Computing Knowledge and Skills Progression 2023 2024

Our goal for Computing education is for children to be able to use their computational thinking skills and creativity to become digitally literate within an ever changing world. We aim for our children to be able to see connections between the computing skills they learn in school to the wider world around them and how they can be active participants in their future digital world. We do this through:

- *developing a knowledge of computing systems and networks within the world*
- *understanding the use of data and information*
- *building a solid foundation of programming skills*
- *using a range of media systems to solve problems*
- *creating an understanding of how to use technology safely and respectfully*

William Tyndale Primary School

Computing Whole School Overview 2022 2023

Our goal for Computing education is that children are able to use computational thinking and creativity to understand and change the world, developing:
• a knowledge of programming;
• digital literacy; and
• an understanding of how to use technology safely and respectfully

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Whole school days/events linked to Computing	***National Coding Week***	***Computer Science Education Week***	***Internet Safety Day***		***International Girls in ICT Day***	
Right of the month	*September: Article 28 – the right to learn and go to school* *October: Article 12 – the right to be listened to*	*November: Article 19 – the right not to be harmed and to be looked after and kept safe* *December: Article 13 – the right to follow your own religion*	*January: Article 29 – the right to become the best you can be* *February: Article 42 – the right to learn about your rights*	*March: Article 7 – the right to a name and a nationality* *April: Article 24 – the right to food, water and medical care*	*April: Article 24 – the right to food, water and medical care* *May: Article 20 – the right to practice your own culture, language and religion*	*June: Article 22 – the right to special protection and help if you are a refugee* *July: Article 31 – the right to play and rest*
Skills Builder	*September: Listening* *October: Speaking*	*November: Teamwork* *December: GLOBAL GOALS*	*January: Problem Solving* *February: Staying Positive*	*March: Creativity* *April: GLOBAL GOALS*	*April: GLOBAL GOALS* *May: Aiming High*	*June: Leadership* *July: GLOBAL GOALS*
Nursery & Reception	**Throughout Nursery and Reception, the children learn to:** ● Remember rules without needing an adult to remind them. ● Match their developing physical skills to tasks and activities in the setting. ● Explore how things work. ● Explore, use and refine a variety of artistic effects to express their ideas and feelings. ● Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. ● Explain the reasons for rules, know right from wrong and try to behave accordingly. ● Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. ● Show resilience and perseverance in the face of a challenge.					

	● Know and talk about the different factors that support their overall health and wellbeing: sensible amounts of 'screen time'. ● Develop their small motor skills so that they can use a range of tools competently, safely and confidently.					
Year 1	**Computing systems and networks** identify technology and look after it explain what a computer is	**Computer Science** understand what algorithms are	**Creating Media** create a poster using a range of digital media skills	**Data and information** explain what data is sort and group basic data	**Creating Media** use digital applications to create an artwork	**Computer Science** create a simple sequence of events
Year 2	**Creating Media** take a digital photograph and explain the artistic choices I made	**Computing systems and networks** look after technology in my classroom identify technology in the world around me	**Data and information** create a digital pictogram to display data	**Creating Media** use keywords to find appropriate information using a search engine use technology purposefully to create digital content	**Computer Science** use a Beebot to create and predict what will happen in a sequence of events	**Computer Science** use block coding to create a simple algorithm
Year 3	**Computing systems and networks** understand that the internet is a network of computers	**Creating Media** use text and images to convey a message to an audience using publishing software	**Creating Media** explain what inputs and outputs are create a simple stop motion clip	**Computer Science** explain the relationship between an event and an action in a simple code	**Data and information** can use a branching database to group data	**Computer Science** make my sequence more efficient using repetition
Year 4	**Computing systems and networks** can explain what a website is and how to contribute to the WWW	**Computer Science** make my code more efficient using repetition and explain the choices I have made	**Computer Science** use sequence, repetition to code a microcontroller use selection (an 'if…then…' statement) with physical computing	**Creating Media** can make simple edits to a photograph	**Data and information** use a data logger to collect information	**Creating Media** can create a Vlog is and explain how it is created using visual and audio inputs
Year 5	**Computing systems and networks** know that computers communicate between them through computer systems use a search engine effectively	**Computer Science** use variables effectively 'if statements' (when ____ happens, ____ happens) in block coding explain my coding choices	**Creating Media** capture, edit and manipulate visual and audio content to make a short film	**Creating Media** create a vector drawing using lines and shapes	**Data and information** use a flat file database to collect and display data	**Computer Science** control and simulate physical systems to achieve a specific goal

Year 6	**Computing systems and networks** use computer systems to collaborate with my peers explain how data is transferred over the internet	**Creating Media** use 3D modelling software manipulate digital images and explain my choices	**Computer Science** know that a variable is used by computers to store information create a game using variables	**Data and information** analyse data in a spreadsheet use a simple formula in a spreadsheet	**Creating Media** manipulate digital images and explain my choices	**Creating Media** Create a webpage on Google Sites consider accessibility features which could be included on a webpage

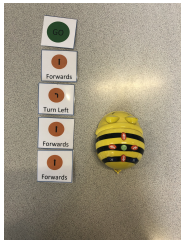
Nursery					
Strand	**Personal, Social and Emotional Development**	**Physical Development**	**Understanding the World**	**Expressive Arts and Design**	**Online Safety**
Targets	Remember rules without needing an adult to remind them. Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. Explain the reasons for rules, know right from wrong and try to behave accordingly.	Match their developing physical skills to tasks and activities in the setting.	Explore how things work.	Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.	I can identify a trusted adult and ask them for help I can recognise that there are things online that can make someone feel sad, upset or uncomfortable I can identify some ways to communicate online I can identify what is private information and understand this should not be shard online
	In small groups, use voice recorders, or the microphone built into a tablet device. These could be used to record how pupils are feeling, or to discuss their relationships with others. Children/teachers can record instructions they have been (through memo recorder) and replay when they need a reminder. Use tablets to take photos of their faces depicting emotions for display. Use tablets to create social stories to support children in being confident to try new	Opportunities to become familiar with a range of input devices, including the keyboard and mouse, in order to develop the required fine motor skills. Use BeeBots to create short sequences and understand directions Tinkering with resources such as BeeBots to test and trial what they do Have remotes, keyboards and mice in the role play area. Play	Having a range of technology, both functioning and models (digital cameras, BeeBots, keyboards, a mouse, computer screens, old laptops/iPads, tablets, remote controlled cars, walkie talkies) for children to explore and trail. This could be done with a small focus group. Recording sounds around the school using voice recorders or iPads. Give children a chance to take photos of their own work to share with the class with screen share Photographer of the day - a child	Photographer of the day - a child who is responsible for taking photos (links with consent) Online gallery tour - National gallery - Natural History Museum - British Museum Use iPad drawing applications to make marks	Smartie the Penguin resource to look at being safe online Project Evolve - a range of online safety lessons focusing on the Educated for a connected world strands to support children being safe online Barefoot Computing - Safety Snakes lesson using BeeBots Get SMART - focussing on the SMART rules Have Google Classroom messages from the class to parents. Look at Google Classroom updates as a class.

	activities	shop, IT manager etc.	who is responsible for taking photos (links with consent) Role play jobs that use technology - link with topic people who help us		
	Reception				
Strand	**Personal, Social and Emotional Development**	**Physical Development**	**Understanding the World**	**Expressive Arts and Design**	**Online Safety**
Targets	Show resilience and perseverance in the face of a challenge. Know and talk about the different factors that support their overall health and wellbeing: - sensible amounts of 'screen time'. Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. Explain the reasons for rules, know right from wrong and try to behave accordingly.	Develop their small motor skills so that they can use a range of tools competently, safely and confidently.	Explore how things work.	Explore, use and refine a variety of artistic effects to express their ideas and feelings. Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.	I can recognise what online and offline mean I can identify a trusted adult and ask them for help I can recognise that there are things online that can make someone feel sad, upset or uncomfortable I can identify some ways to communicate online I can identify what is private information and understand this should not be shard online
	Voice recorders, or the microphone built into a tablet device, could be used to record how pupils are feeling, or to discuss their relationships with others.	Opportunities to become familiar with a range of input devices, including the keyboard and mouse, in order to develop the required fine motor skills.	Having a range of technology, both functioning and models (digital cameras, BeeBots, keyboards, a mouse, computer screens, old laptops/iPads, tablets, remote controlled cars, walkie talkies) for children to explore and trail. This could be	Photographer of the day - a child who is responsible for taking photos (links with consent) Use drawing apps for children to create digital art and marks.	Smartie the Penguin resource to look at being safe online Project Evolve - a range of online safety lessons focusing on the Educated for a connected world strands to support children

