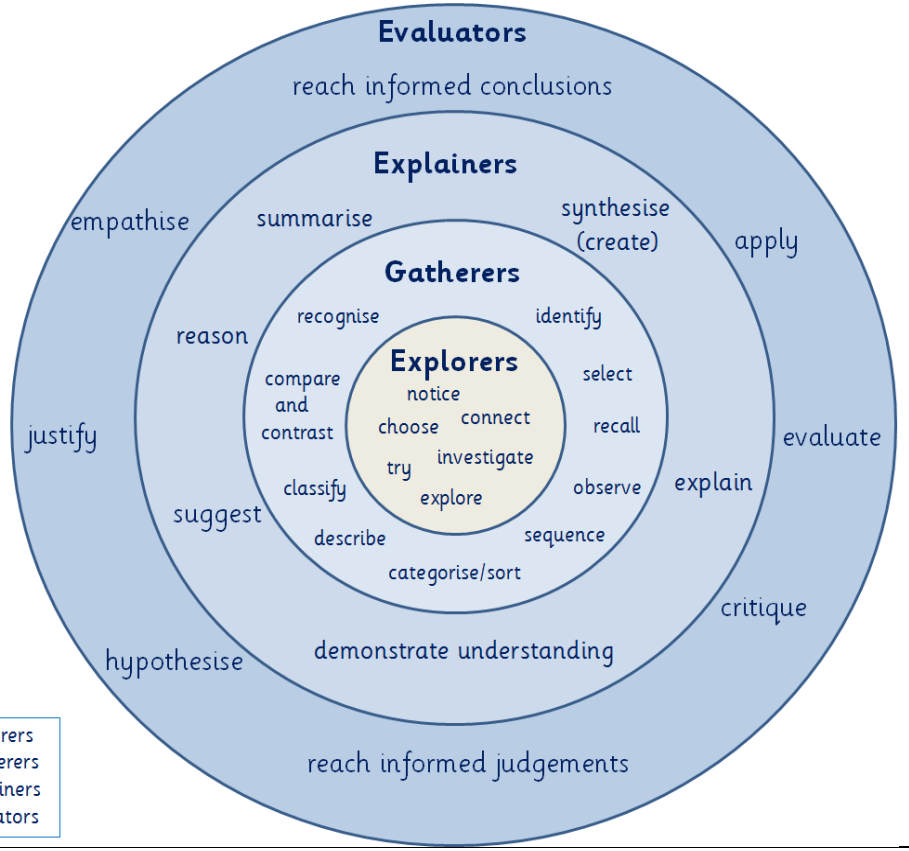
How our Computing curriculum is constructed

Our **'progression'** details how our pupils learn the National Curriculum content. Each objective in our progression document requires pupils to master key skills and techniques in order to understand the significance of the knowledge they have learned and can remember, some people call this **'disciplinary knowledge'**, and the language and skills are sequentially introduced as per the diagram to the right.

'Overview' details what is taught and when.

The progression document and our skills and techniques are sequenced small building blocks to enable children to achieve our **'key objectives' (end points)** we have decided as crucial to meeting the expected standard in each subject by the end of each academic year.

Our medium term planning identifies the **'sticky knowledge'**, what some people call **'substantive knowledge'**, and this is the body of knowledge we have selected as being of value for our children to know and remember. The sticky knowledge is sequenced and builds on relevant previous learning and supports future relevant learning.



FSU - Explorers
Y1/2 – Gatherers
Y3/4 – Explainers
Y5/6 - Evaluators

Definitions & Phrasing

Explorers	Gatherers
Notice: see something and pay attention to it **Choose**: decide on something for a purpose **Connect**: make links between ideas and/or actions **Investigate**: find out about something (with a focus) **Try**: have a go at something that could be new or hard **Explore**: willingness to try out new things	**Recognise** - see something and know that it is similar to something you have seen before. **Compare/contrast** - say how something is the same or different to something else. **Classify** - group things according to their similarities **Describe:** - recall something in detail or talk about an observation in detail **Categorise/sort** - **t**he action of classifying **Sequence** - place a set of events into an order. **Observe** - notice something and say how it links to the learning. **Recall** - remember something learnt previously **Select:** - choose the information most suitable and relevant. **Identify** - understand something recalled or observed.
Explainers	**Evaluators**
Summarise: Write or say a shortened version to give the key facts and events. **Reason:** Thinking about something in a logical way to respond to a question or challenge. **Suggest:** Write or say ideas that could work in response to a question or challenge. **Demonstrate understanding:** share what you know and can explain using words, images or actions. **Explain:** Write or say how or why something happened the way it did **Synthesise:** Create statements or questions using ideas and facts.	**Reach informed conclusions:** sum up the main points about something supported by evidence. **Empathise:** place yourself in another's position. **Justify:** give reasons supported by evidence to show what you consider right or reasonable. **Hypothesise:** use your past knowledge and available facts to try and predict what might happen (make a good educated guess). **Reach informed judgement:** express a personal view about something supported by evidence. **Critique:** consider the validity or trustworthiness of evidence **Evaluating:** weigh up and judge the relative importance of something compared with other ideas and arguments. **Apply**: make use of information in a given situation/

