless.**
	At the beginning of each half-term a 'knowledge map' on Project Evolve will be completed to highlight any cohort specific requirements for this strand.			
	Digital Literacy (Year Five)	**Self- Image and Identity:** • **Pupils understand how and why people may change their identify online.** **Online Relationships:** • Pupils recognise that there is technology- specific- forms of communication.	**Self- Image and Identity:** • They begin to acknowledge how online identities can be copied, modified or altered. • Students can discuss the responsible choices they should make when creating an online identity (within a range of contexts). **Online Relationships:** • They have a secure understanding of how someone can get help online and can recognise the role they	Abusive, **activated, actions, accuracy,** address bar, advise, altered, **appear, artificial intelligence, autocomplete, author,** banter (joke), block, **behaviour, belief, bullying,** choices, **content,** contribute, **consent, communicate,** components, **copied, devices,** difficulties, **digital, digital age, emotions (positive and negative), fact, 'fake news', feelings, guidance,** harm, **healthy,** 'hidden agenda', hoax, **identity,** in-app, index, influence, **information, internet, impact,** judgements, limitations, modified, **monitored, opinion,** optimise, **owner, ownership, password,** payments, **perceptions, permission, personal, platform, pressure, private, probable,** professional, **protect,** purchases, rank, **real, relevance, represent, reputation,**

		• They begin to understand that not everyone is friendly online and that there may be people who want to cause harm to themselves and their friends. • Pupils recognise that people can work collaboratively as part of a group or community to positively contribute to society. They have a secure understanding of how someone can get help online and can recognise the role they can play in helping others who may have difficulties online. **Online Reputation:** • They understand that online information can be used to form judgements about an individual and that these formed judgements may be incorrect. **Online Bullying:** • Students understand that one person's perception of a joke/banter may be experienced by others as bullying. • They are aware of a wide range of support that they can use to report concerns both in school and at home. **Managing Online Information:** • Pupils have a good understanding of the benefits and limitations when using certain search technologies. • Pupils continue to build their knowledge of trustworthy sources for information and understand how to differentiate between various result types. • They continue to explore different forms of online content and how to identify when there may be a linked 'hidden agenda'. • Pupils begin to explore their understanding of the term 'stereotype'. **Health, well-being and lifestyle:**	can play in helping others who may have difficulties online. **Online Reputation:** • **Pupils know how to search for information about others and** understand how to summarise information found about an individual. **Online Bullying:** • Pupils recognise that there are difference between 'physical world' bullying and online bullying. • They have a secure understanding of **where people can get help if they are being bullied online** and know when they need to tell a trusted adult. • Pupils know how to block abusive users and understand simple safety features they can set up in order to protect themselves online. **Managing Online Information:** • They can provide a clear explanation about the phrase 'being sceptical' and begin to recognise when and why it is important to be 'sceptical'. • **They understand the term 'fake news'** and can describe how this may have an impact on someone's emotions and behaviours. • Pupils understand the term 'hoax' and recognise why it is important to think before sharing this type of content. **Health, well-being and lifestyle:**	**respectful, restrictions, risky,** sceptical, search engine, **sharing, strategies, similar,** society, stereotype, **techniques,** tips, **transactions, true, trusted,** trustworthy, **unhealthy, unkind,** web-crawlers.

		• **Pupils understand how spending too much time on technology can negatively impact their health and well-being.** • They begin to recognise that there are risks to accessing certain types of health and well-being information online and that there is still a need to speak to a trusted adult or professional. **Privacy and Security:** • **Pupils have a secure understanding of strategies that they can use to keep personal information private.** • Pupils understand that apps and services may read and share their private information with others. • They begin to understand the term 'app permissions' and scenarios in which this might be relevant. **Copyright and Ownership:** • **Pupils recognise that content which is found online may belong to other people and they understand that they cannot copy it as their own.** **Networks** • **Pupils** understand how **information is passed through several connections.** • **They understand that the WWW refers to the pages they see on a device or online and that The Internet is the network of connected computers that the WWW works on.** • Pupils begin to understand the concept of a system and that a task can be performed when components work together. • They begin to recognise how larger computer systems work and how these can be of help to us. • Pupils begin to explore the use of 'web crawlers' when creating an index. • They begin to acknowledge the importance of a search engine's index and how to relate a search term to it.	• Students acknowledge how technological applications can offer positive approaches to supporting health and well-being and understand that there are also negative impacts of using similar technologies. • Pupils can offer their own strategies, tips and advice to promote a health and well-being with regards to technology. • Pupils understand that in-app purchases or payments to access content should be approved by a trusted adult. **Privacy and Security:** • Students know how to create a strong and effective password. **Copyright and Ownership:** • They know how to assess and justify when it is acceptable to uses others work. • Pupils know how to identify content that is permitted to be reused by anyone other than the author/owner. **Networks** • **Pupils can identify connected devices around them and can explain how they are connected together.** • **They can identify how to keep a network safe.** • **Pupils can describe parts of a network and explain how they connect together to form the internet.** • **They recognise the services that the internet can provide and can identify these from their own experiences.** • Pupils begin to identify human (physical) and electronic elements of a computer system. • They are able to refine their searches via a search engine or address bar and learn to compare their results from each. • Pupils understand the importance of using 'key words' within a search in order to find more accurate results. • Pupils can begin to explain how search engines make money.	

