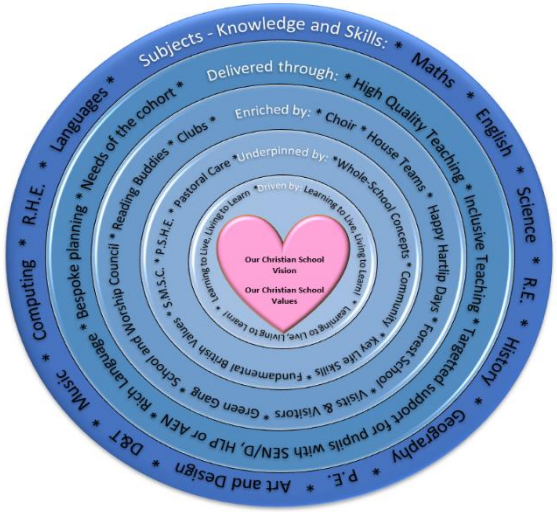
Our Computing Curriculum

Intention:

Our vision for computing is:



For all our pupils to have a growing understanding of the concepts of computer science and use this understanding to further learn and develop their knowledge and skills through the next step of their education and beyond – ***Living to Learn.***

For all our pupils to become responsible, competent, confident and creative users of information and communication technology, keeping themselves and others safe.

For all our pupils to become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world – ***Learning to Live***

Implementation: Every year, each class will learn a broad range of Computing skills and knowledge: understanding technology, coding for programs, the internet and networks. E-Safety plays an important role throughout the year as well as more focussed learning through internet and network topics. This element of the curriculum is supported through our PSHE/RHE curriculum too.

The learning has been mapped out over the course of a 2-year cycle, ensuring a progression of skills and knowledge with no gaps nor unnecessary repetition. Year R follow their own Early Years curriculum using the Educational Programmes, but, as Year 1 and Year R are mixed, aspects of this curriculum will be taught to Year R, providing computing skills from the very start of school.

The Computing curriculum focusses on building knowledge and skills, not only technologically but socially too. Links to our ***Learning to Live, Living to Learn*** whole school concepts are made when possible, particularly with regard to key life skills such as problem-solving, critical thinking, empathy, creativity and communication. Computing lends itself well to cross-curricular learning and therefore links are made when computing can be used as a tool within another subject, making the computing curriculum meaningful for real-life – ***Learning to live, living to learn.***

We do not have a set scheme for Computing. We use trusted and well-designed sources to support the teaching, such as BBC, Scratch and Kodable.

Impact: Our pupils receive a high-quality computing education which equip them to use computational thinking and creativity to understand and change the world. Our pupils have the opportunity to gain skills in a variety of software and hardware and will have a deep understanding of e-safety and why this is important.