	Children/teachers can record instructions they have been (through memo recorder) and replay when they need a reminder. Use tablets or digital cameras to take photos of their faces depicting emotions for display. Children can talk about routines around screen time. Project Evolve - Health, well-being and lifestyle Tinkering and exploring with technology such as the iPads, BeeBots, pencils and toys within the classroom.	Link with phonics. You say a letter sound and they have to identify it on the keyboard. Use BeeBots to create short sequences and understand directions Learn to drag and drop with code.org Barefoot EYFS Activities: BUSY BODIES	done with a small focus group. Give children a chance to take photos of their own work to share with parents. Photographer of the day - a child who is responsible for taking photos (links with consent) Role play jobs that use technology Barefoot EYFS Activities: Pattern making with snowmen, planting seeds algorithm, creating a leaf labyrinth	As a class visit an online gallery tour such as: - National gallery - Natural History Museum - British Museum - Barefoot Computing - Safety Snakes lesson using BeeBots	being safe online Get SMART - focussing on the SMART rules

Year 1

	AUT 1	AUT 2	SPR 1	SPR 2	SUM 1	SUM 2
National Curriculum Targets	recognise common uses of information technology beyond school	understand what algorithms are	use technology purposefully to create, organise, store, manipulate and retrieve digital content	use technology purposefully to create, organise, store, manipulate and retrieve digital content	use technology purposefully to create, organise, store, manipulate and retrieve digital content	follow precise and unambiguous instructions create and debug simple programs
	use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.					
Ready to Progress Targets	I can identify technology and look after it I can explain what a computer is Project Evolve: I can explain rules to keep myself safe when using technology both in and beyond home	I know what an algorithm is Project Evolve: I can explain why it is important to be kind to people online and to respect their choices	I can create a poster using a range of digital media skills Project Evolve: I can describe how to behave online I know what information I should not put online without asking a trusted adult first	I can explain what data is I can sort and group data Project Evolve: I can explain how and why passwords are used	I can use digital applications to create an artwork Project Evolve: I can explain why work using technology belongs to me I can give simple examples of how to find information using digital technologies	I can create a simple sequence of events Project Evolve: I know who I can talk to if I feel worried
Online Safety (Project Evolve & Digital Matters)	**Health Wellbeing and Lifestyle** 	**Online Relationships** 	**Online Bullying** **Online Reputation** 	**Privacy and Security** 	**Copyright and Ownership** **Managing Online Information** 	**Self Image and Identity** 
Events	National Coding Week	Computer Science Education Week	Safer Internet Day		International Girls in ICT Day	
Year 1	**Class Digital Citizenship Agreement** How can we safely and respectfully use technology in the classroom? **Key questions and skills:**	Teach Computing - Robotic Programming: **Key questions and skills:** What is an algorithm? What is sequencing? I can make an algorithm with a clear sequence	**Creating Media- Posters using Chatterkid or Pic Collage:** Use Chatterkid or Pic Collage to create a poster for example: online safety poster to link with Internet Safety Week.	**Teach Computing- Grouping Data using our IT Skills** Use the Teach Computing lesson sequence for developing an understanding of Grouping Data.	**Teach Computing: Creating Media- Digital Painting** Application- Brushes on iPad Link with David Hockney Digital Art	**Teach Computing- Programming Animations** **Application- Scratch Jnr** **Key questions and skills:** What is sequencing? What is an algorithm?

	What technology do we use in class? How does using technology link to the rights of a child? How can we look after our technology? Links to Home: Send home online family agreement **Teach Computing - Computing systems and networks Discuss various uses of technology in children's own lives** **Key questions and skills:** What is a computer? What is technology? What is information technology? (has a computer) What do we use different types of technology for? How does it impact our lives? Why do we use technology? HTML Heroes- what is the internet	I can explain why a sequence needs to be specific Key skills: To identify which buttons to press to create a sequence To press play to start the sequence To be able to clear a sequence To explain what the sequence should be and why To be able to identify if an error has occurred and how to fix it **Extension and support activities:**  Students use their own bodies and arrow cards to create an algorithm on how to get around the class/playground. Create a sequence with FakeBot cards and ask	**Key questions and skills:** Opening an application Take a picture that is in focus Add text to our poster that is clear and easy to read (font, size, alignment) Use appropriate images to match the content of our poster To screen share with our class Using the keyboard to find and recognise letters, the space bar and full stops Using the keyboard to delete text we no longer want Using the upper case button to create capital letters Making a title that is clear and legible Identify features such as bold, underline, font size and font type Explain the choices they have made **Resources:** Teach Computing Digital Writing Lesson	**Key questions and skills:** What is data? How can we sort data? Why do we need to sort data? To sort and group objects To label groups of objects To count how many are in a group To identify the property we are grouping by To compare groups of objects **Extension and support activities:** Sorting Objects Activity (SEND) Use physical objects and sort into groups Connect to maths with subitising and looking at numbers and grouping them Use the students to group and sort by names, height, interests etc.	**Key questions and skills:** I can use a variety of mark making tools I can explain why I chose the tolls I have used I can choose appropriate paint tools and colours I can spot the differences between painting on a computer and on paper	What does it mean to debug? I can explain what an algorithm is I can make a sequence I can explain what a sprite is I can explain what block coding is I can debug a sequence I can predict the outcome of a sequence **Extension and support activities:** Give a sequence of events and a code and ask students to debug the sequence. Use Code.org - Course A lessons to support coding knowledge Create a race between two sprites of students choice Students must explain how they know their code will work without pressing play Head, Shoulders, Knees and Toes Algorithms (SEND)

	Extension and support activities: Scavenger hunt of information technology Go on trip around the school to see what people are using and why Do a task with technology and try without. Compare **Links to Home:** What technology do we use at home?	students to predict the outcome Create obstacles for the BeeBot to face and ask children simplest way to get around them Use compass directions to add for instructions (N,S,E,W) Ask students to explain their reasoning of why they chose the sequence they have chosen **Resources:** Barefoot Computing: Starting with Beebots Beebots Basics SEND Computing Spotlight Resources	**Internet Safety Day –** know to speak to a trusted adult if there is anything they are not comfortable with. Keeping personal information private (name, age, school, address) Jessie and Friends Detective Digiduck SMART Lessons Short film - online safety and pop ups Key Questions: Who are your trusted adults? What is your personal information? What can you do if you see something online that makes you feel uncomfortable?			
	IT Skills: I can hold and carry an i-pad with two hands or hugging it to my chest I can log into the ipad using the passcode I can put the i-pad to sleep by touching the power button I can recognise the home button and know when I press it, it will take to to the home screen I can swipe to each page to find the application I want			I can take a picture with the camera (hold it still and focus by tapping the screen) I can log into an application (reading eggs/doodle maths) using a code I can drag and drop items I can control the volume level I can type onto a document using the keypad		

	Vocabulary: **Algorithm:** a process or set of rules to be followed in calculations or other problem-solving operations, especially by a computer. A group of steps within a task **Sequence:** When we sequence things, we arrange them in a particular order. Sequence-based algorithms are made from a precise set of instructions. **Technology**: is anything made by people to help us **Application**: Application software are the computer programs for performing user tasks such as word processing and web browsers **Code:** The language used to tell computers what the user wants it to do. (Java Script, Block coding, HTML etc.) **Commands**: are strung together can make up algorithms and computer programs and are ultimately instructions for the computer **Information technology**: anything is a computer, works with a computer or has a computer inside it Internet: The **internet** is an informal term for the world-wide communication network of computers.	**Offline:** not controlled by or directly connected to a computer or the internet. **Safety:** free from the risk of harm. providing protection from harm, loss, or danger **Digital Citizenship:** refers to the responsible use of technology by anyone who uses computers, the Internet, and **digital** devices to engage with society on any level **Debug:** process of finding (and correcting) errors in a computer program **Program: Computer programming** is the process of telling a **computer** to do certain things by giving it instructions **Precise: accurate**; exact **Event:** An action that causes something to happen in computing **Input:** The term for giving information to a computer **Data:** is the word used to describe information. This could be facts, observations, numbers, graphs or measurements - any kind of information that has been collected and can be analysed. On a device this can also be sound and images. Digital information, the inputs and outputs of computers **Personal Information:** specific information that is about a person such as their name, address, age, phone number. **Online:** connected to, directly controlled by, or available through a computer system an **online** database working **online**.

