



# Computing

We aim to equip our pupils to grow to become capable, creative, critical and safe users of technology.

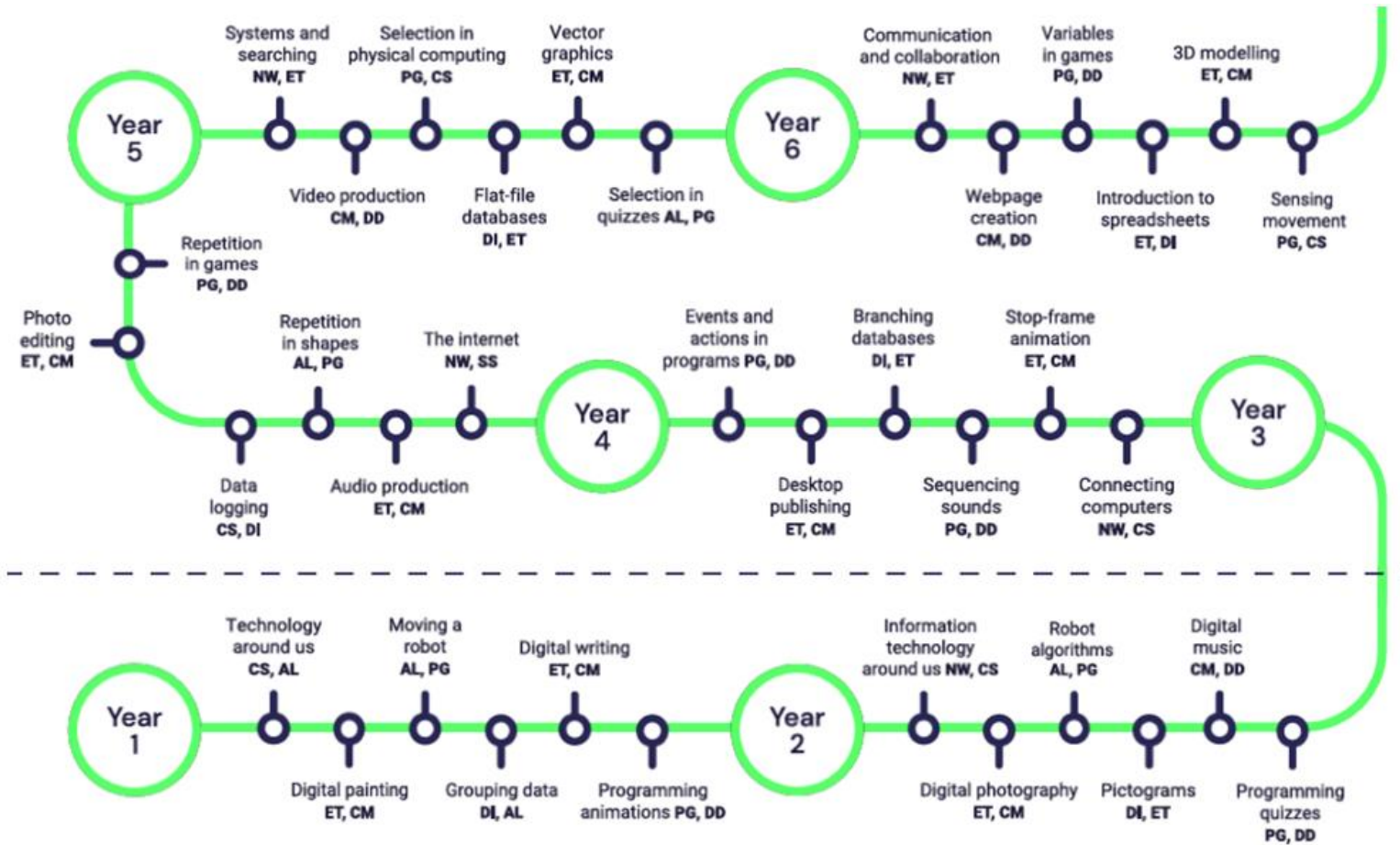
Our curriculum is designed to help them to:

- Develop their understanding of the principles and concepts of computer science and to build upon their knowledge using concrete experiences and applying them to real situations.
- Design, write and evaluate computer programmes methodically developing their skills and analytical thinking to solve problems.
- Develop and use their technological skills and knowledge to present their learning effectively and creatively, evaluating and communicating their findings and using these to inform future learning decisions.
- Become discerning, critical thinkers who are able to apply their understanding to solve problems.
- Know and demonstrate how to stay safe when working online at school, home and in the community and to be able to discuss any concerns they may have confidently and openly

We use the National Centre for Computing Education's 'Teach Computing' resources to support our curriculum and assessment of computing.