Beginning to, ***developing*** and other similar phrasing means:
Teachers or TA's guide and support children to complete activities and/or demonstrate understanding.
In Key Stage 1 activities supported by adults through resources used, direction given and questions asked.
In Key Stage 2 teachers will explain, model and/or demonstrate before typically ask children to complete an activity with staff available to continue to support and guide towards successful completion/achievement.

Use, ***understand***, ***know***, ***secure*** and other similar phrasing means:
Children are secure in their understanding of knowledge and concepts and confidently and independently use and apply skills to achieve a desired outcome.

eSafety progression

Year Group	FSU	1	2	3	4	5	6
	Explorers	Gatherers		Explainers		Evaluators	
Self-Image and Identity	I can **recognise**, online or offline, that anyone can say 'no' - 'please stop' - 'I'll tell' - 'I'll ask' to somebody who makes them feel sad, uncomfortable, embarrassed or upset.	If something happens that makes me feel sad, worried, uncomfortable or frightened I can give examples of when and how to speak to an adult I can trust and how they can help.	I can **explain** how other people may look and act differently online and offline.	I can **explain** how people can represent themselves in different ways online.	I can **explain** that others online can pretend to be someone else, including my friends, and can suggest reasons why they might do this.	I can **demonstrate** how to make responsible choices about having an online identity, depending on context.	I can **describe** issues online that could make anyone feel sad, worried, uncomfortable or frightened. I know and can give examples of how to get help, both on and offline.
Online Relationships	I can **explain** why it is important to be considerate and kind to people online and to respect their choices.	I can **explain** why it is important to be considerate and kind to people online and to respect their choices.	I can **explain** why I have a right to say 'no' or 'I will have to ask someone'. I can explain who can help me if I feel under pressure to agree to something I am unsure about or don't want to do.	I can **explain** what it means to 'know someone' online and why this might be different from knowing someone offline.	I can **describe** strategies for safe and fun experiences in a range of online social environments (e.g. livestreaming, gaming platforms)	I can **explain** how someone can get help if they are having problems and identify when to tell a trusted adult.	I can **describe** how things shared privately online can have unintended consequences for others. e.g. screen-grabs.
Online Reputation	I can **identif**y ways that I can put information on the internet.	I can **describe** what information I should not put online without asking a trusted adult first.	I can **describe** how anyone's online information could be seen by others.	I can give examples of what anyone may or may not be willing to share about themselves online. **I can explain** the need to be careful before sharing anything personal.	I can **describe** how to find out information about others by searching online.	I can search for information about an individual online and **summarise** the information found.	I can **explain** the ways in which anyone can develop a positive online reputation.
Online Bullying		I can **describe** ways that some people can be unkind online.	I can **describe** how to behave online in ways that do not upset others and can give examples.	I can **describe** appropriate ways to behave towards other people online and why this is important.	I can **recognise** when someone is upset, hurt or angry online.	I can **describe** the helpline services which can help people experiencing bullying, and how to access them (e.g. Childline or The Mix).	I can **explain** how someone would report online bullying in different contexts.