Year 2

	AUT 1	AUT 2	SPR 1	SPR 2	SUM 1	SUM 2
National Curriculum Targets	use technology purposefully to create, organise, store, manipulate and retrieve digital content	recognise common uses of information technology beyond school	use technology purposefully to create, organise, store, manipulate and retrieve digital content	use technology purposefully to create, organise, store, manipulate and retrieve digital content	understand what algorithms are; how they are implemented as programs on digital devices create and debug simple programs use logical reasoning to predict the behaviour of simple programs	understand what algorithms are; how they are implemented as programs on digital devices create and debug simple programs use logical reasoning to predict the behaviour of simple programs
	use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.					
Ready to Progress Targets	I can look after technology in my classroom I can take a digital photograph and explain the artistic choices I made Project Evolve: I can simply explain how to use technology in different environments and settings	I can identify technology in the world around me Project Evolve: I can explain the difference between things that are imaginary, 'made up' or 'make believe' and things that are 'true' or 'real' I can describe why other people's work belongs to them	I can talk about how anyone experiencing bullying can get help I can create a pictogram to display data Project Evolve: I can explain why I have a right to say 'no' or 'I will have to ask someone' and explain who my trusted adults are who will help me	I can use technology purposefully to create digital content I can use keywords to find appropriate information using a search engine Project Evolve: I can explain how information put online about someone can last for a long time	I can use a Beebot to create and predict what will happen in a sequence of events Project Evolve: I can explain how other people may look and act differently online and offline	I can use block coding to create a simple algorithm Project Evolve: I can explain and give examples of what is meant by 'private' and 'keeping things private'
Online Safety (Project Evolve & Digital Matters)	**Health Wellbeing and Lifestyle** 	**Managing Online Information** **Copyright and Ownership** 	**Online Relationships** **Online Bullying** 	**Online Reputation** 	**Self Image and Identity** 	**Privacy and Security** 
Events	National Coding Week	Computer Science Education Week	Safer Internet Day		International Girls in ICT Day	
Year 2	**Create a Class Digital Citizenship Agreement:**	**Teach Computing- Computing systems and networks: Discuss various**	**Teach Computing- Data and Information: Pictograms**	**Creating Media- Use i-Pads purposely for research and**	**Teach Computing- Programming Robots (BeeBots)**	**Teach Computing- Programming Quizzes**

	Key questions and skills: How can we safely and respectfully use technology in the classroom? What technology do we use in class? Who can we talk to in school/home if there is something online that makes us feel uncomfortable? (trusted adult/child line) How does our digital agreement link to our rights as a child? **Links to Home:** Send home online family agreement **Teach Computing- Creating Media: Digital Photography** iPad camera and Pixlr app **Key questions and skills:** I can explain what I did to capture a digital photo I can explain the process of taking a good photograph I can improve a photograph by retaking it	**uses of technology in the world around us** Recap: What is technology? What is a computer? What is information technology? What do we use technology for? How does it impact our lives? **Key questions and skills:** How is IT used in the wider world? What are inputs, processes and outputs with technology? (speaker = output, process= microphone = input) How does IT benefit our world? (supermarkets, alarm systems at home, TVs to watch shows etc.) **Skills Builder Link**: Trip to a shop/supermarket to see what technology they use to help them. A guest/parent to come in and share how they use technology in their job **Extension and support activities:** Scavenger hunt around school/home for inputs, outputs and technology	**j2e application** Use the Teach Computing lesson sequence for developing an understanding of data and information using pictograms (refer back to year 1 lessons to recap thinking of sorting data) **Key questions and skills:** What is data? How can we count and record data? Why do we present data? To collect data using a tally chart To use the data to create a pictogram To present the data and explain what the pictogram shows (link skills builder presenting) To answer 'more than'/'less than' and 'most/least' questions about an attribute To understand what data is okay to share and what data is not okay	**create digital content to show my findings** I can identify devices I can use to access information online I can identify a search engine to find information I can use simple words to search a topic I understand that not all information online is true **Create digital content outcomes:** Create a PicCollage poster or Google Slides to share information Choose an appropriate layout for the poster or slides How to take a picture that is in focus How to add text to our poster that is clear and easy to read (font, size, alignment) To use appropriate images to match the content of our poster How to screen share with our class **Subject links:** Research for Science animal habitats	**Key questions and skills:** What is sequencing? What is an algorithm? Why is it important that we have our events in a clear sequence? I can explain why the sequence matters to ensure the algorithm and code works I can use the same instructions to create different algorithms I can predict the outcome of a sequence I can spot mistakes and debug them **Extension and support activities:** Lego Building Algorithm Activity (SEND) Creating Patterns Activity (SEND) Unplugged Activity -Algorithms Challenge- I can explain my choices when creating a code	**Key questions and skills:** What is sequencing? What is an algorithm? What is debugging? How can we show these in a code? Why does the sequence need to have precise instructions? Why do we need to understand code? What is an event? I can use block coding to create an algorithm I can explain what block coding is I can explain I need a starting event/block so my programme knows it needs to run I can create a simple sequence of events using block coding I can explain the clicking is a type of event in code to tell the code to do something I can look at a basic sequence and predict what will occur

	I can recognise that images can be changed To hold the camera still to take a photo To use both portrait and landscape for different purposes To move closer and further away from the object to make it bigger or smaller To have the image in focus **Extension and support activities:** Look at different types of cameras and compare Think about AI technology and creating images. Is this really art?	Make a physical machine with children Design own technology to solve a problem	**Extension and support activities:** Use cut and paste pictograms or build on Google Slides to support different needs Paired Programming to support SEND Colourful Kits - Data BBC Bitesize - Pictograms BBC Bitesize - Tally Charts **Safer Internet Day -** know to speak to a trusted adult if there is anything they are not comfortable with. Keeping personal information private (name, age, school, address) Key Questions: Who are your trusted adults? What is your personal information? What can you do if you see something online that makes you feel uncomfortable? I can explain what private means and how to keep things private	Research for RE about a religious event		I can explain why I have made specific choices with my sequence and events I can plan, create and debug a code that is fit for a specific purpose **Extension and support activities:** Paired Programming to support SEND and challenge more able coders Use pictures to map out the code first or printed coding blocks

			Project Evolve Jessie and Friends Detective Digiduck SMART Lessons			
	IT Skills: **Target: use technology purposefully to create, organise, store, manipulate and retrieve digital content** I can hold and carry an i-pad with two hands or hugging it to my chest I can log into the ipad using the passcode I can put the i-pad to sleep by touching the power button I can recognise the home button and know when I press it, it will take to to the home screen			I can swipe to each page to find the app I want I can take a picture with the camera (hold it still and focus by tapping the screen) I can log into an app (reading eggs) using a code I can drag and drop items I can use the camera to scan a QR code to access apps/websites needed I can type using the keyboard	
	Vocabulary: **Yr 2** **Algorithm:** a process or set of rules to be followed in calculations or other problem-solving operations, especially by a computer. A group of steps within a task **Sequence:** When we sequence things, we arrange them in a particular order. Sequence-based algorithms are made from a precise set of instructions. **Technology**: is anything made by people to help us **Application**: Application software are the computer programs for performing user tasks such as word processing and web browsers **Code:** The language used to tell computers what the user wants it to do. (Java Script, Block coding, HTML etc.) **Commands**: are strung together can make up algorithms and computer programs and are ultimately instructions for the computer			**Personal Information:** specific information that is about a person such as their name, address, age, phone number. **Online:** connected to, directly controlled by, or available through a computer system an **online** database working **online**. **Offline:** not controlled by or directly connected to a computer or the internet. **Safety:** free from the risk of harm. providing protection from harm, loss, or danger **Digital Citizenship:** refers to the responsible use of technology by anyone who uses computers, the Internet, and **digital** devices to engage with society on any level **Data:** is the word used to describe information. This could be facts, observations, numbers, graphs or measurements - any kind of information that has been collected and can be analysed. On a device this can also be sound and images. Digital information, the inputs and outputs of computers **Attribute:** A property of an object or person etc. Something you can say it has (such as size or colour)	

	Information technology: anything is a computer, works with a computer or has a computer inside it Internet: The **internet** is an informal term for the world-wide communication network of computers. **Debug:** process of finding (and correcting) errors in a computer program **Program: Computer programming** is the process of telling a **computer** to do certain things by giving it instructions **Precise: accurate**; exact **Event:** An action that causes something to happen in computing **Input:** The term for giving information to a computer	**Tally chart:** A tally chart is just one method of collecting data using tally marks, which are lines grouped in 5s **Pictogram:** is a chart that uses pictures or symbols to represent data so you don't have to look at lots of numbers. **Block Coding:** Block coding refers to the technique of adding extra bits to a digital word in order to improve the reliability of transmission. **Sprite:** a computer graphic which may be moved on-screen and otherwise manipulated as a single entity. (a character you can manipulate) **Event:** Something that can happen when a program is running, such as a mouse being clicked, a key being pressed, or an amount of time passing.