### Whole School Overview



<b>AL</b> Algorithms	<b>ET</b> Effective use of tools
<b>CS</b> Computing systems	<b>IT</b> Impact of technology
<b>CM</b> Creating media	<b>NW</b> Networks
<b>DI</b> Data & information	<b>PG</b> Programming
<b>DD</b> Design & development	

**Reception**  
 The Reception computing curriculum provides the foundations required for children to progress onto the KS1 curriculum.  
 This includes:

- Computing systems and network
- Creating media
- Programming
- Data and information



Reception		
Autumn	Spring	Summer
<p><b><u>Computing systems and networks – Technology around us</u></b></p> <p>Introduction to simple computing equipment, including keyboards: iPads, laptops, desktops</p> <p>Begin to interact with age-appropriate computer software: Purple Mash, Word, Seesaw, photo/camera apps</p> <p>To recognise that a range of technology is used in places such as homes and schools.</p> <p>To know that information can be retrieved from computers/digital devices.</p> <p><b><u>Creating media</u></b></p> <p>To create a simple piece of digital content.</p>	<p><b><u>Programming</u></b></p> <p>To make a programmable toy or floor robot work by pressing buttons to create sounds and movements.</p> <p><b><u>Computing systems and networks – Technology around us</u></b></p> <p>To begin to talk about the internet and how to use it as a way of finding information online.</p> <p>To interact with simple computing equipment, including keyboards: iPads, laptops, desktops</p> <p>To interact with age-appropriate computer software: Purple Mash, Word, Seesaw, photo/camera apps</p>	<p><b><u>Data and information</u></b></p> <p>To know that information can be retrieved from computers/digital devices.</p> <p><b><u>Creating media</u></b></p> <p>To create a simple piece of digital content.</p> <p>To select and use technology for a purpose.</p> <p><b><u>Programming</u></b></p> <p>To complete a simple program on a computer.</p>
<b>Online Safety - Taught all year as a thread running through all topics</b>		
<p><b><u>Core Objective for Reception:</u></b></p> <p>To begin to use technology safely.</p>	<p><b><u>Understanding and skills:</u></b></p> <p>I understand and follow the schools safer internet agreement.</p> <p>I know to tell a trusted adult if anything on the internet upsets me.</p> <p>I understand to keep passwords private and not to share personal information online.</p>	<p><b><u>Key online safety Vocabulary:</u></b></p> <p>Internet</p> <p>Safe</p> <p>Online</p> <p>Trust</p>



### Our youngest computer users should be able to

- Access a range of programs independently on different devices (desktops, laptops, iPads, Clevertouch)
- Create a simple program by pressing buttons to create sounds, movement, etc.
- Use a program to produce words and/or images

#### A safer computer user in Reception

- Knows that passwords are private and must not be shared
- Is confident to tell an adult if they see anything online that they find upsetting
- Understands there are rules that they must follow when using technology

### In Computing, our youngest greater depth pupils will

- **Online Safety:** independently apply knowledge of online safety, appropriate communication and data privacy. Act as a role model to peers by demonstrating this in a wider context ie; at home and in school.
- **Computer Science:** solve problems in different contexts by using their secure understanding of programming logic
- **Information technology:** to independently apply their range of knowledge of input and output devices to select the correct form of technology to solve a given task
- **Digital literacy:** Choose which of the taught software and devices to use for projects and for real world contexts. Demonstrate creativity and problem solving in different contexts.