Computing Curriculum Map

Terms:			Autumn: Our Locality		Spring: Our UK		Summer: Our World	
			Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
'Learning to Live, Living to Learn' Concepts and Skills:			➢ Our Christian School Vision ➢ Get Heartsmart ➢ Creativity ➢ Democracy	➢ People and community ➢ Friendship ➢ Too much selfie isn't healthy ➢ Empathy ➢ Founder's Day	➢ Resilience ➢ Trust ➢ Don't forget to let love in ➢ Rule of Law	➢ Forgiveness ➢ Problem-solving ➢ Don't hold on to what is wrong ➢ Tolerance	➢ Communication ➢ Environment ➢ Thankfulness ➢ Fake is a mistake ➢ Mutual Respect	➢ Peace ➢ No way through isn't true ➢ Thinking ➢ Individual Liberty ➢ World sporting events
Year	**e-safety objectives throughout the year**	**Cycle**	**Skills, knowledge and objectives**					
Yr 1 (and YrR)	➢ I know to tell an adult if I see anything worrying online	**A**	**Coding** – BeeBots, writing instructions, directions (Kodable robotics lessons 1-2)		**Computers –** different uses of computers and technology at home and school, **E-Safety**		**Using a computer** – Paint/drawing a Repeated pattern art work/collage, Matisse	**Using a computer** – Word/Clicker- making a label for art work
			➢ I can predict the behaviour of a programmed toy. ➢ I can explain that an algorithm is a step by step set of instructions.		➢ I can recognise how I use technology in my home and at school. ➢ I know to tell an adult if I see anything worrying online		➢ I can use a program to create a simple document.	
		B	**Using a computer** – Using spelling shed, online games, to support learning	**Using a computer** - Paint/drawing firework art work	**Computers –** different uses of computers and technology in the UK, Business and factories, **E-Safety**		**Coding** – BeeBots, writing explanations, directions (Kodable robotics lessons 1-2)	
			➢ I can use a program to create a simple document. ➢ I know to tell an adult if I see anything worrying online		➢ I can recognise how I use technology in my home and at school. ➢ I know to tell an adult if I see anything worrying online		➢ I can predict the behaviour of a programmed toy. ➢ I can explain that an algorithm is a step by step set of instructions.	
Yr 2	➢ I know I need to keep my personal	**A&B**	**Computers** – how technology is used in	**Using a computer** – software – using word/clicker to	**Using a computer** – software – using	**Using a computer** – software – using	**Coding** – Beebugs, writing instructions, creating shapes and pictures, using	

	information private ➢ I know to tell an adult if I see anything worrying online		our area, technology and structures **E-Safety**	present writing (English or other subjects)	powerpoint part 1 – text and images	powerpoint part 2 – colour, fonts, sizing	directions, editing programs (Kodable robotics lessons 3-5)	
			➢ I can recognise how others use technology outside of school.	➢ I can find, open, edit and save files I am working on. ➢ I can use different software programs and discuss the benefits of their usage.			➢ I can predict the behaviour of a programmed toy, clearly relating each action to part of an algorithm ➢ I can create a simple program to perform a task. ➢ I can understand that programs run by following clear instructions. ➢ I can create and debug simple programs. ➢ I can find and fix simple bugs in programs.	
Yr 3/4	➢ I know I need to keep my password and personal information secure. ➢ I can recognise acceptable and unacceptable behaviour online. ➢ I understand that what I say or post on the internet might be copied, shared and stored by others. ➢ I know what to do if I see anything worrying online.	**A**	**Using a computer** – software – Powerpoint, using animation for history or science presentations	**E-Safety –** social media, anti-bullying	**Coding** – Scratch (Kodable lessons – introduction to coding (yr3), sequence 1&2) Scratch lessons 1-12 – coding for Kids book)		**Networks and e-safety –** internet and networks, shared drives	**Net searching and e-safety** – Using google reliably
			➢ I can use different software programs ➢ I can use a range of programs to complete a task.	➢ I know I need to keep my password and personal information secure. ➢ I can recognise acceptable and unacceptable behaviour online. ➢ I understand that what I say or post on the internet might be copied, shared and stored by others. ➢ I know what to do if I see	➢ I can produce a simple program that completes a given task. ➢ I can explain how simple algorithms solve a given problem (Year 4)	➢ I can break programs up into smaller parts. ➢ I can use logical thinking to identify and solve potential bugs during coding. (Year 4) ➢ I can use other programs as I code.	➢ I understand that computer networks allow data to be transferred and shared. ➢ I understand that some computers on a network serve particular functions, such as controlling printers or sharing files ➢ I understand that the internet is a large network that enables	➢ I can use a search engine to find web pages. ➢ I understand that not all websites are as reliable as others. ➢