Year 3

	AUT 1	AUT 2	SPR 1	SPR 2	SUM 1	SUM 2
National Curriculum Targets	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 on a range of digital devices to design and create content that accomplishes given goals use search technologies effectively; appreciate how results are selected and ranked	select, use and combine a variety of software (including internet services) on a range of digital devices to collect, analyse, evaluate and present data and information use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	design, write and debug programs that accomplish specific goals; solve problems by decomposing them into smaller parts use sequence, selection, and repetition in programs; work with 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 collect, analyse, evaluate and present data and information	use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs use sequence, selection, and repetition in programs; work with forms of input and output
	use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.					
Ready to Progress	I understand that the internet is a network of computers Project Evolve: I can explain what is meant by the term 'identity' I can describe how connected devices can collect and share anyone's information with others	I can use text and images to convey a message to an audience using publishing software Project Evolve 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 explain what inputs and outputs are I can create a simple stop motion clip Project Evolve: I can explain what it means to 'know someone' online and why this might be different from knowing someone offline I can explain what private means and how to keep things private	I can explain the relationship between an event and an action in a simple sequence of code Project Evolve: I can explain the need to be careful before sharing anything personal I can describe appropriate ways to behave towards other people online and why this is important	I can use a branching database to group data Project Evolve: I can explain why spending too much time using technology can sometimes have a negative impact on anyone; I can give some examples of both positive and negative activities where it is easy to spend a lot of time engaged	I can make my sequence more efficient using loops/repetition Project Evolve: I can demonstrate how to use key phrases in search engines to gather accurate information online I can explain the difference between opinion, belief and fact when looking at information online
Online Safety (Project Evolve & Digital Matters)	**Self Image and Identity** **Privacy and Security** 	**Copyright and Ownership** 	**Online Relationships** 	**Online Reputation** **Online Bullying** 	**Health Wellbeing and Lifestyle** 	**Managing Online Information** 
Events	National Coding Week	Computer Science Education Week	Safer Internet Day		International Girls in ICT Day	

Year 3	**Create a Class Digital Citizenship Agreement:** **Key questions and skills:** How can we safely and respectfully use technology in the classroom? What technology do we use in class? Who can we talk to in school/home if there is something online that makes us feel uncomfortable? (trusted adult/child line) How does our digital agreement link to our rights as a child? **Links to Home:** Send home online family agreement **Teach Computing- Computing Systems and Networks: Connecting Computers** **Recap:** What is a computer? What is technology? What is information technology? **Key questions and skills:** To know that the internet is a network of computers	**Teach Computing- Creating media using a range of softwares** Use a range of applications such as: Canva, Google Slides and Book Creator and compare the softwares for a purpose (presentation) **Key questions and skills:** Collaboration in groups Add, use and position text and images Saving and retrieving the digital work Understand the rule of thirds and spacing Use appropriate font and background choices I can explain the reasons I have chosen what I have included within my presentation I can think of my audience I can screen share my work with the class **Subject links:** Publish poem or tourism pamphlet Create a presentation about light or a location in the UK	**Teach Computing- Creating media using stop motion** **Key questions and skills:** I can explain how an animation/flip book works I can explain how an animation/flip book works I can review a sequence of frames to check my work I can improve my animation based on feedback **Stop motion animators:** Tim Allen Kelli S Williams Ainslie Henderson Max Porter and Ru Kuwahata **Internet Safety Day:** know to speak to a trusted adult if there is anything they are not comfortable with. Keeping personal information private (name, age, school, address) Recognising acceptable/unacceptable behaviour and reporting behaviour if you have concerns	**Teach Computing- Programming events and actions in programs** Use the Teach Computing lesson sequence for events and actions **Key questions and skills:** What is an event? What are accessibility features? How can I ensure my design is inclusive to a wide variety of users? I can explain the relationship between an event and an action I can consider the real world when making design choices I can test a program against a given design I can debug and modify my design to fit the purpose **Extension and support activities:** BBC Bitesize - What makes computer games good? What makes computer games great? Draw out the code/maze first to have visual to support	**Teach Computing- Data and Information- Branching Databases** **j2e application** developing an understanding of branching databases (refer back to year 2 lessons to recap collecting data using pictograms) **Key questions and skills:** What is data? What is a database? What is a branching database? used to classify groups of objects by answering questions with either 'yes' or 'no'. Branching databases can also be called binary trees. How can we group data using yes/no questions? Why can databases be useful in the wider world? To select attributes in which groups of data can be stored into using yes/no questions To select objects to arrange in a branching database To test the branching database	**Teach Computing - Programming + making media repetition** In this unit look at repetition and how it is used in both code and in music. Compare different softwares, both Scratch and garage band, to see how repetition can create a simpler sequence. Use Scratch to create a choir sequence that includes sound that repeats in a loop. Make characters that each have a sound associated with them. When clicked (an input event) they make a sound (output event). **Key questions and skills:** I can link with inputs and outputs when I am creating code I can explain how repetition works I can compare different music making softwares I can put together a sequence of sounds to create an algorithm I can plan out a sequence, read it and debug as needed

	and how we can connect globally through them What is the internet? What is a network? How do we use these in our lives? What parts make up digital devices? What of these are inputs and outputs? How are digital devices connected? How can digital devices and networks make our lives easier? How have they changed society over time? **Extension and support activities:** Network Hunt Activity		Talk about app usage and content, conduct and contact on them **Key questions and skills:** Who are your trusted adults? What is your personal information? What can you do if you see something online that makes you feel uncomfortable? I can explain what private means and how to keep things private Jessie and Friends Detective Digiduck SMART Lessons Code.org Safety Video ThinkUKnow - Band Runner	Use paired programming to support all students Give children a code already built that they can modify to make into their own Challenge children to make the game accessible for a particular user e.g. someone with visability impairments	To choose and explain that questions need to be ordered carefully to split objects into similarly sized groups **Extension and support activities:** BBC BItesize - Databases To interpret and draw conclusions from the database and compare it to others Draw out the database prior to using j2e Use physical objects to sort into a database Collect information linked to another subject such as classifying types of plants or vocabulary words etc.	**Extension and support activities:** Use Garageband to record and create a repetitive music loop Use the Audioshare application to create music with a loop. Using Chrome musiclab, try out the different ways of creating digital sounds and make music (a beat or rhythm repeated) - https://musiclab.chromeexperiments.com/
	IT Skills/Ipad Skills: I can hold and carry an i-pad with two hands or hugging it to my chest I can log into the ipad using the passcode I can put the i-pad to sleep by touching the power button, I can turn on/off the ipad by holding the power button I can recognise the home button and know when I press it, it will take to to the home screen			**Google Classroom:** I can log into my google classroom and find the classwork assigned to me I can ‘view assignment’ I can click on links/documents provided to access the work I can ‘Hand in’ or ‘Mark as done’ I can unsubmit assignment if needed	

	I can swipe to each page to find the app I want I can take a picture or video with the camera (hold it still and focus by tapping the screen) I can find a picture or video I have taken I can accurately log into apps (reading eggs) using my unique logins I can use the keyboard on the i-pad to type accurately checking for mistakes such as full stops or spaces **Browser: Google Chrome/Safari** I can find and open Google Chrome browser I can identify the URL bar I can open a new tab and close them I can use Google to search for websites and images I can use the back, forward and refresh button on the web browser as needed	I can add a 'Private Comment' to an assignment I can find and navigate my Drive I can create folders and sort my documents I can add a file to an assignment on Google Classroom
	Vocabulary: Year 3 **Algorithm:** a process or set of rules to be followed in calculations or other problem-solving operations, especially by a computer. A group of steps within a task **Sequence:** When we sequence things, we arrange them in a particular order. Sequence-based algorithms are made from a precise set of instructions. **Technology**: is anything made by people to help us **Application**: Application software are the computer programs for performing user tasks such as word processing and web browsers **Code:** The language used to tell computers what the user wants it to do. (Java Script, Block coding, HTML etc.) **Commands**: are strung together can make up algorithms and computer programs and are ultimately instructions for the computer	**Data:** is the word used to describe information. This could be facts, observations, numbers, graphs or measurements - any kind of information that has been collected and can be analysed. On a device this can also be sound and images. Digital information, the inputs and outputs of computers **Attribute:** A property of an object or person etc. Something you can say it has (such as size or colour) **Tally chart:** A tally chart is just one method of collecting data using tally marks, which are lines grouped in 5s **Pictogram:** is a chart that uses pictures or symbols to represent data so you don't have to look at lots of numbers. **Block Coding:** Block coding refers to the technique of adding extra bits to a digital word in order to improve the reliability of transmission.