Year 1					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p><b>Computing systems and networks – Technology around us</b></p> <ul style="list-style-type: none"> <li>-To identify technology</li> <li>-To identify a computer and its main parts</li> <li>-To use a mouse in different ways</li> <li>-To use a keyboard to type on a computer</li> <li>-To use the keyboard to edit text</li> <li>-To create rules for using technology responsibly</li> </ul>	<p><b>Creating media – Digital painting</b></p> <ul style="list-style-type: none"> <li>-To describe what different freehand tools do</li> <li>-To use the shape tool and the line tools</li> <li>-To make careful choices when painting a digital picture</li> <li>-To explain why I chose the tools I used</li> <li>-To use a computer on my own to paint a picture</li> <li>-To compare painting a picture on a computer and on paper</li> </ul>	<p><b>Programming A – Moving a robot</b></p> <ul style="list-style-type: none"> <li>-To explain what a given command will do</li> <li>-To act out a given word</li> <li>-To combine forwards and backwards commands to make a sequence</li> <li>-To combine four direction commands to make sequences</li> <li>-To plan a simple program</li> <li>-To find more than one solution to a problem</li> </ul>	<p><b>Data and information – Grouping data</b></p> <ul style="list-style-type: none"> <li>-To label objects</li> <li>-To identify that objects can be counted</li> <li>-To describe objects in different ways</li> <li>-To count objects with the same properties</li> <li>-To compare groups of objects</li> <li>-To answer questions about groups of objects</li> </ul>	<p><b>Creating media – Digital writing</b></p> <ul style="list-style-type: none"> <li>-To use a computer to write</li> <li>-To add and remove text on a computer</li> <li>-To identify that the look of text can be changed on a computer</li> <li>-To make careful choices when changing text</li> <li>-To explain why I used the tools that I chose</li> <li>-To compare typing on a computer to writing on paper</li> </ul>	<p><b>Programming B - Programming animations</b></p> <ul style="list-style-type: none"> <li>-To choose a command for a given purpose</li> <li>-To show that a series of commands can be joined together</li> <li>-To identify the effect of changing a value</li> <li>-To explain that each sprite has its own instructions</li> <li>-To design the parts of a project</li> <li>-To use my algorithm to create a program</li> </ul>
<b>Online Safety - Taught all year as a thread running through all topics</b>					
<p><b>Core Objectives:</b></p> <ul style="list-style-type: none"> <li>To use technology safely.</li> <li>To keep personal information private.</li> </ul>	<p><b>Year 1 understanding and skills:</b></p> <ul style="list-style-type: none"> <li>I follow the schools safer internet agreement.</li> <li>I understand the different methods of online communication eg email.</li> <li>I understand that you only open an email from a known source.</li> <li>I understand that websites can contain pop ups.</li> <li>I understand that I can't always copy a picture or text from the internet.</li> <li>I know to tell a trusted adult if anything on the internet upsets me or if anyone tries to meet me via the internet.</li> <li>I use the search engines agreed by the school.</li> <li>I send and receive email as a class.</li> <li>I can use a password to access the school pupils network</li> <li>I understand to keep passwords private and not to share personal information online.</li> </ul>				<p><b>Key Online Safety Vocabulary:</b></p> <ul style="list-style-type: none"> <li>Personal information</li> <li>Private</li> <li>Online</li> <li>Password</li> <li>Trusted Adult</li> </ul>



### Our Year 1 computer users should be able to

#### Computer science:

- Create a series of instructions
- Plan a journey for a programmable toy
- Use Scratch to develop algorithms and programmes

#### Information Technology:

- Identify common technology around them
- Log on to/off as a pupil on the school network
- Use a website
- Send and receive a class email
- Group and analyse information and data

#### Digital Literacy:

- Create, store and retrieve a digital image
- Create, store and retrieve digital writing

#### A safe computer user in Year 1 :

##### Knowledge and Understanding:

- Know that websites sometimes include pop-ups that take them away from the main site
- Begin to evaluate websites and know that everything on the internet is not true
- Know that it is not always possible to copy some text and pictures from the internet
- Know that personal information should not be shared online

##### Skills:

- Follow the school's safer internet rules
- Use search engines agreed by the school
- Recognise advertising on website and learn to ignore it
- Use a password to access a secure network

### In Computing, our Year 1 greater depth pupils will

- **Online Safety:** independently apply knowledge of online safety, appropriate communication and data privacy. Act as a role model to peers by demonstrating this in a wider context ie; at home and in school.
- **Computer Science:** solve problems in different contexts by using their secure understanding of programming logic
- **Information technology:** to independently apply their range of knowledge of input and output devices to select the correct form of technology to solve a given task
- **Digital literacy:** Choose which of the taught software and devices to use for projects and for real world contexts. Demonstrate creativity and problem solving in different contexts.