				anything worrying online.			computers to share information	
		B	**Computers –** Input and output devices, zoom, microscopes in science	**Using a computer** – software – word, editing and correcting documents for English or humanities	**Coding** – Scratch (Kodable lessons – introduction to coding (yr3), sequence 1&2) Scratch lessons 1-12 – coding for Kids book)		**E-Safety –** apps and games, stranger danger	**Net searching and e-safety** –search engines, adverts and reliability
			➢ I know what input and output devices are and how they are used. ➢ I can use a range of input and output devices efficiently. ➢ I can use more complicated input devices. ➢ I can make choices on which program is best for a given task. ➢ I can use different types of hardware	➢ I can use different software programs ➢ I can use a range of programs to complete a task.	➢ I can produce a simple program that completes a given task. ➢ I can explain how simple algorithms solve a given problem	➢ I can break programs up into smaller parts. ➢ I can use logical thinking to identify and solve potential bugs during coding. (Year 4) ➢ I can use other programs as I code.	➢ I know I need to keep my password and personal information secure. ➢ I can recognise acceptable and unacceptable behaviour online. ➢ I understand that what I say or post on the internet might be copied, shared and stored by others. ➢ I know what to do if I see anything worrying online.	➢ I understand how search engines order their search results.

Yr 5/6	➢ I understand how to choose online content for my age group ➢ I understand how to protect my computer or device from harm on the internet. I understand how to report concerns about content and contact in and out of school.	**A**	**Using a computer** – software – Excel – simple tables charts	**Using a computer** – software – Excel – simple formulae	**Coding** –loops, variables, problem-solving (Kodable lessons - sequence 3, loops 1-5, variables 1)		**Networks and e-safety** – email and message services	**Net searching and e-safety** – website addresses, trusted sources, research for explanations
			➢ I can confidently use a range of software tools. ➢ I can use software to help me analyse and present data and information.		➢ I can write increasingly complex programs. ➢ I can use loops to repeat tasks within a program. ➢ I can use IF statements to alter the way my programs run. (Year 6) ➢ problems. ➢ I can break code up into related instructions, making debugging easier and quicker	➢ I can use loops, variables and IF statements to alter the way my programs run. (Year 6) ➢ I can explain how increasingly complex algorithms solve a given problem. ➢ I can combine software and hardware to solve real life ➢ I can store and retrieve variables in a program. (Year 6) ➢ I can use logical thinking to identify and solve potential bugs during coding	➢ I can use the internet to allow me to share data with another person. ➢ I understand how computers are able to communicate and share information. ➢ I can use and combine services on the internet to share information.	➢ I can use more advanced features when searching online. ➢ I can use a range of search tools to find exactly what I'm looking for.
		B	**Using a computer** – software – presentations using powerpoint, videos, word etc	**Using a computer** – software – word, columns, adding images, newspapers	**Coding** – loops, variables, problem-solving (Kodable lessons - sequence 3, loops 1-5, variables 1)		**Networks and e-safety –** clouds and cloud drives	**Net searching and e-safety** – using search engines for research reports
			➢ I can confidently use a range of software tools.	➢ I can confidently use a range of software tools.	➢ I can write increasingly complex programs.	➢ I can use loops, variables and IF statements to alter	➢ I can use the internet to allow me to share data	➢ I can recognise trustworthy sources

			➢ I can use more than one piece of software to complete a task. ➢ I can select appropriate software to use for a given task. ➢ I can design a program for a given audience.	➢	➢ I can use loops to repeat tasks within a program. ➢ I can use IF statements to alter the way my programs run. (Year 6) ➢ problems. ➢ I can break code up into related instructions, making debugging easier and quicker	the way my programs run. (Year 6) ➢ I can explain how increasingly complex algorithms solve a given problem. ➢ I can combine software and hardware to solve real life ➢ I can store and retrieve variables in a program. (Year 6) ➢ I can use logical thinking to identify and solve potential bugs during coding	with another person. ➢ I understand how computers are able to communicate and share information. ➢ I can use and combine services on the internet to share information.	of information on the internet. ➢ I can use a broad range of resources online to find exactly what I'm looking for.