	Information technology: anything is a computer, works with a computer or has a computer inside it Internet: The **internet** is an informal term for the world-wide communication network of computers. **Personal Information:** specific information that is about a person such as their name, address, age, phone number. **Online:** connected to, directly controlled by, or available through a computer system an **online** database working **online**. **Offline:** not controlled by or directly connected to a computer or the internet. **Safety:** free from the risk of harm. providing protection from harm, loss, or danger **Digital Citizenship:** refers to the responsible use of technology by anyone who uses computers, the Internet, and **digital** devices to engage with society on any level **Debug:** process of finding (and correcting) errors in a computer program **Program: Computer programming** is the process of telling a **computer** to do certain things by giving it instructions **Precise: accurate**; exact **Input:** The term for giving information to a computer **Output:** feed information OUT of a computer – like speakers, a monitor or a printer. They are parts of a computer that let the user see or hear the results of the computer's data processing.	**Sprite:** a computer graphic which may be moved on-screen and otherwise manipulated as a single entity. (a character you can manipulate) **Event:** Something that can happen when a program is running, such as a mouse being clicked, a key being pressed, or an amount of time passing. **Online identity:** what people see of you online. Whenever you use a social network, send a text, or post online, you're adding to your online identity. Your online identity may be different from your real-world identity — the way your friends, parents, and teachers think of you. Trying on different personas is part of the fun of an online life. **Anonymity:** This describes situations where a person's true identity is unknown. **Copyright:** the legal right to be the only one to reproduce, publish, and sell the contents and form of a literary or artistic work. **Debug:** process of finding (and correcting) errors in a computer program **Program:** Computer programming is the process of telling a computer to do certain things by giving it instructions **Private:** belonging to or for the use of one particular person or group of people only. **Repetition and Loops:** are a programming element that repeat a portion of code a set number of times until the desired process is complete (a condition has been met). Repetitive tasks are common in programming, and loops are essential to save time and minimise errors. **Branching Database:** used to classify groups of objects. It is used to help identify the objects by. answering questions with either 'yes' or 'no'. Branching databases can also be called binary trees. They are called branching because each time a question is asked there can be two answers, making two branches.

Year 4

	AUT 1	AUT 2	SPR 1	SPR 2	SUM 1	SUM 2
National Curriculum Targets	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	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	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	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, 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 collect, analyse, evaluate and present 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
	use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.					
Ready to Progress	I can explain what a website is and how to contribute to the WWW Project Evolve: I can analyse online information to make a judgement about its accuracy I can explain why I need to consider who owns online information and whether I have the right to reuse it	I can make my code more efficient using loops/repetition and explain the choices I have made I can create digital content using a range of applications and explain why they are best suited for purpose Project Evolve: I can explain how my online identity can be different to my offline identity	I can use sequence, repetition to code a microcontroller I can use selection (an 'if…then…' statement) in physical computing Project Evolve: I can give examples of how to be respectful to others online and describe how to recognise healthy and unhealthy online behaviours	I can make simple edits to a photograph Project Evolve: I can describe how some online services may seek consent to store information about me; I know how to respond appropriately and who I can ask if I am not sure I can describe how to find out information about others by searching online	I can use a data logger to collect information Project Evolve: I can recognise when someone is upset, hurt or angry online.	I can create a Vlog is and explain how it is created using visual and audio inputs Project Evolve: I can explain how using technology can be a distraction from other things, in both a positive and negative way
Online Safety (Project Evolve & Digital Matters)	**Managing Online Information** **Copyright and Ownership** 	**Self Image and Identity** 	**Online Relationships** 	**Privacy and Security** **Online Reputation** 	**Online Bullying** 	**Health Wellbeing and Lifestyle** 
Events	National Coding Week	Computer Science Education Week	Safer Internet Day		International Girls in ICT Day	

Year 4	**Create a Class Digital Citizenship Agreement:** **Key questions and skills:** How can we safely and respectfully use technology in the classroom? What technology do we use in class? Who can we talk to in school/home if there is something online that makes us feel uncomfortable? (trusted adult/child line) How does our digital agreement link to our rights as a child? **Links to Home:** Send home online family agreement **Teach Computing - Computing systems and networks: The Internet** **Key questions and skills:** What is a website? What is the internet made up of? Who can contribute to the WWW?	**Touch Typing- Typing Club** **Teach Computing- Programming Repetition in Games** **Key questions and skills:** What is repetition? BBC Bitesize Why is repetition essential in coding? How does repetition help with the concept of abstraction? I can explain the difference between infinite and count controlled loops I can explain what the outcome of the repetition will be I can create an algorithm that includes repetition that serves a purpose for my code I can think about accessibility needs for different people and hot this may impact my game **Extension and support activities:**	**Touch Typing- Typing Club** **Teach Computing- Physical Programming with Crumbles** **Key questions and skills:** Why do computer scientists need conditional statements/events? Why do computer scientists need selection? I can state what selection is I can create a simple circuit and connect it to a microcontroller I can use a count-controlled loop to control outputs I can explain that a condition being met can start an action I can use selection (an 'if…then…' statement) to direct the flow of a program BBC Bitesize - Selection **Extension and support activities:**	**Touch Typing- Typing Club** **Teach Computing: Creating Media - Photo Editing** Use the Teach Computing lesson sequence for developing an understanding of photo editing and how to save and retrieve data **Key questions and skills:** I can explain why I may rotate or crop an image I can explain to effects colour has in images to the viewer I can compare my image against a given criteria I can explain how images can be altered and how what we see online may not be real **Extension and support activities:** Use different cameras to see different qualities of images from different devices Work in pairs to support those who need extra support	**Touch Typing- Typing Club** **Teach Computing:** **Data and Information- Data Logging** Use the Teach Computing lesson sequence for developing an understanding of data and how we log it over time (refer back to year 3 lessons to recap collecting data using pictograms) **Key questions and skills:** What is data? How can we collect and record data over time? Why do we collect data over time? How does this help people? What are some examples of data being collected over time? (census, speed cameras, temperature, weather) To collect data using a data logger To understand that different data will answer different questions To sort data and explain why it has been sorted in that way	**Touch Typing- Typing Club** **Creating Media Outcome Project - Create a series of Vlogs or Podcasts about a topic from the year** Over the course of the term students/teachers are to choose a topic for students to create a 3 sequence Vlog using Inshot or FlipGrid. Students are to plan, film and edit a series of Vlogs that follow a topic **Key questions and skills:** I can plan a series of Vlogs that follow each other in a sequence I can set up a shot of myself thinking about framing, lighting and sound I can be concise and engaging when speaking I can use the editing software to trim or cut parts that are not needed I can add titles or information on the video if needed Teach Computing lesson series: Audio Production

	I can explain what a website is and how to navigate it I can analyse information to make a judgement on its accuracy I can identify misinformation and disinformation and why people may share these online I can think critically about what I see online I can identify how search engines work and results are shared I can use key words and phrases to search information **Further developing IT skills with introduction of individual laptops** Introduce children to the laptops ensuring they have an understanding of the elements and how to access Google Classroom Teaching basic skills of using a computer such as	Shapes & Crystal Flowers Repetition Paired programming to support all students Children can modify a code rather than build from nothing Add comments to code to justify and explain coding choices **IT Creating Digital Content:** English News report- record it, Create an online blog for the newspaper, create a front page using google docs, use Google Suite to create a presentation or publish a piece of work. Ensure children are able to explain choices they have made when using the applications	Physical programming Simon says "if i say this, then do this" Paired programming to support all students Get students to think of real life problems that they could create a solution for **Internet Safety Day –** **Key questions and skills:** Who are your trusted adults? What is your personal information? What can you do if you see something online that makes you feel uncomfortable? I can explain what private means and how to keep things private What is your online reputation and why is this important to consider? SMART Videos Digital Matters Play, Like, Share	Have an exhibition of images for parents Give a series of ideas or concepts for children to capture e.g. light, colour, shape, form, portrait Have students set up their own scenes to capture such as a still life Set up your own still life and see how many ways children can capture the same still life in different ways	To interpret and draw conclusions from data **Extension and support activities:** Link with a subject to collect and collate data Link with maths and reading/creating graphs	

	logging in, using a keyboard and mouse.					