Year 2					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p><b>Computing systems and networks – IT around us</b></p> <ul style="list-style-type: none"> <li>-To recognise the uses and features of information technology</li> <li>-To identify the uses of information technology in the school</li> <li>-To identify information technology beyond school</li> <li>-To explain how information technology helps us</li> <li>-To explain how to use information technology safely</li> <li>-To recognise that choices are made when using information technology</li> </ul>	<p><b>Creating media – Digital photography</b></p> <ul style="list-style-type: none"> <li>-To use a digital device to take a photograph</li> <li>-To make choices when taking a photograph</li> <li>-To describe what makes a good photograph</li> <li>-To decide how photographs can be improved</li> <li>-To use tools to change an image</li> <li>-To recognise that photos can be changed</li> </ul>	<p><b>Programming A – Robot algorithms</b></p> <ul style="list-style-type: none"> <li>-To describe a series of instructions as a sequence</li> <li>-To explain what happens when we change the order of instructions</li> <li>-To use logical reasoning to predict the outcome of a program</li> <li>-To explain that programming projects can have code and artwork</li> <li>-To design an algorithm</li> <li>-To create and debug a program that I have written</li> </ul>	<p><b>Data and information – Pictograms</b></p> <ul style="list-style-type: none"> <li>-To recognise that we can count and compare objects using tally charts</li> <li>-To recognise that objects can be represented as pictures</li> <li>-To create a pictogram</li> <li>-To select objects by attribute and make comparisons</li> <li>-To recognise that people can be described by attributes</li> <li>-To explain that we can present information using a computer</li> </ul>	<p><b>Creating media - Digital music</b></p> <ul style="list-style-type: none"> <li>-To say how music can make us feel</li> <li>-To identify that there are patterns in music</li> <li>-To experiment with sound using a computer</li> <li>-To use a computer to create a musical pattern</li> <li>-To create music for a purpose</li> <li>-To review and refine our computer work</li> </ul>	<p><b>Programming B - Programming quizzes</b></p> <ul style="list-style-type: none"> <li>-To explain that a sequence of commands has a start</li> <li>-To explain that a sequence of commands has an outcome</li> <li>-To create a program using a given design</li> <li>-To change a given design</li> <li>-To create a program using my own design</li> <li>-To decide how my project can be improved</li> </ul>
<b>Online Safety - Taught all year as a thread running through all topics</b>					
<p><b>Core Objectives:</b> To know where to go for help if concerned both in and out of school.</p>	<p><b>Year 2 understanding and skills:</b></p> <ul style="list-style-type: none"> <li>I follow the schools safer internet agreement.</li> <li>I know what to do if I find something inappropriate online (eg who to go to for help, minimising screen, reporting in school, who to go to at home)</li> <li>I use the internet in school for learning and communicating with others and I can make choices when looking at websites.</li> <li>I can recognise and ignore advertising online.</li> <li>I can recognise the difference between email and communication systems (eg wikis).</li> <li>I understand that bookmarking can help me find websites quickly.</li> <li>I understand that not everything on the internet is true and I am beginning to evaluate websites.</li> <li>I understand the need to sometimes use an avatar online.</li> <li>I understand that my screen time should be balanced to keep me safe and healthy.</li> </ul>				<p><b>Key Online Safety Vocabulary:</b></p> <ul style="list-style-type: none"> <li>Concern</li> <li>Respectful</li> <li>Acceptable</li> <li>Report</li> <li>Inappropriate</li> </ul>



## Our Year 2 computer users should be able to

### Computer Science:

- Create a series of precise instructions
- Plan a journey for a programmable toy
- Write a simple program, test it and debug it

### Information technology:

- Identify common uses of technology in and out of school
- Use an appropriate search engine to research a topic
- Use technology safely
- Research on a given topic and use IT to present data

### Digital Literacy:

- Take and manipulate digital images
- Create digital music

### A safe computer user in Year 2:

#### Knowledge and Understanding:

- Understands the different methods of communication (eg email, online forums, etc)
- Knows you should only open email from a known source
- Knows the difference between email and communication systems eg blogs or wikis
- Begin to evaluate websites and know that everything on the internet is not true
- Know that it is not always possible to copy some text and pictures from the internet
- Know that personal information should not be shared online
- Knows that screen time should be balanced

#### Skills:

- Follow the school's safer internet rules
- Know what to do if they find something inappropriate online or something they are unsure of (including identifying people who can help; minimising screen; online reporting etc) both in and out of school
- Use the internet for learning and communicating with others, making choices when navigating through sites
- Send and receive email as a class

## In Computing, our Year 2 greater depth pupils will

- **Online Safety:** independently apply knowledge of online safety, appropriate communication and data privacy. Act as a role model to peers by demonstrating this in a wider context ie; at home and in school.
- **Computer Science:** solve problems in different contexts by using their secure understanding of programming logic
- **Information technology:** to independently apply their range of knowledge of input and output devices to select the correct form of technology to solve a given task
- **Digital literacy:** Choose which of the taught software and devices to use for projects and for real world contexts. Demonstrate creativity and problem solving in different contexts.