Skills and Knowledge Progression Sequence

	Pre-Requisite	Year R	Year 1	Year 2	Year 3 and 4 (over 2-years)	Year 5 and 6 (over 2-years)
Vocabulary	➢ Computer ➢ Pattern ➢ Safety ➢ On/off		➢ Technology ➢ program, document ➢ E-safety ➢ Predict, program, algorithm, instruction	➢ Technology ➢ open, edit, save, file, software ➢ keyboard, monitor, mouse, touchscreen ➢ Personal information, Online, cyber bullying, passwords, ➢ Program, debug, algorithm, code	➢ Input device, output device, devices ➢ Hardware, software, ➢ Networks, shared drives, functions, control, sharing, transfer ➢ Security, cyber-bullying, acceptable and unacceptable, social-media ➢ Search engine, reliable, results ➢ Logic, coding, algorithm, sequence, bugs and debug, repeat, error ➢ Animation	➢ Data, analyse, present ➢ Communication, server, ➢ Protection, reporting, online content, security, data protection, privacy ➢ Complex, external hardware, ➢ Advanced features, filter, search tools, reliability, trustworthy sources, ➢ Loops, variables, algorithm, debugging, store and retrieve, IF statements, ➢ Formula, chart, table
Computers		➢ I know that a computer can be used to help with learning	➢ I can recognise how I use technology in my home and at school.	➢ I can recognise how others use technology outside of school.	➢ I know what input and output devices are and how they are used. ➢ I can use a range of input and output devices efficiently. ➢ I can use more complicated input devices. ➢ I can make choices on which program is best for a given task.	
Using a computer		➢ I can turn on and turn off technology and use some apps	➢ I can use a program to create a simple document.	➢ I can find, open, edit and save files I am working on. ➢ I can use different software programs and discuss the benefits of their usage.	➢ I can use different software programs and different types of hardware. ➢ I can use a range of programs to complete a task.	➢ I can select appropriate software to use for a given task. ➢ I can confidently use a range of software tools. ➢ I can use more than one piece of software to complete a task. ➢ I can design a program for a given audience. ➢ I can use software to help me analyse and present data and information.

Networks					➢ I understand that computer networks allow data to be transferred and shared. ➢ I understand that the internet is a large network that enables computers to share information ➢ I understand that some computers on a network serve particular functions, such as controlling printers or sharing files	➢ I can use the internet to allow me to share data with another person. ➢ I understand how computers are able to communicate and share information. ➢ I can use and combine services on the internet to share information.
E-Safety (see also PSHE/RHE curriculum)	➢ Increasingly follow rules, understanding why they are important	➢ Know and talk about the different factors that support their overall health and wellbeing	➢ I know to tell an adult if I see anything worrying online	➢ I know I need to keep my personal information private	➢ I know I need to keep my password and personal information secure. ➢ I can recognise acceptable and unacceptable behaviour online. ➢ understand that what I say or post on the internet might be copied, shared and stored by others. ➢ I know what to do if I see anything worrying online.	➢ I understand how to choose online content for my age group ➢ I understand how to protect my computer or device from harm on the internet. ➢ I understand how to report concerns about content and contact in and out of school.
Net Searching					➢ I can use a search engine to find web pages. ➢ I understand that not all websites are as reliable as others. ➢ I understand how search engines order their search results.	➢ I can use more advanced features when searching online. ➢ I can use a range of search tools to find exactly what I'm looking for. ➢ I can recognise trustworthy sources of information on the internet. ➢ I can use a broad range of resources online to find exactly what I'm looking for.
Coding	➢ Extend and create ABAB patterns – stick, leaf, stick, leaf ➢ Notice and correct an error	➢ Explore how things work ➢ Continue, copy and create	➢ I can predict the behaviour of a programmed toy.	➢ I can predict the behaviour of a programmed toy, clearly relating each action to part of an algorithm ➢ I can create a simple program to perform a task.	➢ I can produce a simple program that completes a given task. ➢ I can explain how simple algorithms solve a given problem ➢ I can break programs up into smaller parts.	➢ I can write increasingly complex programs. ➢ I can control external hardware from within my programs. ➢ I can use loops to repeat tasks within a program.