Managing Online Information	I can talk about how to use the internet as a way of finding information online.	I can give simple examples of how to find information using digital technologies, e.g. search engines, voice activated searching.	I can explain why some Information I find online may not be real or true.	I can **explain** the difference between a 'belief', an 'opinion' and a 'fact. and can give examples of how and where they might be shared online, e.g. in videos, memes, posts, news stories etc.	I can **explain** what is meant by fake news e.g. why some people will create stories or alter photographs and put them online to pretend something is true when it isn't.	I can **describe** how fake news may affect someones emotions and behaviour and explain why this may be harmful.	I can **describe** the difference between online misinformation and dis-information
Health, Well-being and Lifestyle	I can **identify** rules that help keep us safe and healthy in and beyond the home when using technology	I can explain rules to keep myself safe when using technology both in and beyond the home.	I can **explain** rules to keep myself safe when using technology both in and beyond the home.	I can **explain** why some online activities have age restrictions, why it is important to follow them and know who I can talk to if others pressure me to watch or do something online that makes me feel uncomfortable (e.g. age restricted gaming or web sites).	I can explain how using technology can be a distraction from other things, in both a positive and negative way.	I **recognise** the benefits and risks of accessing information about health and well-being online and how we should balance this with talking to trusted adults and professionals.	I can assess and action different strategies to limit the impact of technology on health (e.g. night-shift mode, regular breaks, correct posture, sleep, diet and exercise).
Privacy and Security	I can **identify** some simple examples of my personal information (e.g. name, address, birthday, age, location).	I can **explain** why it is important to always ask a trusted adult before sharing any personal information online, belonging to myself or others.	I can **explain** and give examples of what is meant by 'private' and 'keeping things private'.	I can **give reasons** why someone should only share information with people they choose to and can trust. I can explain that if they are not sure or feel pressured then they should tell a trusted adult.	I can **explain** that internet use is never fully private and is monitored, e.g. adult supervision.	I can **explain** what a strong password is and demonstrate how to create one.	I can **describe** ways in which some online content targets people to gain money or information illegally; I can **describe** strategies to help me **identify** such content (e.g. scams, phishing).
Copyright and Ownership	I can name my work so that others know it belongs to me.	I can save my work under a suitable title or name so that others know it belongs to me (e.g. filename, name on content).	I can describe why other people's work belongs to them.	I can **explain** why copying someone else's work from the internet without permission isn't fair and can explain what problems this might cause.	I can give some simple examples of content which I must not use without permission from the owner, e.g. videos, music, images.	I can assess and **justify** when it is acceptable to use the work of others	I can demonstrate the use of search tools to find and access online content which can be reused by others.

Computing progression

FSU	1	2	3	4	5	6
Explorers	*Gatherers*		*Explainers*		*Evaluators*	

Computing Systems and Networks (1)

Notice, **explore,** and talk about technology that is used at home and in school. **Investigate** and operate simple equipment. **Explore** a safe part of the Internet to play and learn.	**Identify** technology. **Identify** a computer and its main parts. Use a mouse in different ways. Use a keyboard to type and edit text. **Describe** rules for using technology responsibly.	**Recognise** the uses and features of information technology. **Identify** the uses of information technology in the school and beyond school. **Describe** how information technology helps us. **Describe** how to use information technology safely. **Recognise** that choices are made when using information technology.	**Explain** how digital devices function. **Identify** input and output devices. **Recognise** how digital devices can change the way we work. **Explain** how a computer network can be used to share information. **Explore** how digital devices can be connected. **Recognise** the physical components of a network.	**Describe** how networks physically connect to other networks. **Recognise** how networked devices,make up the internet. **Describe** how websites can be shared via the World Wide Web (WWW). **Describe** how content can be added and accessed on the World Wide Web (WWW). **Recognise** how the content of the WWW is created by people. **Demonstrate an understanding** of the consequences of unreliable content.	**Explain** that computers can be connected together to form systems. **Recognise** the role of computer systems in our lives. **Critique** different search engines. **Describe** how search engines select results. **Explain** how search results are ranked. **Recognise** why the order of results is important and to whom.	**Explain** the importance of internet addresses. **Recognise** how data is transferred across the internet. **Explain** how sharing information online can help people to work together. **Evaluate** different ways of working together online. **Recognise** how we communicate using technology and to **evaluate** different methods of online communication.

Creating Media (2)

Investigate moving objects on a screen.	**Describe** what different freehand tools do. Use the shape tool and the line tools.	Use a digital device to take a photograph. Make **choices** when taking a photograph and **describe** what makes a good photograph.	**Explain** that animation is a sequence of drawings or photographs. **Recognise** what makes an effective stop-frame	**Identify** that sound can be recorded. **Explain** that audio recordings can be edited. **Recognise** the different parts of creating a	**Explain** what makes a video effective. **Identify** digital devices that can record video. Capture video using a range of techniques and	**Critique** an existing website and consider its structure. **Recognise** the common features of a web page and plan my