Year 3					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p><b>Computing systems and networks – Connecting computers</b></p> <ul style="list-style-type: none"> <li>-To explain how digital devices function</li> <li>-To identify input and output devices</li> <li>-To recognise how digital devices can change the way we work</li> <li>-To explain how a computer network can be used to share information</li> <li>-To explore how digital devices can be connected</li> <li>-To recognise the physical components of a network</li> </ul>	<p><b>Creating media - Stop-frame animation</b></p> <ul style="list-style-type: none"> <li>-To explain that animation is a sequence of drawings or photographs</li> <li>-To relate animated movement with a sequence of images</li> <li>-To plan an animation</li> <li>-To identify the need to work consistently and carefully</li> <li>-To review and improve an animation</li> <li>-To evaluate the impact of adding other media to an animation</li> </ul>	<p><b>Programming A - Sequencing sounds</b></p> <ul style="list-style-type: none"> <li>-To explore a new programming environment</li> <li>-To identify that commands have an outcome</li> <li>-To explain that a program has a start</li> <li>-To recognise that a sequence of commands can have an order</li> <li>-To change the appearance of my project</li> <li>-To create a project from a task description</li> </ul>	<p><b>Data and information – Branching databases</b></p> <ul style="list-style-type: none"> <li>-To create questions with yes/no answers</li> <li>-To identify the attributes needed to collect data about an object</li> <li>-To create a branching database</li> <li>-To explain why it is helpful for a database to be well structured</li> <li>-To plan the structure of a branching database</li> <li>-To independently create an identification tool</li> </ul>	<p><b>Creating media – Desktop publishing</b></p> <ul style="list-style-type: none"> <li>-To recognise how text and images convey information</li> <li>-To recognise that text and layout can be edited</li> <li>-To choose appropriate page settings</li> <li>-To add content to a desktop publishing publication</li> <li>-To consider how different layouts can suit different purposes</li> <li>-To consider the benefits of desktop publishing</li> </ul>	<p><b>Programming B - Events and actions in programs</b></p> <ul style="list-style-type: none"> <li>-To explain how a sprite moves in an existing project</li> <li>-To create a program to move a sprite in four directions</li> <li>-To adapt a program to a new context</li> <li>-To develop my program by adding features</li> <li>-To identify and fix bugs in a program</li> <li>-To design and create a maze-based challenge</li> </ul>
<b>Online Safety - Taught all year as a thread running through all topics</b>					
<p><b>Core Objectives:</b></p> <p>To use technology safely, respectfully and responsibly</p> <p>To know the different ways that they can get help if concerned about anything that they experience online.</p>	<p><b>Year 3 understanding and skills:</b></p> <p>I follow the schools safer internet agreement and I understand the need for these rules.</p> <p>I understand the need to keep personal information and passwords private.</p> <p>I know how to respond if asked for personal information or if I feel unsafe.</p> <p>I can use different search engines.</p> <p>I recognise that cyberbullying is unacceptable and I know how to report an incident.</p> <p>I can explain how to use email safely.</p> <p>I understand what copyright is.</p>				<p><b>Key Online Safety Vocabulary:</b></p> <p>Trust</p> <p>Incident</p> <p>Respond</p> <p>Cyberbullying</p> <p>Agreement</p> <p>Copyright</p>



### Our Year 3 computer users should be able to

#### Computer Science:

- Design a sequence of instructions including direction
- Write programs that accomplish specific goals
- Explore events, actions and sequences

#### Information Technology:

- Know what are common devices on a network
- Explain what a network is and how they are useful
- Design and investigate branching databases

#### Digital Literacy:

- Create and analyse media in digital format
- Create and analyse media in desktop publishing format

#### A safe computer user in Year 3

##### Knowledge and Understanding

- Understand the need for rules to keep them safe when exchanging learning and ideas online
- Understand that the internet contains fact, fiction and opinion and begins to distinguish between them
- Understand the need for caution when using an internet search for images and what to do if they find an unsuitable image
- Understand that copyright exists on most digital images, video and recorded music
- Understand the need to keep personal information and passwords private
- Know how to report an incident of cyber bullying
- Know the difference between online communication tools used in school and those used at Home
- Understand the need to develop an alias for some public online use

##### Skills

- Follow the school's safer internet rules
- Explain and demonstrates how to use email safely
- Use different search engines

### In Computing, our Year 3 greater depth pupils will

- **Online Safety:** independently apply knowledge of online safety, appropriate communication, cybersecurity, data privacy, and ethical use of digital resources. Act as a role model to peers by demonstrating this in a wider context ie; at home and in school.
- **Computer Science:** have a secure understanding of programming logic, algorithms and problem-solving, demonstrating application of the skills learnt to real-life and different contexts.
- **Information technology:** to be able to explain and demonstrate through their independent tasks the differences between public, private and collaborative services and the benefits and limitations of each
- **Digital literacy:** Make independent choices about appropriate software and devices to use for project based learning and in real world contexts. Demonstrate creativity and problem



solving in different contexts.

