Barnburgh Primary Academy

Progression Document
Computing

Barnburgh Primary Academy Vision

Learning To Shine Together

Academy Core Values

Perseverance Courage Independence Respect Ambition

Key Drivers

A	S	P	I	R	E
Ambition Risk takers, Goal setters, Believe in better, Courageous	**Support** Encouraging, Sympathetic, Helpful, Nurturing and kind	**Persistence** Determined, Stickability, Patience, Stamina	**Inspire** Motivate, Persuade, Encourage and Influence	**Resilience** Strength of character, Adapability, Bounceback-ability	**Effort** Strive, Endeavour, Stretch, Exertion

PURPOSE OF STUDY

A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils 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.

AIMS

The national curriculum for computing aims to ensure that all pupils:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology

EARLY LEARNING GOALS THAT LINK MOST CLOSELY TO THE COMPUTING NATIONAL CURRICULUM

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KEY STAGE 1 SUBJECT CONTENT

Pupils should be taught to:

- understand what algorithms are; how they are implemented as programs on digital devices; and those 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.

KEY STAGE 2 SUBJECT CONTENT

Pupils should be taught to:

- 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.

computing

COMPUTING

"Those who can imagine anything, can create the impossible."
Alan Turing

INTENT

At Barnburgh, we believe that Computing is an essential part of the curriculum; a subject that not only stands alone but is also woven throughout the curriculum, and should be an integral part of all learning. Computing, in general, is a significant part of everyone's daily life and children should be at the forefront of new technology, with a thirst for learning all about what technology is out there. Computing within schools can therefore provide a wealth of learning opportunities and transferrable skills - explicitly within the Computing lesson and across other curriculum subjects.

Our Core Values provide the platform on which we have built our curriculum offer at Barnburgh Primary School. Our Computing curriculum is underpinned by our Core Values in the following ways;

COURAGE
- To know that it is ok to make mistakes when using computer technology and to understand that mistakes are part of the process to reaching a high-quality outcome.
- To have the courage to explore and innovate using ICT.
- To have the courage to explore new types of technology.

PERSEVERANCE
- To develop the ability to stick with something, to continue working, to try harder and to not give up.
- To understand that the perseverance and dedication is needed to work successfully in computing.

AMBITION
- To do their best work and then to push themselves beyond what they consider to be their best.
- To develop a desire to achieve something.
- To aim to use a variety of technologies across all aspects of their learning – not just within a computing lesson.

RESPECT
- To respect the ambition and work of their peers.
- To respect equipment used in computing and understand the cost and privilege involved.
- To respect people's personal information, data and passwords, when working online.

INDEPENDENCE
- To develop confident children who understand that computing is an essential skill set that is engrained into everyday life.
- To develop computer literate children, who have the confidence to think and overcome issues independently.

BEYOND THE SUBJECT
We want our Computing curriculum to help children to;
- Think creatively in all aspects of their life
- Observe and look closer at the world around them
- See connections in the world
- Provide them with a computing skill set, which can be applied to all aspects of life and learning

IMPLEMENTATION

Our Computing curriculum has been designed to cover all of the skills set out in the National Curriculum. The National Curriculum states that 'Computing ensures that pupils 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.' Our Computing curriculum has been structured in a cross-curricular way to effectively facilitate this and to provide maximum opportunities to our children. In KS1, the children will learn to understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. They will be taught to create and debug simple programs and use logical reasoning to predict the behaviour of simple programs. They will be shown how to use a range of technology purposefully to create, organise, store, manipulate and retrieve digital content as well as recognise common uses of information technology beyond school. They will be taught to use technology safely and respectfully, keeping personal information private.

As the children progress into KS2, they will design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. They will use sequence, selection, and repetition in programs, use logical reasoning to explain how some simple algorithms work and correct errors in algorithms and programs. Children will be taught to understand computer networks, including the internet, and the opportunities they offer for communication and collaboration. They will use search technologies effectively, learn to appreciate how results are selected and ranked, and be discerning in evaluating digital content. Children will be taught to select, use and combine a variety of software (including internet services) on a range of digital devices to create a range of programs, systems and content that accomplish given goals. They will use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

IMPACT

After the implementation of this robust Computing curriculum, children at Barnburgh Primary School will be digitally literate and able to join the rest of the world on its digital platform. They will be equipped, not only with the skills and knowledge to use technology effectively and for their own benefit, but more importantly – safely. The biggest impact we want on our children is that they understand the consequences of using the internet and that they are also aware of how to keep themselves safe online.