Explore technology and use this to show my learning.	**Compare and contrast** choices when painting a digital picture. **Explain** why I **chose** the tools I used. **Recall** the skills needed to paint a picture on a computer independently. **Compare** painting a picture on a computer and on paper. Use a computer to write. Add and remove text on a computer. **Identify** that the look of text can be changed on a computer. Make careful **choices** when changing text. **Explain** why I used the tools that I **chose**. **Compare** typing on a computer to writing on paper.	**Identify** how photographs can be improved. **Recognise** that photos can be changed and use tools to change an image. **Recognise** how music can make us feel. **Identify** that there are patterns in music. Experiment with sound using a computer. Use a computer to **create** a musical pattern. **Create** music for purpose and critique it.	animation. Plan and **critique** an animation **Identify** the need to work consistently and carefully.. **Evaluate** the impact of adding other media to an animation. **Recognise** how text and images convey information. **Recognise** that text and layout can be edited. **Choose** appropriate page settings. Add content to a desktop publishing publication. **Recognise** how different layouts can suit different purposes. **Identify** the benefits of desktop publishing.	podcast project. **Critique** and apply audio editing skills independently. Combine audio to enhance my podcast project. **Evaluate** the effective use of audio. **Explain** that the composition of digital images can be changed. **Explain** that colours can be changed in digital images. **Explain** how cloning can be used in photo editing. **Explain** that images can be combined and to combine images for a purpose. **Evaluate** how changes can improve an image.	**critique** how effective my video is. **Synthesise (create)** a storyboard. **Identify** that video can be improved through reshooting and editing. **Critique** the impact of the choices made when making and sharing a video. **Identify** that drawing tools can be used to produce different outcomes. **Synthesise (create)** a vector drawing by combining shapes. **Choose** the best tools to achieve a desired effect. **Recognise** that vector drawings consist of layers. **Recognise** when to group objects to make them easier to work with. Apply what I have learned about vector drawings.	own. **Demonstrate an understanding** of the ownership and use of images (copyright). **Recognise** the need to preview pages. E**xplain** the need for a navigation page. **Recognise** the implications of linking to content owned by other people. **Recognise** that you can work in three dimensions on a computer. **Identify** that digital 3D objects can be modified. **Recognise** that objects can be combined in a 3D model. **Synthesise (create)** a 3D model for a given purpose. Plan my own 3D model. **Synthesise (create**) my own digital 3D model.
Programming (3)						

Explore making a floor robot move. **Select** simple software to make something happen. C**hoose** the buttons and icons I press, touch, or click on.	**Explain** what a given command will do. Give directions and follow instructions. **Compare** four direction movements and combine commands to make a sequence. Plan a simple program by **choosing** the order of commands. **Identify** more than one solution to a problem. **Choose** a command for a given purpose. **Recognise** that a series of commands can be joined together. **Identify** the effect of changing a value. **Explain** that each sprite has its own instruction. **Choose** the appropriate parts for a project. Use my algorithm to **create** a program.	**Describe** a series of instructions as a sequence. **Explain** what happens when we change the order of instructions. Use logical reasoning to predict the outcome of a programme and to **compare** my prediction to the outcome. **Explain** that programming projects can have code and artwork. Design an algorithm and **explain** what it should achieve. **Create** and debug a program that I have written. **Explain** that a sequence of commands has a start and an outcome. **Create** a program using a given design and then to change the given design. **Create** a programme using my own design. **Compare** my project to my design and decide what can be improved.	Explore a new programming environment. **Identify** that commands have an outcome. **Explain** that a program has a start. **Recognise** that a sequence of commands can have an order. Change the appearance of my project. **Synthesise (create)** a project from a task description. **Explain** how a sprite moves in an existing project. **Synthesise (create)** a program to move a sprite in four directions. Adapt a program to a new context. **Identify** additional features and develop my program by adding them. **Identify** and fix bugs in a program. Design and **synthesise (create)** a maze-based challenge.	**Identify** that accuracy in programming is important. **Synthesise** (**create)** a program in a text-based language. **Explain** what 'repeat' means. Modify a count-controlled loop to produce a given outcome. Decompose a task into small steps. **Synthesise (create)** a program that uses count-controlled loops to produce a given outcome. Develop the use of count-controlled loops in a different programming environment. **Explain** that in programming there are infinite loops and count-controlled loops. Develop a design that includes two or more loops which run at the same time and **evaluate** the effectiveness of the repeated sequences. **Identify** which parts of a loop can be changed and modify an infinite loop in a given program.	**Create** and control a simple circuit connected to a computer. Write a program that includes count-controlled loops. **Explain** that a loop can stop when a condition is met and can be used to repeatedly check whether a condition has been met. Design a physical project that includes selection. **Synthesise (create)** a program that controls a physical computing project. **Explain** how selection is used in computer programs. **Synthesise (create)** a program with different outcomes using selection. **Explain** how selection directs the flow of a program. Design and **create** a program which uses selection. **Evaluate** my program.	**Explain** that the way a variable changes can be defined. **Explain** why a variable is used in a program. **Choose** how to improve a game by using variables. Design a project that builds on a given example and **explain** my design choices. Use my design to **create** a project and **evaluate** it. **Synthesise (create)** a program to run on a controllable device. **Explain** that selection can control the flow of a program. Update variable with a user input. Use a conditional statement to **compare** a variable to a value. Design a project and **create** a program that uses inputs and outputs on a controllable device.