**Year 4**

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p><b>Computing systems and networks – The Internet</b></p> <ul style="list-style-type: none"> <li>-To describe how networks physically connect to other networks</li> <li>-To recognise how networked devices make up the internet</li> <li>-To outline how websites can be shared via the World Wide Web (WWW)</li> <li>-To describe how content can be added and accessed on the World Wide Web (WWW)</li> <li>-To recognise how the content of the WWW is created by people</li> <li>-To evaluate the consequences of unreliable content</li> </ul>	<p><b>Creating media - Audio production</b></p> <ul style="list-style-type: none"> <li>-To identify that sound can be recorded</li> <li>-To explain that audio recordings can be edited</li> <li>-To recognise the different parts of creating a podcast project</li> <li>-To apply audio editing skills independently</li> <li>-To combine audio to enhance my podcast project</li> <li>-To evaluate the effective use of audio</li> </ul>	<p><b>Programming A – Repetition in shapes</b></p> <ul style="list-style-type: none"> <li>-To identify that accuracy in programming is important</li> <li>-To create a program in a text-based language</li> <li>-To explain what ‘repeat’ means</li> <li>-To modify a count-controlled loop to produce a given outcome</li> <li>-To decompose a task into small steps</li> <li>-To create a program that uses count-controlled loops to produce a given outcome</li> </ul>	<p><b>Data and information – Data logging</b></p> <ul style="list-style-type: none"> <li>-To explain that data gathered over time can be used to answer questions</li> <li>-To use a digital device to collect data automatically</li> <li>-To explain that a data logger collects ‘data points’ from sensors over time</li> <li>-To recognise how a computer can help us analyse data</li> <li>-To identify the data needed to answer questions</li> <li>-To use data from sensors to answer questions</li> </ul>	<p><b>Creating media – Photo editing</b></p> <ul style="list-style-type: none"> <li>-To explain that the composition of digital images can be changed</li> <li>-To explain that colours can be changed in digital images</li> <li>-To explain how cloning can be used in photo editing</li> <li>-To explain that images can be combined</li> <li>-To combine images for a purpose</li> <li>-To evaluate how changes can improve an image</li> </ul>	<p><b>Programming B – Repetition in games</b></p> <ul style="list-style-type: none"> <li>-To develop the use of count-controlled loops in a different programming environment</li> <li>-To explain that in programming there are infinite loops and count controlled loops</li> <li>-To develop a design that includes two or more loops which run at the same time</li> <li>-To modify an infinite loop in a given program</li> <li>-To design a project that includes repetition</li> <li>-To create a project that includes repetition</li> </ul>

**Online Safety - Taught all year as a thread running through all topics**

<p><b>Core Objectives:</b></p> <p>To recognise and describe different acceptable and unacceptable behaviour when using technology</p>	<p><b>Year 4 understanding and skills:</b></p> <p>I follow the schools safer internet agreement and I understand the need for these rules.            I understand that not all information on the internet may be reliable or accurate.            I can use different search engines.            I know to use caution when searching for images on the internet and what to do if I find anything unsuitable.            I understand that if I do make personal information available online then it can be seen by others.            I know the different online communication forms that may be used at home and that outcomes to internet searches may be different at home.            I understand the difference between copying the work of others and re- structuring information.            I know when not to open an email or when an attachment could be unsafe.</p>	<p><b>Key Online safety Vocabulary:</b></p> <p>Reliable            Unreliable            Accurate            Caution            Restructuring</p>
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### Our Year 4 computer users should be able to

**Computer Science:**

- Check code for errors and edit for their own outcome
- Comment on code in everyday life
- Use loops and edits to create own code based games

**Information Technology:**

- Use data logging equipment to collect data
- Analyse data that they have collected
- Be knowledgeable in what the Internet and WWW is
- Discuss the need for age appropriate use of social media apps

**Digital Literacy:**

- Create own audio files
- Take, edit and combine digital images

**A safe computer user in Year 4**

**Knowledge and Understanding:**

- Recognise that information on the internet may not be accurate or reliable and may be used for bias, manipulation or persuasion
- Know how to respond if asked for personal information or feels unsafe about content of a message
- Recognise that cyber bullying is unacceptable and will be sanctioned in line with the school's policy
- Understand that the outcome of internet searches at home may be different than at school
- Understand that if they make personal information available online it may be seen and used by others

**Skills:**

- 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
- Identify when emails should not be opened and when an attachment may not be safe

### In Computing, our Year 4 greater depth pupils will

- **Online Safety:** independently apply knowledge of online safety, appropriate communication, cybersecurity, data privacy, and ethical use of digital resources. Act as a role model to peers by demonstrating this in a wider context ie; at home and in school.
- **Computer Science:** have a secure understanding of programming logic, algorithms and problem-solving, demonstrating application of the skills learnt to real-life and different contexts.
- **Information technology:** to be able to explain and demonstrate through their independent tasks the differences between public, private and collaborative services and the benefits and limitations of each
- **Digital literacy:** Make independent choices about appropriate software and devices to use for project based learning and in real world contexts. Demonstrate creativity and problem solving in different contexts.