		• Pupils begin to understand how a webpage's content can be ranked and therefore influence people and their choices. • They begin to explore how content creators can optimise their sites for when people are searching on the internet.		
Year Six	**Computer Science** (Year Six)	**The main programming focus for Year 6 is Variables.** • **Pupils continue to build upon their knowledge of sequencing, repetition, and selection** to explore the use of variables within a program. • Pupils can articulate their understanding of a variable and how they are used within code. • They understand that a variable has a name and a value and that the value can be changed to meet specific design requirements. • Pupils will have a developing understanding of conditional effects and will know that a variable can change due to an input, an event, or a specific response to a condition. • Pupils understand how to test a program on an emulator and understand how to transfer their program to a controllable device. • They can identify examples of conditions from everyday life/the real world. • Pupils demonstrate their understanding of how variables can be used to select and determine the flow of a program. **<u>Data and Information</u>** • **Pupils** understand what **flat-file databases** are and how they can be used to **organise data.** • Pupils will learn how to organise data into columns and rows. • Pupils begin to acknowledge the importance of formatting data to accompany the use of calculations. • They begin to explore the use of formulas and how they can be used to produce 'calculated data' sets.	• **Pupils can complete unplugged activities** within a group or independently **to demonstrate their substantive knowledge of a concept.** • Pupils can make modifications to variables to make improvements. • Pupils can create programs for a controllable device (micro:bit). • Pupils are able to use more complex code within their programs such as using an 'operand (e.g. <>=) in their conditional statements. • They are able to create their own animations, games, music, stories etc. by working independently or collaboratively with their peers. • Evaluations are made against their initial designs which demonstrate a detailed and comprehensive understanding of the process they have completed. **<u>Data and Information</u>** • They can create their own data set using the functions with Microsoft Excel. • Pupils can follow instructions to create graphs and charts from their data set. • They can confidently identify **'real-world' examples of when flat-file databases** and spreadsheets **may be used.** • **They can use the graphs and charts to help them solve problems.** • Pupils can use a spreadsheet to plan an event and answer questions. • They can evaluate simple elements of their data (via selected visuals) in comparison to set questions.	Pupils in Year Six will have a secure knowledge of all of the vocabulary covered to date and will begin to use the following terms with confidence: **Branch,** calculations**, charts,** columns, **condition,** conditional statements, emulator, **flat-file,** formulas, **graphic, graphs, micro:bit,** operand, **program flow,** rows, **requirements, selection,** spreadsheet, **statements, users,** value**,** variables.

	Information Technology (Year Six)	• Pupils will be able to identify how their knowledge from other software/ programs can be used to create a webpage. • They recognise that most programs/software have similar 'main functions' such as opening and closing, saving, formatting etc. • They begin to evaluate what a good web page looks like and can identify the information which is most appropriate to share on this platform.	• Pupils can design a web page for a given audience and know how to critically evaluate their plans. • They can take their paper design and convert this into a digital format. • Pupils confidently peer assess their web pages by using subject specific vocabulary.	**Accuracy, annotate, appropriate, audio, audience, close, combination, comments, communicate, computer, content, criteria, cursor, blog, buttons, device, document, edit, formatting, font, function, hardware, key, keyboard, location, image, information, internet, improvements, messages, mouse, navigate, offline, online, open, pace, preferences, print, purpose, purposeful, research, screen, search engines, save, shortcut, slide, software, specific, technology, text, titles, toolbar, touchpad, typing,** webpage, **wires, wireless.**
	At the beginning of each half-term a 'knowledge map' on Project Evolve will be completed to highlight any cohort specific requirements for this strand.			
	Digital Literacy (Year Six)	**Self- Image and Identity:** • Pupils understand **how online identities can be copied, modified or altered. Students can discuss the responsible choices they should make when creating an online identity (within a range of contexts).** **Online Relationships:** • Pupils understand the potential positive and negative impacts of sharing something online. **Online Reputation:** • They understand the strategies they can use to protect their own 'digital personality' and online reputation.	**Self- Image and Identity:** • Pupils can critically evaluate online content relating to gender, race, religion, disability, culture and other groups. • They can discuss why it is important to challenge and reject inappropriate representations online. • Pupils have a secure knowledge of who can support them if they experience negative emotions or have any concerns relating to this strand. • They understand that they should keeping asking for support until they feel their needs are met. **Online Relationships:** • They can articulate how to be kind and show respect for others online. • Pupils also understand the importance of respecting boundaries and who to speak to if someone crosses a personal boundary. • They acknowledge that privately shared content can have unintended consequences for themselves and others. • They understand that taking or sharing inappropriate images of some may have an impact for the sharer and those who receive it. **Online Reputation:** • Pupils can articulate the ways in which someone can develop a positive online reputation.	**Abusive, activated, actions, accuracy, address bar, advise, altered, appear, artificial intelligence, autocomplete, author, banter (joke), block, behaviour, belief, bullying, choices, content, contribute, consent, communicate, components, copied,** data packets, **devices, difficulties, digital, digital age,** DNS, **emotions (positive and negative), fact, 'fake news', feelings, guidance, harm, healthy, 'hidden agenda', hoax, identity, in-app, index, influence, information, internet, impact,** IP address **, judgements, limitations, modified, monitored, opinion, optimise, owner, ownership,** parameters, **password, payments, perceptions, permission, personal, platform, pressure, private, probable, professional, protect,** protocols, **purchases, rank, real,** refine, **relevance, represent, reputation, respectful, restrictions, risky, sceptical, search engine, sharing, strategies, similar, society, stereotype, techniques, tips, transactions,**transfer, **true, trusted, trustworthy, unhealthy, unkind, web-crawlers.**