IT Skills:

Laptops Skills:

I can turn on and off a laptop and I understand that by closing the screen I am not turning it off

I can log into the laptop using my own unique .206 login and log out again

I can double tap to right click on something

I can copy (Crtl, C), cut (Crtl, X) and paste (Crtl, V)

I can use the shift button to make capital letters and the @, ?, (), ! symbols

Browser:

I can find and open Google Chrome browser

I can identify the URL bar

I can open a new tab and close them

I can use Google to search for websites and images

I can use the back, forward and refresh button on the web browser as needed

Google Classroom:

I can log into my google classroom and find the classwork assigned to me

I can 'view assignment'

I can click on links/documents provided to access the work

Vocabulary: Year 4

Algorithm: a process or set of rules to be followed in calculations or other problem-solving operations, especially by a computer. A group of steps within a task

Sequence: When we sequence things, we arrange them in a particular order. Sequence-based algorithms are made from a precise set of instructions.

Technology: is anything made by people to help us

Application: Application software are the computer programs for performing user tasks such as word processing and web browsers

Code: The language used to tell computers what the user wants it to do. (Java Script, Block coding, HTML etc.)

Commands: are strung together can make up algorithms and computer programs and are ultimately instructions for the computer

Information technology: anything is a computer, works with a computer or has a computer inside it

Internet: The **internet** is an informal term for the world-wide communication network of computers.

Personal Information: specific information that is about a person such as their name, address, age, phone number.

Online: connected to, directly controlled by, or available through a computer system an **online** database working **online**.

Offline: not controlled by or directly connected to a computer or the internet.

Safety: free from the risk of harm. providing protection from harm, loss, or danger

Digital Citizenship: refers to the responsible use of technology by anyone who uses computers, the Internet, and **digital** devices to engage with society on any level

Debug: process of finding (and correcting) errors in a computer program

Program: Computer programming is the process of telling a **computer** to do certain things by giving it instructions

	I can ‘Hand in’ or ‘Mark as done’ I can unsubmit assignment if needed I can add a ‘Private Comment’ to an assignment I can find and navigate my Drive I can create folders and sort my documents I can add a file to an assignment on Google Classroom **Word processing:** Changing font (type and size) Changing background Insert image (copy & paste or “Insert”) Formatting a document (heading, subheading main text) Text alignment Selecting text Purpose of each word processing type (e.g. docs, slides, sheets etc.)(**Computer Science:** I can explain what an algorithm is I can make a sequence I can debug a sequence I can add a loop or repetition to condense my code I can use block coding to create an algorithm with a sequence and repetition	**Precise: accurate**; exact **Input:** The term for giving information to a computer **Output:** feed information OUT of a computer – like speakers, a monitor or a printer. They are parts of a computer that let the user see or hear the results of the computer's data processing**.** **Data:** is the word used to describe information. This could be facts, observations, numbers, graphs or measurements - any kind of information that has been collected and can be analysed. On a device this can also be sound and images. Digital information, the inputs and outputs of computers **Attribute:** A property of an object or person etc. Something you can say it has (such as size or colour) **Block Coding:** Block coding refers to the technique of adding extra bits to a digital word in order to improve the reliability of transmission. **Sprite:** a computer graphic which may be moved on-screen and otherwise manipulated as a single entity. (a character you can manipulate) **Event:** Something that can happen when a program is running, such as a mouse being clicked, a key being pressed, or an amount of time passing. **Online identity:** what people see of you online. Whenever you use a social network, send a text, or post online, you're adding to your online identity. Your online identity may be different from your real-world identity — the way your friends, parents, and teachers think of you. Trying on different personas is part of the fun of an online life. **Anonymity:** This describes situations where a person’s true identity is unknown. **Copyright:** the legal right to be the only one to reproduce, publish, and sell the contents and form of a literary or artistic work. **Debug:** process of finding (and correcting) errors in a computer program **Repetition and Loops:** are a programming element that repeat a portion of code a set number of times until the desired process is complete (a condition has been met). Repetitive tasks are common in programming, and loops are essential to save time and minimise errors.

		Selection - In computer science, conditional statements (selection) can perform different computations or actions depending on whether a programmer-specified condition equals true or false. For example: If he clicks the red square he gets a prize, if he clicks the blue square, he loses. **Conditionals:** Statements that only run under certain conditions. **Fake news**: Fake news is news or stories on the internet that are not true. There are two types of fake news, disinformation, and misinformation. **Disinformation:** False information that's created and shared to deliberately cause harm. **Misinformation:** Misinformation is generally used to refer to misleading information created or disseminated without manipulative or malicious intent. **Influencers:** a person with the ability to influence potential buyers of a product or service by promoting or recommending the items on social media. **Scams:** a dishonest scheme; a fraud. a dishonest or illegal plan or activity, esp. one for making money Data Logging: A data logger is a device that records data over time

Year 5

	AUT 1	AUT 2	SPR 1	SPR 2	SUM 1	SUM 2
National Curriculum Targets	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	design, write and debug programs that accomplish specific goals and 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 use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	design, write and debug programs that accomplish specific goals, solve problems by decomposing them into smaller parts use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	design, write and debug programs that accomplish specific goals; solve problems by decomposing them into smaller parts use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	design, write and debug programs that accomplish specific goals; solve problems by decomposing them into smaller parts use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
	use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.					
Ready to Progress targets	I know that computers communicate between them through computer systems I can use a search engine effectively Project Evolve: I can describe some of the ways people may be involved in online communities and how they might collaborate with others and make positive contributions I can explain what is meant by 'being sceptical'; I can give examples of when and why it is important to be 'sceptical'	I can use conditionals and variables effectively 'if statements' (when ____ happens, ____ happens) in block coding I can explain my coding choices Project Evolve: I can demonstrate how to make responsible choices about having an online identity, depending on context	I can capture, edit and manipulate visual and audio content to make a short film Project Evolve: I can describe ways that information about anyone online can be used by others to make judgments about an individual and why these may be incorrect	I can create a vector drawing using lines and shapes Project Evolve: I can give examples of content that is permitted to be reused and know how this content can be found online	I can use a flat file database to collect and display data Project Evolve: I can describe how what one person perceives as playful joking and teasing (including 'banter') might be experienced by others as bullying. I can explain what a strong password is and demonstrate how to create one	I can control and simulate physical systems to achieve a specific goal Project Evolve: I can describe some strategies, tips or advice to promote health and wellbeing with regards to technology.

Online Safety (Project Evolve & Digital Matters)	**Online Relationships** **Managing Online Information** 	**Self Image and Identity** 	**Online Reputation** 	**Copyright and Ownership** 	**Online Bullying** **Privacy and Security** 	**Health Wellbeing and Lifestyle** 
Events	National Coding Week	Computer Science Education Week	Safer Internet Day		International Girls in ICT Day	
Year 5	**Create a Class Digital Citizenship Agreement:** **Key questions and skills:** How can we safely and respectfully use technology in the classroom? What technology do we use in class? Who can we talk to in school/home if there is something online that makes us feel uncomfortable? (trusted adult/child line) How does our digital agreement link to our rights as a child? **Links to Home:** Send home online family agreement **Teach Computing- Computing systems and networks: Systems and Searching**	**Touch Typing** **Teach Computing- Programming: Selection in Quizzes** **Key questions and skills:** I can state what selection is What does selection look like in a code? What is a condition? I can explain that a condition being met can start an action I can use selection (an 'if…then…' statement) to direct the flow of a program I can debug my code to ensure it is fit for purpose I can think about inclusive design when creating my quiz	**Touch Typing** **Teach Computing- Creating Media: Video Production** Create a short film, advertisement etc. with iMovie linked with a topic **Key questions and skills:** I can explain what a video is I can use a storyboard to plan my film I can explain the effects of different angles I can store, retrieve, and export my recording to a computer I can explain how to improve a video by reshooting and editing I can select the correct tools to make edits to my video	**Touch Typing** **Teach Computing- Creating Media: Vector graphics** Vectr.com or Adobe Illustrator Use the Teach Computing lesson sequence for creating vector graphics **Key questions and skills:** I can explain what a vector drawing is and how it is different to paper based drawing I can recognise that vector drawings are made using shapes I can copy part of a drawing by duplicating several objects I can create a vector drawing for a specific purpose I can make connections between this skill and a real	**Touch Typing** **Teach Computing- Data and information: Flat-file databases** Use the Teach Computing lesson sequence for developing an understanding of data and flat file databases (refer back to year 4 lessons to recap collecting data using pictograms) **Key questions and skills:** What is data? How can we collate data? Why would a flat file database be more convenient than other databases? To collect data and input it into a flat file database To organise data and be able to sort it	**Touch Typing** **Programming: Exploring further with Crumbles** As a class or in groups, children will think of a problem which can be solved using a crumble and its kit elements. Children will plan, tinker, create and debug to create a final product. Example: create a buggy for space, create a light code to communicate with friends, create an alarm or timer, create a constellation of stars to teach about space, create a lighthouse, create a night light etc. **Key questions and skills:** I can set up a simple circuit to connect the different elements