The children will be able to showcase their knowledge through work and projects. Monitoring of the Computing curriculum takes place once a term, allowing school leaders to ensure that every child has the opportunity to develop their skills and understanding.

Long Term Plan 2023-2024

	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
YEAR 1	**Staying Safe Online** • 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. **Using Computers and evaluating digital content** • Use technology purposefully to create, organise, store, manipulate and retrieve digital content.			**Staying Safe Online** • 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. **Using Data** • Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	**Staying Safe Online** • 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. **Algorithms, programming and debugging** • 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	**Staying Safe Online** • 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. **Algorithms, programming and debugging** • 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
CROSS CURRICULAR LINKS						
ENRICHMENT	Staying safe online when using laptops in other areas of the curriculum					
YEAR 2		**Staying Safe Online** • 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. **Using Computers and evaluating digital content** • Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	**Staying Safe Online** • 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. **Using Data** • Use technology purposefully to create, organise, store, manipulate and retrieve digital content.		**Staying Safe Online** • 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. **Algorithms, programming and debugging** • 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	**Staying Safe Online** • 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. **Algorithms, programming and debugging** • 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
CROSS CURRICULAR LINKS						
ENRICHMENT	Staying safe online when using laptops in other areas of the curriculum					

YEAR 3		**Staying Safe Online** • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. **Using Computers and evaluating digital content** Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	**Staying Safe Online** • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. **Algorithms, programming and debugging** • 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.	**Staying Safe Online** • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. **Algorithms, programming and debugging** • 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.	**Staying Safe Online** • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. **Using Data** • 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.	
CROSS CURRICULAR LINKS						
ENRICHMENT	Staying safe online when using laptops in other areas of the curriculum					
YEAR 4	**Staying Safe Online** • Use technology safely, respectfully and responsibly; recognise acceptable & unacceptable behaviour; identify a range of ways to report concerns about content and contact. **Using Computers and evaluating digital content** Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.		**Staying Safe Online** • Use technology safely, respectfully and responsibly; recognise acceptable & unacceptable behaviour; identify a range of ways to report concerns about content and contact. **Algorithms, programming and debugging** • 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.	**Staying Safe Online** • Use technology safely, respectfully and responsibly; recognise acceptable &unacceptable behaviour; identify a range of ways to report concerns about content and contact. **Algorithms, programming and debugging** • 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.		**Staying Safe Online** • Use technology safely, respectfully and responsibly; recognise acceptable & unacceptable behaviour; identify a range of ways to report concerns about content and contact. **Using Data** 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.
CROSS CURRICULAR LINKS						
ENRICHMENT	Staying safe online when using laptops in other areas of the curriculum					

YEAR 5	**Staying Safe Online** • Use technology safely, respectfully and responsibly; • Recognise acceptable & unacceptable behaviour; identify a range of ways to report concerns about content and contact. **Algorithms, programming and debugging** • Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms/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	**Staying Safe Online** • Use technology safely, respectfully and responsibly • Recognise acceptable & unacceptable behaviour; identify a range of ways to report concerns about content and contact **Algorithms, programming and debugging** • Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms/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	**Staying Safe Online** • Use technology safely, respectfully and responsibly; • Recognise acceptable & unacceptable behaviour; identify a range of ways to report concerns about content and contact . **Using Computers and evaluating digital content** • Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.			**Staying Safe Online** • Use technology safely, respectfully and responsibly • Recognise acceptable & unacceptable behaviour; identify a range of ways to report concerns about content and contact **Using Data** • 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.
CROSS CURRICULAR LINKS						
ENRICHMENT	Staying safe online when using laptops in other areas of the curriculum					
YEAR 6	**Staying Safe Online** • Use technology safely, respectfully and responsibly; recognise acceptable & unacceptable behaviour; identify a range of ways to report concerns about content and contact. **Algorithms, programming and debugging** • Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms/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	**Staying Safe Online** • Use technology safely, respectfully and responsibly; recognise acceptable & unacceptable behaviour; identify a range of ways to report concerns about content and contact. **Algorithms, programming and debugging** • Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms/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		**Staying Safe Online** • Use technology safely, respectfully and responsibly; recognise acceptable & unacceptable behaviour; identify a range of ways to report concerns about content and contact. . **Using Computers and evaluating digital content** Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	**Staying Safe Online** • Use technology safely, respectfully and responsibly; recognise acceptable & unacceptable behaviour; identify a range of ways to report concerns about content and contact. **Using Data** 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.	•
CROSS CURRICULAR LINKS						
ENRICHMENT	Staying safe online when using laptops in other areas of the curriculum					