				Design and **synthesise (create)** a project that includes repetition.		
Data and Information (4)						
Explore and talk about different kinds of information such as pictures, video, text, and sound.	Label objects and **identify** that they can be counted. **Describe** objects in different ways. Count objects with the same properties. **Compare** groups of objects and answer questions about them.	**Recognise** that we can count and **compare** objects using tally charts. **Recognise** that objects can be represented as pictures. **Create** a pictogram. Select objects by attribute and make **comparisons**. **Recognise** that people can be described by attributes. **Explain** that we can present information using a computer.	**Create** questions with yes/no answers. **Identify** the attributes needed to collect data about an object. **Create** a branching database. **Explain** why it is helpful for a database to be well structured. Plan the structure of a branching database. Independently **synthesise (create**) an identification tool.	**Explain** that data gathered over time can be used to answer questions. Use a digital device to collect data automatically. **Explain** that a data logger collects 'data points' from sensors over time. **Recognise** how a computer can help us to analyse data. **Identify** the data needed to answer questions and to use the data to answer questions.	**Explain** how a form can be used to record information. **Compare** paper and computer-based databases. **Explain** how you can answer questions by grouping and then sorting data. **Explain** tools that can be used to select specific data. **Explain** that computer programs can be used to **compare** data visually. Use a real-world database to answer questions.	**Create** and build a data set in a spreadsheet. **Explain** that formulas can be used to produce calculated data. Apply formulas to data. **Create** a spreadsheet to plan an event. **Choose** suitable ways to present data.

Computing & eSafety Curriculum Overview

	FSU	Y1	Y2	Y3	Y4	Y5	Y6
Autumn 1	*Privacy and Security* *Copyright and Ownership* Navigate Chromebooks Self-register on IWB Play games on IWB	*Privacy and Security* *Online Bullying* Computing systems and networks - Technology around us	*Self Image and Identity* *Privacy and Security* Computing systems and networks - IT around us	e-Safety- Programming - Sequencing & Sounds	*Self-image and identity* Computing Systems and networks - The Internet	*Self Image and Identity* Vector Drawings	*Copyright and Ownership* Spreadsheets
Autumn 2	*Online relationships* Navigate Chromebooks Self-register on IWB Play games on IWB	*Online relationships* Creating media - Digital painting	*Copyright and Ownership* *Online Bullying* Creating media - Digital photography	*Online relationships* *Self identity* Data and Information	*Online Relationships* Programming A - Repetition in Shapes	*Online Bullying* *Online Relationships* Systems and Searching	*Online Bullying* *Online Relationships* Communication and collaboration
Spring 1	*Online Bullying* *Online Relationships* Technology in our Lives with iPad	*Managing online information* Programming A - Moving a robot	*Online Relationships* Programming A - Robot Algorithms	*Online reputation* *Online bullying* Creating Media (1)	*Online reputation* Creating Media - Audio Production (Audacity programme)	*Health, Wellbeing and Lifestyle* Selection in Quizzes - coding	*Self Image and Identity* Data Handling Variables in games
Spring 2	*Self Image and Identity* Technology in our Lives with iPad Chicken Clinkin' e-safety	*Copyright and Ownership* Data and Information - Grouping data	*Online Reputation* Data and Information - Pictograms	*Online bullying* Connecting Computers	*Online bullying* Data and Information - Data Logging	*Online Reputation* Data information -databases	*Health, Wellbeing and Lifestyle* Web Creations
Summer 1	*Online Reputation* Technology in Our Live - Search Engines	*Self-image and Identity* *Health, Wellbeing and Lifestyle* Creating media - Digital writing	*Managing Online Information* Creating media - Digital music	*Managing Online Information* *Health, Well-being and Lifestyle* Programming - Events and Actions	*Managing online information* *Privacy and Security* Creating Media - Photo editing	*Managing Online Information* *Copyright and Ownership* Physical Computing- program crumbles	*Managing Online Information* 3D Modelling
Summer 2	*Managing Online Information* Technology in Our Live - Search Engines	*Online reputation* Programming B - Programming animations	*Health Wellbeing and Lifestyle* Programming B - Programming quizzes	*Privacy and Security* *Copyright and Ownership* Creating Media (2)	*Health, wellbeing and lifesyle* *Copyright and Ownership* Programming B - Repetition in Games	*Privacy and Security* Video Production	*Privacy and Security* Sensing Program microbits Presenting Info e-Safe