	What is a computer network? I can describe the input, process, and output of a digital system I can explain that computer systems communicate with other devices I can recognise the role of computer systems in our lives I can make use of a web search to find specific information and refine my web search I can explain how search systems are ranked I can identify how search engines work and results are shared **Extension and support activities:** Network Hunt Activity Consolidating **IT Skills** Teaching basic skills of using a computer such as logging in, using a keyboard and mouse. Word processing skills such as touch typing, using Google docs.	**Extension and support activities:** I can explain my choices in code and how I could use abstraction to simplify it If the answer is wrong, add some instruction to support the player to get the answer correct	**Extension and support activities:** Have a movie showing with the community **Internet Safety Day –** know to speak to a trusted adult if there is anything they are not comfortable with. Keeping personal information private (name, age, school, address) Recognising acceptable/unacceptable behaviour and reporting behaviour if you have concerns Content, conduct, contact Key Questions: Who are your trusted adults? What is your personal information? What can you do if you see something online that makes you feel uncomfortable? I can explain what private means and how to keep things private	job such as illustrator or graphic designer **Extension and support activities:** To use a different software/application and compare them To create a design that is fit for specific purposes To create a design for a new school logo To work in teams and use a range of Skills Builder Skills to design a vector image for a purpose	To compare data visually using graphs or charts To interpret and draw conclusions from data that relate to real life problems **Extension and support activities:** Work in paired programming groups to support the understanding Collect data linked to children's interests	I can use physical technology to solve a simple problem I can show resilience when using physical programming I can explain how my code works to solve my problem I can use efficient coding methods and debug my code to ensure it works effectively **Extension and support activities:** STEM Projects with Crumbles Work in paired programming groups to support the understanding Challenge by giving limited equipment or specific materials

	Consolidating knowledge of the Google Suite applications use a range of software to achieve specific goals Use Digimaps in links with Geography to see how technology can support us in seeing the world and linked with our mapping skills		What is your online reputation and why is this important to consider? **Helpful Links:** Downloaded Lessons SMART Lessons Code.org Safety Video ThinkUKnow - Band Runner Google Interland Google Online Safety Lessons			
	IT Skills: **Ipad Skills:** I can hold and carry an i-pad with two hands or hugging it to my chest I can log into the ipad using the passcode I can put the i-pad to sleep by touching the power button, I can turn on/off the ipad by holding the power button I can recognise the home button and know when I press it, it will take to to the home screen I can swipe to each page to find the app I want I can take a picture or video with the camera (hold it still and focus by tapping the screen) I can find a picture or video I have taken			**Browser:** I can find and open Google Chrome browser I can identify the URL bar I can open a new tab and close them I can use Google to search for websites and images I can use the back, forward and refresh button on the web browser as needed **Google Classroom:** I can log into my google classroom and find the classwork assigned to me I can 'view assignment' I can click on links/documents provided to access the work I can 'Hand in' or 'Mark as done'		

	I can accurately log into apps (reading eggs) using my unique logins I can use the keyboard on the i-pad to type accurately checking for mistakes such as full stops or spaces **Laptops Skills:** I can log into the laptop using my own unique .206 login and log out again I understand that by closing the screen I am not turning off the computer I can double tap to right click on something I can copy (Crtl, C), cut (Crtl, X) and paste (Crtl, V) I can use the shift button to make capital letters and the @, ?, (), ! symbols	I can unsubmit assignment if needed I can add a 'Private Comment' to an assignment I can find and navigate my Drive I can create folders and sort my documents I can add a file to an assignment on Google Classroom
	Vocabulary: Year 5 **Algorithm:** a process or set of rules to be followed in calculations or other problem-solving operations, especially by a computer. **Sequence:** When we sequence things, we arrange them in a particular order. Sequence-based algorithms are made from a precise set of instructions. **Technology:** is anything made by people to help us **Information technology:** anything is a computer, works with a computer or has a computer inside it Internet: The **internet** is an informal term for the world-wide communication network of computers. **Online:** connected to, directly controlled by, or available through a computer system an online database working online. **Safety:** free from the risk of harm. providing protection from harm, loss, or danger **Digital Citizenship:** refers to the responsible use of technology by anyone who uses computers, the Internet, and digital devices to engage with society on any level	**Private:** belonging to or for the use of one particular person or group of people only. **Repetition and Loops:** are a programming element that repeat a portion of code a set number of times until the desired process is complete (a condition has been met). Repetitive tasks are common in programming, and loops are essential to save time and minimise errors. **Selection:** In computer science, conditional statements (selection) can perform different computations or actions depending on whether a programmer-specified condition equals true or false. For example: If he clicks the red square he gets a prize, if he clicks the blue square, he loses. **Conditionals:** Statements that only run under certain conditions. **Event:** In computing, an event is an action or occurrence recognized by the software. An event causes something to happen, for example pressing the mouse and the document opens. **Variable:** A variable stores a piece of information in a computer's memory while a program is running, that can be retrieved when needed. A variable is an example of a data structure. As pupils move on to secondary school, they will learn about other data structures such as arrays. A variable can be a number or text or perhaps true/false.**Flat File Database**: A flat file database is described by a very simple

	Online identity: what people see of you online. Whenever you use a social network, send a text, or post online, you're adding to your online identity. Your online identity may be different from your real-world identity — the way your friends, parents, and teachers think of you. Trying on different personas is part of the fun of an online life. **Anonymity:** This describes situations where a person's true identity is unknown. **Copyright:** the legal right to be the only one to reproduce, publish, and sell the contents and form of a literary or artistic work. **Debug:** process of finding (and correcting) errors in a computer program **Computer programming:** is the process of telling a computer to do certain things by giving it instructions **Precise:** accurate; exact **Block code:** utilises a drag-and-drop learning environment, where programmers use coding instruction "blocks" to construct animated stories and games. It's an entry-level activity, where kids can gain a foundation in computational thinking through visuals as opposed to coding that is based in text. (scratch) **Blocks:** it's a way to describe the "chunks" or "pieces" of instructions a user is putting together in order to tell their creation what to do. **Sprite:** a computer graphic which may be moved on-screen and otherwise manipulated as a single entity. (a character you can manipulate)	database model, where all the information is stored in a plain text file, one database record per line **HTML:** stands for HyperText Markup Language **Fake news**: Fake news is news or stories on the internet that are not true. There are two types of fake news, disinformation, and misinformation. **Disinformation:** False information that's created and shared to deliberately cause harm. **Misinformation:** Misinformation is generally used to refer to misleading information created or disseminated without manipulative or malicious intent. **Influencers:** a person with the ability to influence potential buyers of a product or service by promoting or recommending the items on social media. **Scams:** a dishonest scheme; a fraud. a dishonest or illegal plan or activity, esp. one for making money **Input:** An input is data that a computer receives. This could be information or a click of the mouse **Output:** An output is data that a computer sends. This could be sound

Year 6

	AUT 1	AUT 2	SPR 1	SPR 2	SUM 1	SUM 2
National Curriculum Targets	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 use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	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	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	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.					
Ready to Progress Targets	I can use computer systems to collaborate with my peers I can explore how data is transferred over the internet. Project Evolve: I can explain how to use search technologies effectively. I can demonstrate how to make references to and acknowledge sources I have used from the internet.	I can use 3D modeling software Project Evolve: I can identify and critically evaluate online content relating to gender, race, religion, disability, culture and other groups, and explain why it is important to challenge and reject inappropriate representations online.	I know that a variable is used by computers to store information I can create a game using variables Project Evolve: I can describe how to capture bullying content as evidence (e.g screen-grab, URL, profile) to share with others who can help me.	I can analyse data in a spreadsheet I can use a simple formula in a spreadsheet Project evolve: I can describe how to be kind and show respect for others online including the importance of respecting boundaries regarding what is shared about them online and how to support them if others do not.	I can manipulate digital images and explain my choices Project Evolve: 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). I can describe simple ways to increase privacy on apps and services that provide privacy settings.	I can create a webpage using Google Sites I can consider accessibility features which could be included on a webpage Project Evolve: I can explain strategies anyone can use to protect their 'digital personality' and online reputation, including degrees of anonymity.