		Online Bullying: • **Pupils recognise that there are difference between 'physical world' bullying and online bullying.** **Managing Online Information:** • **Pupils have a good understanding of the benefits and limitations when using certain search technologies,** and can therefore use search technologies effectively. • Pupils have a secure knowledge of how search engines work and acknowledge that some information can be opinion based rather than factual. • Pupils recognise that some organisations may target an audience with information and they begin to understand the difference between online misinformation and dis-information. **Health, well-being and lifestyle:** • Pupils begin to recognise features of persuasive design and how they are used to keep users engaged. **Privacy and Security:** • **Pupils have a secure understanding of strategies that they can use to keep personal information private.**	**Online Bullying:** • They know how to capture bullying content to use as evidence and **have a secure understanding of where people can get help if they are being bullied online.** • Pupils are able to apply their knowledge of online bullying to explain how they could report it within different contexts. **Managing Online Information:** • They begin to explore how and why some people may present 'opinions' as 'facts' and how the popularity of content can have an impact on its trustworthiness. • They understand the terms 'influence', 'manipulation' and 'persuasion'. • Pupils understand how to analyse and evaluate the validity of 'facts' and information. • They recognise the importance of the strategies they have been taught through school and can apply these appropriately. • **Pupils understand that opinions and beliefs are not true just because lots of people share or say that they are.** • They feel confident in identifying, flagging and reporting inappropriate content. **Health, well-being and lifestyle:** • Pupils know common systems that can regulate age-related content and understand their purpose. • They recognise pressures around using technology and how these can be managed. • They understand that it is their own responsibility to make choices that positively impact their health with regards to technology. **Privacy and Security:** • **They know how to create a strong and effective password** and know how to store them appropriately. • Pupils understand what to do if their personal information is shared, lost or stolen. **Copyright and Ownership:**	

		• They begin to understand the importance of keeping software and apps up to date. • Pupils understand that there are settings they can use to increase privacy on apps and services. • They begin to have an understanding of how some online content targets people for private information and that online services have terms and conditions. **<u>Networks</u>** • **Pupils** understand **the concept of a system and that a task can be performed when components work together.** • They begin to explore the protocols (rules) that computers have for communicating with one another. • Pupils begin to recognise that data is transferred in agreed parameters/methods. • They can explain why internet devices have addresses and how these are generated. • They begin to explore data packets and how these are used to transfer data across a network. • Pupils recognise that you can share work/content privately or publicly depending on the permissions that have been set.	• **Pupils know how to identify content that is permitted to be reused by anyone other than the author/owner.** • They can demonstrate how to use this knowledge to access such content. • Pupils also understand the importance of referencing and acknowledging sources in their work. **<u>Networks</u>** • Pupils can **refine their searches via a search engine or address bar and** know how **to compare their results from each.** • **Pupils understand the importance of using 'key words' within a search in order to find more accurate results.** • They are able to use a Domain Name Server (DNS) to translate web addresses into IP addresses. • Pupils recognise how sharing files and other information on the internet can be beneficial when working collaboratively. They can provide explanations for when this method of working may be most suitable. • They are also able to distinguish between different methods of communication and their most appropriate purpose. • Pupils hypothesise how technology may develop in the future. • They can identify areas of our society where technology will be vital in supporting humans on a daily basis.	