STAGE

STAYING SAFE ONLINE

EYFS	KS1 Computing National Curriculum	KS2 Computing National Curriculum
	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.	*use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.*

	EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
KNOWLEDGE	Children will know:	Children will know: • That strangers use online services • That some online content is inappropriate • Know that damaged or strange devices should not be touched • There are good and bad choices about when and where to use a device • That personal information should not be shared with strangers online	Children will know: • Where to go for support when they have concerns about content on the internet • That their safe adults will support when they have concerns about content on the internet • To ask someone before accessing something online • The good and unwise online behaviours	Children will know: • That CEOP is a website to report a concern • That not everything online is true • The six rules to set a up a safe password (1. include numbers, letters and symbols. 2. use at least one capital letter. 3. Make it something you will remember but others won't think of. 4. make sure it has eight characters or more. 5. never use obvious names or dates. 6. Never write down or share your password) • That some of the laws around what is illegal to do with computers • That cybercrime includes bullying, harassment, identity theft, fraud, and other online dangers that can harm children's mental and emotional health.	Children will know: • That online gifts aren't always what they seem • That breaking age limits regarding the internet can have consequences • That digital footprints are a trail of places that you have visited on the internet and the activities and games you have taken part in • How to make a password secure by making it more complex (eg . Think of a sentence that you will remember, e.g. I love juicy red apples (the longer your sentence the better). Take the first letter of each word and put them together, e.g., iljra. Make every other letter into UPPER CASE, e.g., iLjRa. Add some numbers or symbols in between each of the letters such as your date of birth backwards, e.g., i98L12j16Ra. Finally, add a smiley at the end! e.g., i98L12j16Ra;)	Children will know: • The benefits of report systems online • Know that asking permission before capturing an image is important • That using a device at night can affect their wellbeing • That apps may collect lots of data • That consent means 'asking for permission' when we agree to terms and conditions online • The rights we give to social media organisations to use our personal information (snapchat, Instagram, whatsapp, and other apps the children are using)	Children will know: • How reporting a concern works at a new school • That sharing images has consequences • That some content can promote stereotypes • That devices are valuable resources • Their data rights and responsibilities • That phishing is when attackers attempt to trick users into doing 'the wrong thing', such as clicking a bad link that will download malware, or direct them to a dodgy website • That the four types of phishing are spear phishing, whaling, vishing and email phishing • The common themes for phishing • How to prevent being a victim of phishing
SKILLS		Children will be able to: • Identify the good and bad choices when and where to use a device • Identify why you should not share personal information with strangers online	Children will be able to: • Identify where to go for support when they have concerns about content on the internet • Identify who to go to for support when they have concerns about content on the internet • Identify who to ask before accessing something online • Recognise the good and unwise online behaviours	Children will be able to: • Identify the steps to report a concern online • Identify the CEOP symbol and what is it for • Create an effective password • Identify some of the laws around what is illegal to do with computers	Children will be able to: • Identify how breaking age limits regarding the internet can have consequences • Identify what a digital footprint is • Create a secure password	Children will be able to: • Identify the benefits of report systems online • Identify why asking permission before capturing an image is important • Identify why using a device at night can affect their wellbeing • Explain what consent means when we agree to terms and conditions online • Explain the rights we give to social media organisations to use our personal information	Children will be able to: • Report a concern at a new school • Identify why sharing images has consequences • Explain why and how some content can promote stereotypes • Identify their data rights and responsibilities • Explain what phishing is and why it is used by cyber criminals • Identify the common themes for phishing • Identify how to prevent being a victim of phishing
		VOCABULARY					
		Online content Appropriate Devices Good and bad choices Personal information	Concerns Content Support Online behaviours	CEOP Effective password Laws Illegal Cyber-crime	Age limits Digital footprint Secure password Secure	Report systems Permission Consent Terms and conditions Social media organisations	Stereotypes Data rights and responsibilities Phishing Cyber criminals

ALGORITHMS, PROGRAMMING AND DEBUGGING

KS1 Computing National Curriculum
understand what algorithms are; how they are implemented as programs on digital devices; and those programs execute by following precise and unambiguous instructions
create and debug simple programs
use logical reasoning to predict the behaviour of simple programs

KS2 Computing National Curriculum
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

	EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
ALGORITHMS							
KNOWLEDGE		Children will know: • That an algorithm is a list of rules to follow in order to complete a task or solve a problem. • That the steps in an algorithm need to be in the right order • That SratchJr is the app used to write algorithms	Children will know: • That an algorithm is a list of rules to follow in order to complete a task or solve a problem. • That the steps in an algorithm need to be in the right order • That SratchJr is the app used to write algorithms	Children will know: • That decomposition means breaking an algorithm down into smaller parts • That Scratch is the app used to write algorithms	Children will know: • That logical reasoning explains how some simple algorithms work and is used to detect and correct errors in algorithms and programs. So, when you have broken up a task into smaller steps and sequence them into an order that works, you are then able to program it all in Scratch	Children will know: • That a selection is a decision or question. At some point, a program may need to ask a question because it has reached a step where one or more options are available. Depending on the answer given, the program will follow a certain step and ignore the others. • That a variable is when they need to measure or count something that changes	Children will know • That PRIMM stands for Predict, Run, Investigate, Modify and Make
SKILLS		Children will be able to: • Write an algorithm • Use an algorithm • Improve an algorithm • Open ScratchJr and start a new project • Create short sets of sequence instructions • Create longer sequences of more complete instructions	Children will be able to: • Write an algorithm • Use an algorithm • Spot patterns in algorithms • Write commands in the correct order. • Correct any mistakes • Create an algorithm using the repeat command	Children will be able to: • Use logical reasoning to detect and correct errors in an algorithm. • Break a sequence of moves down into its parts. • Decompose a sequence • Open Scratch and start a new project • Explore Scratch for themselves	Children will be able to: • Use logical reasoning to solve a problem. • Write a program with a sequence of instructions	Children will be able to: • Explain what selection is • Write a program using selection • Describe what a variable is • Describe how a score variable is used	Children will be able to • Use logical reasoning to explain how some simple algorithms work • Predict what a program with repeats will do • Explain what the repeats in a program will do • Use the PRIMM steps
PROGRAMMING							
KNOWLEDGE		Children will know: • That a Bee-Bot is a robot designed for sequencing • That a sequence is the order in which instructions are performed • That a program is a set of step-by-step instructions to make a computer do a task • How to break down a sequence of moves into its parts	Children will know: • To press forwards, backwards, left and right buttons on a Bee-Bot to program it	Children will know: • How to write a program with a set of instructions using Scratch • How to write a program that uses a repeated command	Children will know: • That computer programming involves writing a list of instructions for the computer to follow • How to write a program with a sequence of instructions	Children will know: • How to write a program using selection • How to use variables in a program	Children will know: • That modify means change. By modifying a program they are also learning how a program works and how to improve/change it • That an input device transmits data and allows you to communicate with it and control it • That a micro:bit is a tiny, pocket-sized computer
SKILLS		Children will be able to: • program a Bee-Bot • Break a sequence of moves down into its parts	Children will be able to: • Program a Bee-Bot	Children will be able to: • Write a program with a set of instructions • Write a program that uses a repeated command	Children will be able to: • Identify what is important in a computer program • Solve problems using logical reasoning • Write a program with a sequence of instructions	Children will be able to: • Write a program using selection • Use variables in programs	Children will be able to • Modify a program to achieve goals • Write a program using repetition • Write a program that uses input from an input device (micro:bit) • Write a control program
DEBUGGING							
KNOWLEDGE		Children will know: • That Debugging is the process of finding and fixing errors • How to debug a program	Children will know: • How to debug a program	Children will know: • How to debug a program using logical reasoning	Children will know: • How to debug a program using logical reasoning	Children will know: • How to debug a simulation program on Scratch	Children will know: • How to write and debug a game
SKILLS		Children will be able to: • Debug a program. • Say what a program will do • Explain what the bug was and how I fixed it	Children will be able to: • Debug a program. • Say what a program will do • Explain what the bug was and how I fixed it	Children will be able to: • Explain how to debug a program • Use logical reasoning to debug a program	Children will be able to: • Explain how to debug a program • Use logical reasoning to debug a program	Children will be able to: • Debug a simulation program on Scratch	Children will be able to: • Write and debug a game

VOCABULARY							
		Algorithm Scratch Junior Project Sequence Bee-Bot Program Debugging	Patterns Commands Mistakes	Decomposition Logical reasoning Scratch Instructions Repeated command	Computer program Problems	Selection Variable Score variable Simulation program	PRIMM stages (Predict, Run, Investigate, Modify and Make.) Modify Input devices Control program