	in a repeating pattern.	repeating patterns	➢ I can explain that an algorithm is a step by step set of instructions.	➢ I can create and debug simple programs. ➢ I can find and fix simple bugs in programs. ➢ I can understand that programs run by following clear instructions.	➢ I can use logical thinking to identify and solve potential bugs during coding. ➢ I can use other programs as I code.	➢ I can use IF statements to alter the way my programs run. ➢ I can explain how increasingly complex algorithms solve a given problem. ➢ I can combine software and hardware to solve real life problems. ➢ I can break code up into related instructions, making debugging easier and quicker ➢ I can store and retrieve variables in a program. ➢ I can use loops, variables and IF statements to alter the way my programs run. ➢ I can use logical thinking to identify and solve potential bugs during coding
End of Key Stage NC end points	➢ **understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions** ➢ **create and debug simple programs** ➢ **use logical reasoning to predict the behaviour of simple programs** ➢ **use technology purposefully to create, organise, store, manipulate and retrieve digital content** ➢ **recognise common uses of information technology beyond school** ➢ **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.**				➢ **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** ➢ **understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration** ➢ **use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content** ➢ **select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information** ➢ **use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.**	

Cycle Pathways Progression

	2015, 2017, 2019, 2021 intake (Cycle A starting point)	2016, 2018, 2020, 2022 intake (Cycle B starting point)	
YrR: A	**Coding** – beebots **Computers ; E-Safety** **Using a computer** –Paint/drawing **Using a computer** – Word/Clicker	**Using a computer** online games **Using a computer** - Paint/drawing **Computers ; E-Safety** **Coding** – BeeBots	YrR: B
Yr1: B	**Using a computer** online games **Using a computer** - Paint/drawing **Computers ; E-Safety** **Coding** – BeeBots	**Coding** – beebots **Computers ; E-Safety** **Using a computer** –Paint/drawing **Using a computer** – Word/Clicker	Yr1: A
Yr2: (A)	**Computers ; E-Safety** **Using a computer** – software – using word/clicker **Using a computer** – software – using powerpoint **Coding** – Beebugs	**Computers ; E-Safety** **Using a computer** – software – using word/clicker **Using a computer** – software – using powerpoint **Coding** – Beebugs	Yr2: (B)
Yr3: B	**Computers –** Input and output devices, **Using a computer** – software – word, **Coding** – Scratch **E-Safety –** apps and games **Net searching and e-safety** –search engines	**Using a computer** – software – Powerpoint **E-Safety –** social media, anti-bullying **Coding** – Scratch **Networks and e-safety –** internet **Net searching and e-safety** – Using google	Yr3: A
Yr4: A	**Using a computer** – software – Powerpoint **E-Safety –** social media, anti-bullying **Coding** – Scratch **Networks and e-safety –** internet **Net searching and e-safety** – Using google	**Computers –** Input and output devices, **Using a computer** – software – word, **Coding** – Scratch **E-Safety –** apps and games **Net searching and e-safety** –search engines	Yr4: B
Yr5: B	**Using a computer** – software – presentations **Using a computer** – software – word, **Coding** – loops, variables, problem-solving **Networks and e-safety –** clouds **Net searching and e-safety** – using search engines	**Using a computer** – software – Excel **Coding** –loops, variables, problem-solving **Networks and e-safety** – email **Net searching and e-safety** – website addresses	Yr5: A
Yr6: A	**Using a computer** – software – Excel **Coding** –loops, variables, problem-solving **Networks and e-safety** – email **Net searching and e-safety** – website addresses	**Using a computer** – software – presentations **Using a computer** – software – word, **Coding** – loops, variables, problem-solving **Networks and e-safety –** clouds **Net searching and e-safety** – using search engines	Yr6: B