Computing and eSafety 'Sticky' (substantive) knowledge		Computing & eSafety Key Objectives (end points)
FSU	eSafety ● Children know to be kind and not say anything nasty when talking to others online.	
Year 1	Computing **Technology around us** ● To identify technology and explain how it helps us. I can locate examples of technology in the classroom. ● To switch on and log into a computer. I can use the mouse and keyboard. ● To create rules for using technology responsibly. I can identify rules to keep us safe and healthy when we are using technology in and beyond the home. **Creating Media- Digital Painting** ● To describe what different freehand tools do and use paint tools to draw a picture. Use the shape and line tools to recreate the work of an artist ● To make careful choices when painting a digital picture and explain why I chose the tools I used. I can choose appropriate paint tools and colours to recreate the work of an artist ● To compare painting a picture on a computer and on paper. I can say whether I prefer painting using a computer or using paper **Programming A- Moving a Robot** ● To explain what a given command will do, predicting the outcome of a demand on a device. ● To combine 'forwards' and 'backwards' commands to make a sequence ● To combine four direction commands to make sequences ● To plan a simple program, explain what the program should do and debug the program. ● To find more than one solution to a problem **Data and Information- Grouping Data** ● To label objects and identify that objects can be counted. ● To describe objects in different ways and find objects with similar properties. ● To compare groups of objects and answer questions about groups of objects. **Creating Media- Digital Writing** ● To use a computer to write and recognise keys on a keyboard. To add and remove text using backspace to remove text. ● To identify that the look of text can be changed on a computer and make careful choices when changing text	By the end of Year 1 our young digital linguists are developing into gatherers by recognising aspects of computational thinking that they have used to solve problems. They can recall how to use computer science in creative ways, using subject specific vocabulary. They are becoming digitally literate by: 1. **Explaining** why it is important to talk to an adult when going online. 2. **Identifying** the parts of a computer. 3. **Creating** digital paintings and text. 4. **Using** an algorithm to create a program. 5. **Comparing** data and answering questions.

	• To compare typing on a computer to writing on paper. **Programming B- Programming Animations** • To show that a series of commands can be joined together. I can use more than one block by joining them together. • To identify the effect of changing a value and I can say what happens when I change a value • To explain that each sprite has its own instructions. I can delete a sprite and add blocks to each of my sprites. • To use my algorithm to create a program. I can add programming blocks based on my algorithm and I can test the programs I have created. eSafety **Self-Image and Identity** • If something happens that makes me feel sad, worried, uncomfortable or frightened I can give examples of when and how to speak to an adult I can trust and how they can help. **Online Relationships** • I can explain why it is important to be considerate and kind to people online and to respect their choices. **Online Reputation** • I can describe what information I should not put online without asking a trusted adult first. **Online Bullying** • I can describe ways that some people can be unkind online. **Managing online information** • I can give simple examples of how to find information using digital technologies, e.g. search engines, voice activated searching. **Health, well-being and lifestyle** • I can explain rules to keep myself safe when using technology both in and beyond the home. **Privacy and security** • I can explain why it is important to always ask a trusted adult before sharing any personal information online, belonging to myself or others. **Copyright and ownership** • I can save my work under a suitable title or name so that others know it belongs to me (e.g. filename, name on content).	
Year 2	Computing **Computing Systems and Networks** • Recognise and identify the uses of IT in school and beyond. • Describe how IT helps us and how to use it safely. **Creating Media - Digital Photography**	By the end of Year 2 our young digital linguists are secure gatherers by selecting aspects of computational thinking to solve problems. They can describe how to use computer science in creative ways, using subject specific vocabulary. They are becoming digitally literate by:

	• Use a digital device to take a photograph. • Make choices when taking a photograph. • Identify how photographs can be improved. • Recognise that photos can be changed and use tools to change a photograph. **Digital Music** • Experiment with sound using a computer. • Use a computer to create a musical pattern. • Create music for purpose and critique it. **Programming** • Describe a series of instructions as a sequence and explain what happens when we change the order of instructions. • Design an algorithm and explain what it should achieve. • Create and debug a program. • Explain that a sequence of commands has a start and an outcome. • Create a program using my own design. **Data and Information** • Create a pictogram. • Select objects by attribute and make comparisons. • Explain that we can present information using a computer. eSafety **Self-Image and Identity** • I can **explain** how other people may look and act differently online and offline. **Online Relationships** • I can **explain** why I have a right to say 'no' or 'I will have to ask someone'. I can explain who can help me if I feel under pressure to agree to something I am unsure about or don't want to do. **Online Reputation** • I can **describe** how anyone's online information could be seen by others. **Online Bullying** • I can **describe** how to behave online in ways that do not upset others and can give examples. **Managing online information** • I can explain why some Information I find online may not be real or true. **Health, well-being and lifestyle** • I can **explain** rules to keep myself safe when using technology both in and beyond the home. **Privacy and security** • I can **explain** and give examples of what is meant by 'private' and 'keeping things private'. **Copyright and ownership**	1. **Explaining** how to keep themselves safe online. 2. **Identifying** the uses of information technology. 3. **Creating** digital photographs and music. 4. **Creating** and debugging a program. 5. **Explaining** that we can present information using a computer.