USING DATA

		KS1 Computing National Curriculum *Use technology purposefully to create, organise, store, manipulate and retrieve digital content.*		KS2 Computing National Curriculum *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.*			
	EYFS	**YEAR 1**	**YEAR 2**	**YEAR 3**	**YEAR 4**	**YEAR 5**	**YEAR 6**
KNOWLEDGE		Children will know: • That a pictogram is a chart that uses pictures to represent data • How to sort physical objects, take a photograph and discuss what they have done • How to create a pictogram on a digital device	Children will know: • How to sort images or text into two or more categories on a digital device • How to collect data • That a tally chart is a table used for counting and comparing the numbers of multiple classes of a data set • How to create a tally chart • How to record themselves • How to create a branching database	Children will know: • That a Carroll diagram is a way to sort data, such as a group of objects, shapes or numbers, based on given properties or traits in a yes/no fashion • How to create a sorting diagram • How to complete a data handling activity using images and texts • How to input data into a spreadsheet	Children will know: • How to create a multiple-choice questionnaire • That a spreadsheet is a computer program that can capture, display and manipulate data arranged in rows and columns • How to import data into a spreadsheet • How to export the data in a variety of ways: chart, bar chart, pie charts etc • How data is collected	Children will know: • How to create a questionnaire • How to analyse the results • That a formula takes a set of values, usually from other cells, and carries out some maths on them • How to create simple formulae to solve calculations including =sum and other statistical functions • How to edit and formal different cells in a spreadsheet	Children will know: • How to write spreadsheet formula to solve more challenging maths problems • How to create their own online quiz with a range of media (images and videos) • How to publish their own online quiz with a range of media (images and videos)
SKILLS		Children will be able to: • Identify a pictogram and its features • Sort physical objects, take a photograph and discuss what they have done • Create a pictogram on a digital device	Children will be able to: • Sort images or text into two or more categories on a digital device • Collect data on a topic of choice • Create a tally chart • Record themselves explaining what they have done and what it shows • Create a branching database using questions	Children will be able to: • Create a sorting diagram • Complete a data handling activity using images and texts • Input data into a spreadsheet	Children will be able to: • Create a multiple-choice questionnaire • Import data into a spreadsheet and export the data in a variety of ways: chart, bar chart, pie charts etc • Understand and explain how data is collected	Children will be able to: • Create a questionnaire and analyse the results • Use simple formulae to solve calculations including =sum and other statistical functions • Edit and formal different cells in a spreadsheet	Children will be able to: • Write spreadsheet formula to solve more challenging maths problems • Create and publish their own online quiz with a range of media (images and videos)
VOCABULARY							
		Pictogram Sort Create Digital device photograph	Sort Images Text Collect Data Tally chart Branching database	Sorting diagram Data handling Input spreadsheet	Multiple-choice Questionnaire Export Bar chart Pie chart	Analyse Formulae Sum Cells spreadsheet	Online quiz Media publish