Online Safety (Project Evolve)	Managing Online Information Copyright and Ownership 	Self Image and Identity 	Online Bullying 	Online Relationships 	Health Wellbeing and Lifestyle Privacy and Security 	Online Reputation 
Events	National Coding Week	Computer Science Education Week	Safer Internet Day		International Girls in ICT Day	
Year 6	**Create a Class Digital Citizenship Agreement:** **Key questions and skills:** How can we safely and respectfully use technology in the classroom? What technology do we use in class? Who can we talk to in school/home if there is something online that makes us feel uncomfortable? (trusted adult/child line) How does our digital agreement link to our rights as a child? **Links to Home:** Send home online family agreement **Teach Computing- Computing systems and networks: Communication and collaboration**	**Teach Computing- Creating Media: 3D modelling** Create an Anderson shelter model linked with History to then build Use the Teach Computing 3D modelling lessons and Tinkercad to support development of skills **Key questions and skills:** I can create a 3D shape, resize, duplicate and move it I can group and ungroup 3D models I can explain why this software would be valuable to people I can plan and create my own anderson shelter I can use physical programming such as	**Teach Computing- Programming: Variables in games** **Key questions and skills:** What is a variable? (vary= something that can change) How can I name my variables to ensure they are clear? How can variables work in a game? I can explain why we would use variables I can create a programme using variables and fix and solve bugs in the code I have thought about how my game is accessible for all types of players needs I can use inclusive design when creating my game Game accessibility guidelines	**Teach Computing- Data and information: Introduction to Spreadsheets** Use the Teach Computing lesson sequence for developing an understanding of spreadsheets (refer back to year 5 lessons to recap) **Key questions and skills:** What is data? How can we collate data? How do spreadsheets compare to other data collection methods? To collect data and input it into a spreadsheet To organise data and be able to sort it To use formulas to support the collection and producing calculated data	**Creating Media- Global Routes Project** Using the Global Routes lesson plans, children will build upon previous years with photographic and digital media skills to create a series of digital photographic works. **Key questions and skills:** I can explain my reasoning for choosing lighting, camera angles, focus points and cropping I can use Adobe Photoshop to experiment with manipulating photographs for a purpose I can save and retrieve work to make tweaks to a final product I can present my final works either digitally or physically	**Teach Computing- Creating Media: Webpage Creation** **Key questions and skills:** I can explain what makes a good website I can explain why layout it important I can add headings, body text, and images I can change the font style and colours I can add hyperlinks I can explain ways in which I have thought about accessibility of others while they are on my website e.g. dyslexia, sight problems, easy for motor functions, easy to access and navigate. **Helpful Links:** HTML Lessons Raspberry Pi

	Use the Teach Computing lessons along with Google Suite to look at communication across the web. Ensure the students are also understanding the collaboration skills beyond the lessons. I can explain what an IP address is and its purpose I can explain what a data packet is I can collaborate with my peers using Google Suite applications I can share a document with another person using the correct settings **Extension and support activities:** Group assignment to support each other Paired programming/collaboration Have silence in the classroom or spread children around so that they can only collaborate online **Curriculum Links:**	micro:bits and crumbles to add features to my model **Extension and support activities:** Use physical 3D shapes to help visualise the model that can be made on Tinkercad Draw out design from different angles to be able to imagine what it will look like Children can make an object they are familiar with Have children use 3D model to build a real object linked to DT Challenge children by using the scale size and ratio to build a scale model **Use search technologies effectively and collate the data I have found into digital content-Project Evolve** I can analyse information to make a judgement on its accuracy I can identify misinformation and disinformation and why	**Extension and support activities:** Challenge by adding the element of physical coding with Crumbles Use physical coding activities to support understanding of variables Link variables with PE games and lessons. Link with current knowledge of games children play **Internet Safety Day –** know to speak to a trusted adult if there is anything they are not comfortable with. Keeping personal information private (name, age, school, address) Recognising acceptable/unacceptable behaviour and reporting behaviour if you have concerns Content, conduct, contact **Helpful Links:** Downloaded Lessons SMART Lessons Code.org Safety Video	To interpret and draw conclusions from data that relate to real life problems To use sheets effectively Make connections between the skills needed and real life jobs **Extension and support activities:** Pizza Party - Data Use collaboration skills from earlier in the year to work collaboratively on a data collection Use paired programming techniques to support all students in being able to create a spreadsheet Link data collection with something relevant in school such as: paper wastage, attendance, rainfall or sunshine hours etc.	I can explain how to be safe when taking photographs in the community **Extension and support activities:** Links with PSHE Safe out and about Create an exhibition of work for the wider community to come a visit Link with Science: Using crumbles to build onto the circuits and think about how circuits work within real life examples of information technology and technology of the world around us	https://trinket.io/ Web Accessibility Guidelines Web tech Tutor

	History WW1/WW2 -research, knowing trustworthy sources (.org, .co.uk, lock sign closed, sites you know, author, date published, in formal language), creating a slide presentation, creating knowledge organisers etc.	people may share these online I can think critically about what I see online I can identify how search engines work and results are shared I can use key words and phrases to search information	ThinkUKnow - Band Runner Google Interland Google Online Safety Lessons **Computing Links:** Geography North America: Google maps, research on tribes, Interactive map with features, look at features of the globe with google maps (equator, time zones etc.), create a slides presentation			
	IT Skills: **Laptops Skills:** I can log into the laptop using my own unique .206 login and log out again I understand that by closing the screen I am not turning off the computer I can double tap to right click on something I can copy (Crtl, C), cut (Crtl, X) and paste (Crtl, V) I can use the shift button to make capital letters and the @, ?, (), ! symbols I can use the features such as the camera, screenshot etc			**Google Classroom:** I can log into my google classroom and find the classwork assigned to me I can 'view assignment' I can click on links/documents provided to access the work I can 'Hand in' or 'Mark as done' I can unsubmit assignment if needed I can add a 'Private Comment' to an assignment I can find and navigate my Drive I can create folders and sort my documents I can add a file to an assignment on Google Classroom		

Vocabulary:

Algorithm: a process or set of rules to be followed in calculations or other problem-solving operations, especially by a computer.

Sequence: When we sequence things, we arrange them in a particular order. Sequence-based algorithms are made from a precise set of instructions.

Technology: is anything made by people to help us

Information technology: anything is a computer, works with a computer or has a computer inside it

Internet: The **internet** is an informal term for the world-wide communication network of computers.

Online: connected to, directly controlled by, or available through a computer system an online database working online.

Safety: free from the risk of harm. providing protection from harm, loss, or danger

Digital Citizenship: refers to the responsible use of technology by anyone who uses computers, the Internet, and digital devices to engage with society on any level

Debug: process of finding (and correcting) errors in a computer program

Computer programming: is the process of telling a computer to do certain things by giving it instructions

Precise: accurate; exact
HTML: stands for HyperText Markup Language

Fake news: Fake news is news or stories on the internet that are not true. There are two types of fake news, disinformation, and misinformation.

Disinformation: False information that's created and shared to deliberately cause harm.

Misinformation: Misinformation is generally used to refer to misleading information created or disseminated without manipulative or malicious intent.

Influencers: a person with the ability to influence potential buyers of a product or service by promoting or recommending the items on social media.

Block code: utilises a drag-and-drop learning environment, where programmers use coding instruction "blocks" to construct animated stories and games. It's an entry-level activity, where kids can gain a foundation in computational thinking through visuals as opposed to coding that is based in text. (scratch)

Blocks: it's a way to describe the "chunks" or "pieces" of instructions a user is putting together in order to tell their creation what to do.

Sprite: a computer graphic which may be moved on-screen and otherwise manipulated as a single entity. (a character you can manipulate)

Private: belonging to or for the use of one particular person or group of people only.

Repetition and Loops: are a programming element that repeat a portion of code a set number of times until the desired process is complete (a condition has been met). Repetitive tasks are common in programming, and loops are essential to save time and minimise errors.

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For example: If he clicks the red square he gets a prize, if he clicks the blue square, he loses.

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Variable: A variable stores a piece of information in a computer's memory while a program is running, that can be retrieved when needed.
A variable is an example of a data structure. As pupils move on to secondary school, they will learn about other data structures such as arrays.

A variable can be a number or text or perhaps true/false.

	Scams: a dishonest scheme; a fraud. a dishonest or illegal plan or activity, esp. one for making money **Input:** An input is data that a computer receives. This could be information or a click of the mouse **Output:** An output is data that a computer sends. This could be sound	