	● I can describe why other people's work belongs to them.	
Year 3	Computing **Connecting computers** ● Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. ● 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. ● 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. **Creating Media** ● 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; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. **Programming - Sequencing Sounds** ● 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 logical reasoning to explain how some simple algorithms work, and to detect and correct errors in algorithms and programs ● 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 **Data and information** ● 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 ● **Creating media** ● 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	By the end of Year 3 our young digital linguists are developing into explainers by explaining how they have used aspects of computational thinking to solve problems. They can demonstrate how to use computer science in creative ways, using subject specific vocabulary. They are becoming digitally literate by: 1. **Describing** appropriate ways to behave online. 2. **Recognising** the physical components of a network. 3. **Creating** a digital animation. 4. **Creating** a program from a task description. 5. **Creating** a branching database.

	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 **Programming - Events and Actions** ● 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 logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs ● 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 eSafety **Self-image and identify** ● I can explain how people can represent themselves in different ways online. **Online relationships** ● I can explain what it means to 'know someone' online and why this might be different from knowing someone offline. **Online reputation** ● I can give examples of what anyone may or may not be willing to share about themselves online. ● I can explain the need to be careful before sharing anything personal. **Online bullying** ● I can describe appropriate ways to behave towards other people online and why this is important. **Managing online information** ● I can explain the difference between a 'belief', an 'opinion' and a 'fact. and can give examples of how and where they might be shared online, e.g. in videos, memes, posts, news stories etc. **Health and Well-being** ● I can explain why some online activities have age restrictions, why it is important to follow them and know who I can talk to if others pressure me to watch or do something online that makes me feel uncomfortable (e.g. age restricted gaming or web sites). **Privacy and Security** ● I can give reasons why someone should only share information with people they choose to and can trust. I can explain that if they are not sure or feel pressured then they should tell a trusted adult. **Copyright and ownership** ● I can explain why copying someone else's work from the internet without permission isn't fair and can explain what problems this might cause.	

Year 4	Computing **Computing Systems and Networks – The Internet** ● 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 ● 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; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. **Creating Media - Audio Production** ● 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; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact **Programming A – Repetition in Shapes** ● 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 logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs ● 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 **Data and information – Data Logging** ● Use sequence, selection, and repetition in programs; work with variables and various forms of input and output ● 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	By the end of Year 4 our young digital linguists are secure explainers by summarising how they have used computational thinking to solve problems. They can reason why they have used computer science in creative ways, using subject specific vocabulary. They are becoming digitally literate by: 1. **Explaining** that internet use is never fully private. 2. **Describing** how networks physically connect to other networks. 3. **Creating** a podcast. 4. **Creating** a program that involves repetition. 5. **Recognising** how a computer can help us to analyse data.

	and information **Creating media – Photo Editing** ● 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; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact **Programming B – Repetition in Games** ● 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 logical reasoning to explain how some simple algorithms work, and to detect and correct errors in algorithms and programs ● 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 eSafety **Self-Image and Identity** ● I can explain that others online can pretend to be someone else, including my friends, and can suggest reasons why they might do this. **Online Relationships** ● I can describe strategies for safe and fun experiences in a range of online social environments (e.g. livestreaming, gaming platforms). **Online Reputation** ● I can describe how to find out information about others by searching online. **Online Bullying** ● I can recognise when someone is upset, hurt or angry online. **Managing Online Information** ● I can explain what is meant by fake news e.g. why some people will create stories or alter photographs and put them online to pretend something is true when it isn't. **Health, Wellbeing and Lifestyle** ● I can explain how using technology can be a distraction from other things, in both a positive and negative way. **Privacy and Security** ● I can explain that internet use is never fully private and is monitored, e.g. adult supervision. **Copyright and Ownership** ● I can give some simple examples of content which I must not use without permission	

	from the owner, e.g. videos, music, images.	
Year 5	Computing **Vector Drawings** ● Use drawing tools to produce different outcomes. ● Move, resize, and rotate objects I have duplicated ● Use tools to modify and improve a vector drawing e.g zoom tool, alignment grid, resize tool ● Change the order of the layers in a vector drawing ● Use and group objects in a vector drawing ● Create a vector drawing for a specific purpose. **Computer systems** ● Understand that computers can be connected together to form systems ● Explain the role and benefits of computer systems in our lives ● Explain and understand how to use a web search and can refine and compare searches ● Understand how search engines select and rank results ● Explain order of results is important to different people using a search engine **Programming Selection in Quizzes** ● Use selection is in computer programs ● Understand that conditions are used in selection and how a condition is modified ● Use conditional statement to connect a condition to an outcome ● Affect flow in a program using a condition ● Create a program with selections ● Test and share a program ● Improve and extend a program **Data and information - Flat File Database** ● Sort, order and group a paper database ● Navigate a flat-file database to compare different views of information sorting using records and fields. ● Answer questions by grouping and then sorting data on a computer database ● Use 'AND' or 'OR' to refine data selection ● Create a chart to visually compare data ● Refine a chart by using filters ● Use a real world database to answer questions **Programming Selection in Physical Computing** ● Control a simple circuit connected to a computer ● Write a program that includes count-controlled loops ● Use loop to stop a program when a condition is met ● Use a loop to repeatedly check whether a condition has been met ● Design a physical project that includes selection	By the end of Year 5 our young digital linguists are developing as evaluators by evaluating how they have used computational thinking to solve problems. They can reach informed judgements as to why they have used computer science in creative ways, using subject specific vocabulary. They are becoming digitally literate by: 1. **Explaining** how someone can get help if they are having problems online. 2. **Recognising** the role of computer systems in our lives. 3. **Creating** videos and vector drawings. 4. **Creating** a program with different outcomes using selection. 5. **Explaining** how computer programs can be used to compare data visually.