Year 5					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p><b>Computing systems and networks - Systems and searching</b></p> <ul style="list-style-type: none"> <li>-To explain that computers can be connected together to form systems</li> <li>-To recognise the role of computer systems in our lives</li> <li>-To experiment with search engines</li> <li>-To describe how search engines select results</li> <li>-To explain how search results are ranked</li> <li>-To recognise why the order of results is important, and to whom</li> </ul>	<p><b>Creating media - Video production</b></p> <ul style="list-style-type: none"> <li>-To explain what makes a video effective</li> <li>-To identify digital devices that can record video</li> <li>-To capture video using a range of techniques</li> <li>-To create a storyboard</li> <li>-To identify that video can be improved through reshooting and editing</li> <li>-To consider the impact of the choices made when making and sharing a video</li> </ul>	<p><b>Programming A – Selection in physical computing</b></p> <ul style="list-style-type: none"> <li>-To control a simple circuit connected to a computer</li> <li>-To write a program that includes count-controlled loops</li> <li>-To explain that a loop can stop when a condition is met</li> <li>-To explain that a loop can be used to repeatedly check whether a condition has been met</li> <li>-To design a physical project that includes selection</li> <li>-To create a program that controls a physical computing project</li> </ul>	<p><b>Data and information – Flat-file databases</b></p> <ul style="list-style-type: none"> <li>-To use a form to record information</li> <li>-To compare paper and computer-based databases</li> <li>-To outline how you can answer questions by grouping and then sorting data</li> <li>-To explain that tools can be used to select specific data</li> <li>-To explain that computer programs can be used to compare data visually</li> <li>-To use a real-world database to answer questions</li> </ul>	<p><b>Creating media – Introduction to vector graphics</b></p> <ul style="list-style-type: none"> <li>-To identify that drawing tools can be used to produce different outcomes</li> <li>-To create a vector drawing by combining shapes</li> <li>-To use tools to achieve a desired effect</li> <li>-To recognise that vector drawings consist of layers</li> <li>-To group objects to make them easier to work with</li> <li>-To apply what I have learned about vector drawings</li> </ul>	<p><b>Programming B – Selection in quizzes</b></p> <ul style="list-style-type: none"> <li>-To explain how selection is used in computer programs</li> <li>-To relate that a conditional statement connects a condition to an outcome</li> <li>-To explain how selection directs the flow of a program</li> <li>-To design a program which uses selection</li> <li>-To create a program which uses selection</li> <li>-To evaluate my program</li> </ul>
<b>Online Safety - Taught all year as a thread running through all topics</b>					
<p><b>Core Objectives:</b></p> <p>To understand the need to make choices when using technology and to understand that not everything is safe.</p>	<p><b>Year 5 understanding and skills:</b></p> <p>I follow the schools safer internet agreement, understand the need for these rules and make safe choices.</p> <p>I know what to do if I discover/ receive something inappropriate/ malicious.</p> <p>I understand what a digital footprint is and know that anything that I put online can be difficult to remove.</p> <p>I can make and manage strong passwords.</p> <p>I understand the risks involved with putting personal information online.</p> <p>I know not to meet someone that I have only met online.</p> <p>I understand that some websites/ pop ups can be for commercial gain.</p> <p>I understand that some online material is copyrighted and I reference sources.</p> <p>I confidently and competently use the internet as a search tool.</p>				<p><b>Key Online Safety Vocabulary:</b></p> <p>Malicious</p> <p>Remove</p> <p>Secure</p> <p>Online material</p> <p>Reference</p>



### Our Year 5 computer users should be able to

#### Computer science:

- Understand flow of actions in algorithms
- Use technology to control an external device
- Design algorithms that use repetition & infinite loops
- Use 'set up' protocols

#### Information Technology

- Analyse & evaluate information
- Explore networks in more detail including efficiency

#### Digital Literacy

- Understand that you have to make choices when using technology and that not everything will work or is appropriate
- Plan, create and evaluate digital art work
- Edit a film and add audio to enhance work

#### A safe computer user in Year 5

##### Knowledge and Understanding

- Discuss the positive and negative impact of the use of ICT in own life, with friends and family
- Understand the potential risk of providing personal information online
- Recognise why people may publish content that is not accurate
- Understand that some of the material on the internet is copyrighted and may not be copied or downloaded
- Understand that some messages may be malicious and know how to deal with this
- Understand that online environments have security settings, which can be altered, to protect the user
- Know how to report any suspicions in school, at home and in the wider community.

##### Skills

- Make safe choices about the use of technology
- Create strong passwords and manage them so that they remain strong
- Competently use the internet as a search tool
- Reference information sources

### In Computing, our Year 5 greater depth pupils will

- Online Safety:** independently apply knowledge of online safety, appropriate communication, cybersecurity, data privacy, and ethical use of digital resources. Act as a role model to peers by demonstrating this in a wider context ie; at home and in school.
- Computer Science:** have a secure understanding of programming logic, algorithms and problem-solving, demonstrating application of the skills learnt to real-life and different contexts.
- Information technology:** to be able to explain and demonstrate through their independent tasks the differences between public, private and collaborative services and the benefits and limitations of each
- Digital literacy:** Make independent choices about appropriate software and devices to use for project based learning and in real world contexts. Demonstrate creativity and problem solving in different contexts.