	• Create a program that controls a physical computing project **Creating media - Video Production** • Understand what makes a video effective • Use a digital device to record video • Create a storyboard for a planned video • Improve video through reshooting and editing eSafety **Self Image and Identity** • I can **demonstrate** how to make responsible choices about having an online identity, depending on context. **Online Relationships** • I can **explain** how someone can get help if they are having problems and identify when to tell a trusted adult. **Online Reputation** • I can search for information about an individual online and **summarise the information found.** **Online Bullying** • I can **describe** the helpline services which can help people experiencing bullying, and how to access them (e.g. Childline or The Mix). **Managing Online Information** • I can **describe** how fake news may affect someone's emotions and behaviour and explain why this may be harmful. **Health, Wellbeing and Lifestyle** • I **recognise** the benefits and risks of accessing information about health and well-being online and how we should balance this with talking to trusted adults and professionals. **Privacy and Security** • I can **explain** what a strong password is and demonstrate how to create one. **Copyright and Ownership** • I can assess and **justify** when it is acceptable to use the work of others	
Year 6	Computing **Data and Information - Speadsheets** • Create data in a spreadsheet • Build a data set in a spreadsheet and can format cells • Use formulas to produce calculated data and apply formulas to data • Create a spreadsheet to plan an event • Present data using charts **Computing Systems and Networks - Communication and Collaboration** • Understand the importance of internet addresses • Understand how data is transferred across the internet	By the end of Year 6 our young digital linguists are secure evaluators by justifying how they have used computational thinking to solve problems. They can critique the ways in which they have used computer science to be creative, using subject specific vocabulary. They have become digitally literate by: 1. **Explaining** the ways anyone can develop a positive online reputation. 2. **Evaluating** different ways of working together online. 3. **Critiquing** websites and **creating** 3-D digital

	• Understand sharing information online can help people to work together • Use the internet in effective collaboration • Understand when I should and should not share information online **Programming - Variables in Games** • Understand that a 'variable' is something that is changeable and why a variable is used in a program • Change a variable and how to improve and extend a game by using variables • Use algorithms in projects • Test and improve a code **Creating Media - Web Page Creation** • Understand that different types of media are used on websites • Recognise and evaluate common features of a webpage • Understand what is meant by the term 'fair use' • Add content to a webpage and preview a page • Explain what a navigation path is and understand why they are useful • Make multiple web pages and link them using hyperlinks **Creating Modelling - 3D Media** • Understand that that you can work in three dimensions on a computer • Use digital 3D objects; modify thorough resizing, lifting and colouring • Combine objects in a 3D model using rotating, duplicating and grouping • Combine a number of 3D objects to create 3D design • Modify and improve a 3D design **Programming - Sensing Movement** • Create a program to run on a controllable device • Use selection to control the flow of a program • Understand the importance of the order of conditions in else, if statements • Develop a program to use inputs and outputs on a controllable device eSafety **Self-Image and Identity** • I can **describe** issues online that could make anyone feel sad, worried, uncomfortable or frightened. I know and can give examples of how to get help, both on and offline. **Online Relationships** • I can **describe** how things shared privately online can have unintended consequences for others. e.g. screen-grabs. **Online Reputation** • I can **explain** the ways in which anyone can develop a positive online reputation. **Online Bullying** • I can **explain** how someone would report online bullying in different contexts. **Managing online information**	models. 4. **Create** a program to run on a controllable device. 5. **Choosing** suitable ways to present data.

	● I can **describe** the difference between online misinformation and dis-information. **Health, well-being and lifestyle** ● I can assess and action different strategies to limit the impact of technology on health (e.g. night-shift mode, regular breaks, correct posture, sleep, diet and exercise). **Privacy and security** ● I can **describe** ways in which some online content targets people to gain money or information illegally; I can **describe** strategies to help me **identify** such content (e.g. scams, phishing). **Copyright and ownership** ● I can demonstrate the use of search tools to find and access online content which can be reused by others.	