Year 6					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p><b>Computing systems and networks - Communication and collaboration</b></p> <ul style="list-style-type: none"> <li>-To explain the importance of internet addresses</li> <li>-To recognise how data is transferred across the internet</li> <li>-To explain how sharing information online can help people to work together</li> <li>-To evaluate different ways of working together online</li> <li>-To recognise how we communicate using technology</li> <li>-To evaluate different methods of online communication</li> </ul>	<p><b>Creating media – Web page creation</b></p> <ul style="list-style-type: none"> <li>-To review an existing website and consider its structure</li> <li>-To plan the features of a web page</li> <li>-To consider the ownership and use of images (copyright)</li> <li>-To recognise the need to preview pages</li> <li>-To outline the need for a navigation path</li> <li>-To recognise the implications of linking to content owned by other people</li> </ul>	<p><b>Programming A – Variables in games</b></p> <ul style="list-style-type: none"> <li>-To define a ‘variable’ as something that is changeable</li> <li>-To explain why a variable is used in a program</li> <li>-To choose how to improve a game by using variables</li> <li>-To design a project that builds on a given example</li> <li>-To use my design to create a project</li> <li>-To evaluate my project</li> </ul>	<p><b>Data and information – Spreadsheets</b></p> <ul style="list-style-type: none"> <li>-To create a data set in a spreadsheet</li> <li>-To build a data set in a spreadsheet</li> <li>-To explain that formulas can be used to produce calculated data</li> <li>-To apply formulas to data</li> <li>-To create a spreadsheet to plan an event</li> <li>-To choose suitable ways to present data</li> </ul>	<p><b>Creating media – 3D Modelling</b></p> <ul style="list-style-type: none"> <li>-To recognise that you can work in three dimensions on a computer</li> <li>-To identify that digital 3D objects can be modified</li> <li>-To recognise that objects can be combined in a 3D model</li> <li>-To create a 3D model for a given purpose</li> <li>-To plan my own 3D model</li> <li>-To create my own digital 3D model</li> </ul>	<p><b>Programming B - Sensing movement</b></p> <ul style="list-style-type: none"> <li>-To create a program to run on a controllable device</li> <li>-To explain that selection can control the flow of a program</li> <li>-To update a variable with a user input</li> <li>-To use a conditional statement to compare a variable to a value</li> <li>-To design a project that uses inputs and outputs on a controllable device</li> <li>-To develop a program to use inputs and outputs on a controllable device</li> </ul>
<b>Online Safety - Taught all year as a thread running through all topics</b>					
<p><b>Core Objectives:</b></p> <p>To be increasingly aware of the potential dangers in using aspects of ICT and to know when to alert someone if they feel uncomfortable and who to go to in school, at home and in the community (eg reporting to websites, police).</p>	<p><b>Year 6 understanding and skills:</b></p> <p>I am able to discuss the positive and negative aspects of ICT in my life and that of my family and friends.            I understand the need to be a critical analyser of content and that content can be inaccurate.            I understand the risks of using the internet (eg scams, phishing).            I understand about security settings and how they can protect the user.            I understand that I shouldn't put other people's information/ photos etc on the internet without asking them.            I understand the use of different domain names ( eg .net, .gov etc) and can use these to support validation of information</p>				<p><b>Key Online Safety Vocabulary:</b></p> <p>Critical            Validate            Security Settings            Analyse            Scam            Phishing</p>



## Our Year 6 computer users should be able to

### Computer Science:

- Design a solution by breaking a problem up
- Recognise that different solutions can exist for the same problem
- Use logical reasoning to detect errors in algorithms
- Use layers of variables in programs
- Use external devices for code input

### Information Technology:

- Use technology to accurately communicate
- Use databases and spreadsheets to interrogate and present data

### Digital Literacy:

- Select, use and combine software on a range of digital devices
- Present information in a variety of ways
- Make discerning choices about digital content and evaluate results

### A safe computer user in Year 6

#### Knowledge and Understanding:

- Understand the need to be critical evaluators of content
- Understand that some websites and/or pop-ups have commercial interests that may affect the way Information is presented
- Recognise the potential risks of using internet communication tools and understand how to minimise risks
- Understand that some malicious adults may use various techniques to make contact and elicit personal information
- Know that it is unsafe to arrange to meet unknown people on line
- Understand they should not publish other people's pictures or tag them on the internet without permission
- Know that content put online is extremely difficult to remove (digital footprint).

#### Skills:

- Independently select and use appropriate communication tools to solve problems by collaborating and communicating with others within and beyond school
- Use appropriate strategies for finding, critically evaluation, validating and verifying information eg using different key words, skim reading to check relevance, cross checking,
- Use knowledge of the meaning of different domain names and common website extensions eg .co.uk, .com, .sch, . org etc.

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