USING COMPUTERS AND EVALUATING DIGITAL CONTENT

		KS1 Computing National Curriculum *Recognise common uses of information technology beyond school*		**KS2 Computing National Curriculum** *Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.*			
	EYFS	**YEAR 1**	**YEAR 2**	**YEAR 3**	**YEAR 4**	**YEAR 5**	**YEAR 6**
KNOWLEDGE		Children will know: • Tbat a computer is a device for working with information • That an iPad is a touchscreen tablet PC made by Apple • That a mouse is also called a 'pointing device' because it enables you to control what happens on the screen by moving the mouse on your desk and pointing, clicking and selecting items on the screen • That a computer keyboard is an input device that allows a person to enter letters, numbers, and other symbols (these are called characters) into a computer • How to use a recording device to dictate short sentences • That work I create belongs to me	Children will know: • That that space bar makes a space between words • That the delete button deleted words or letters • That the enter key will make a new line • How to use a recording device to dictate sentences with punctuation • That right clicking on a mouse allows you to copy and paste • That the caps lock is used for capital letters • How to save their work to pupil share (with support)	Children will know: • That the index fingers are used for the keys f and j • The left fingers are used for a, s, d, f, and g • The right fingers are used for h, j, k and l • How to change the size of text • How to change the colour of text • How to add borders • Save their work • Retrieve their work • Why copying someone else's work from the internet without permission can cause problems • What them problems might be • That computers in a school are connected together in a network • Why computers are networked • That the internet is a global network of computers all connected together • That he world wide web ('www' or 'web' for short) is a collection of webpages found on this global network of computers • That your web browser uses the internet to access the world wide web	Children will know: • That devices are laptops, desktop computers, tablets or mobile phones. They could be wired or wireless. • That a router moves data between computer networks. If you have Internet, a router will send the data to your computer • That a server is a central computer in a network which has a large memory drive • That firewall is a piece of software that checks data being sent between networks, to make sure it is safe to us • That a hard drive is used by a device to store information • How to combine digital images from different sources • That control and c will copy • That control and v will paste • How to use font sizes appropriately • How to use spell check and thesaurus • Understand how email is sent across the Internet	Children will know: • Hyperlinks are words that links you to another an internet page • How to add hyperlinks to websites onto a document • How to import sounds • How to organise and reorganise text on the screen to suit the purpose • How to assess and justify when it is acceptable to use the work of others • That some content is permitted to be reused • Understand how we view web pages on the Internet • Use search technologies effectively • Understand that web spiders index the web for search engines • Appreciate how pages are ranked in a search engine	Children will know: • What application is best to demonstrate their learning • How to format text • How to publish documents • How search engines rank results • That the use of search tools to find and access online content can be reused by others • How to reference and acknowledge sources they have used from the internet • **That HTML** (which stands for HyperText Markup Language) is a type of markup language that is used to build web pages • Know a range of HTML tags and can remix a web page • How to create a webpage using HTML
SKILLS		Children will be able to: • Identify a computer and explain its use • Identity an Ipad and explain its use • Identify a mouse and explain what is it used for • Identify a keyboard and explain what is it used for • Turn a computer on • Turn an iPad on • Play a touch screen game • Use a keyboard to type • Use a recording device to dictate short sentences • Identify who work belongs to	Children will be able to: • Use the space bar to a space between words • Use the delete button to delete words or letters • Use the enter key to make a new line • Use a recording device to dictate sentences with punctuation • Copy and paste images and text into a word document • Use the caps lock is used for capital letters • Save their work (with support) • Describe why other people's work belongs to them • Recognise that content on the internet may belong to other people	Children will be able to: • Use their index fingers for the keys f and j • Use their left fingers for a, s, d, f, and g • Use their right fingers for h, j, k and l • Change the size of text • Change the colour of text • Add borders • Save their work • Retrieve their work • Explain why copying someone else's work from the internet without permission can cause problems • Describe what them problems might be • Explain that computers in a school are connected together in a network • Explain that computers are networked • Explain the difference between the Internet and the World Wide Web (WWW)	Children will be able to: • Name devices and their purposes on a computer network • Combine digital images from different sources to make a final piece: poster, document, leaflet etc • Use shortcuts for cut, copy and paste and delete to organise text • Use font sizes appropriately • Use spell check and thesaurus • Explain that when searching the internet, they need to consider who owns it and whether they have the rights to reuse it • Explain how email is sent across the Internet	Children will be able to: • Add hyperlinks to websites onto a document • Import sounds to accompany and enhance their document • Organise and reorganise text on the screen to suit the purpose • Explain that they need to assess and justify when it is acceptable to use the work of others • Explain that some content is permitted to be reused • Explain how we view web pages on the Internet • Use search technologies effectively • Understand that web spiders index the web for search engines • Appreciate how pages are ranked in a search engine	Children will be able to: • Explain how search engines rank results • Select the application that is best to demonstrate their learning • Format text to suit a purpose • Publish documents • Explain that the use of search tools to find and access online content can be reused by others • Reference and acknowledge sources they have used from the internet • Describe what HTML • Recognize HTML tags • Identify range of HTML tags • Create a webpage using HTML
VOCABULARY							
		Computer iPad Mouse Keyboard	Space bar Delete Enter Copy Paste Save Caps lock Content	Borders Retrieve Permission Network WWW Internet	Clients Server Ethernet switch Wifi point Printer Photocopier Sources Shortcuts Email Collaborate	Hyperlinks Import Organise Reorganise Assess Justify Permitted Web spider index	Application Format Publish Reference HTML Tags

COMPUTING							
	EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
CROSS CURRICULAR LINKS							
ENRICHMENT:		**Photography:** Children will be taught how to take photograph using digital devices such as iPads and cameras.		**Photography:**	**Photography:**	**Photography:**	**Photography:** **Sustainability:**
APSIRE		Children will present their algorithms at the ASPIRE event. They will be able to talk about their learning process. Prompt questions for parents to include: • What is an algorithm? • What is a sequence? • What does debug mean? • Show me how you use a Bee-Bot. • How have you sorted your data? • What is a computer? • What is a keyboard? • What is a mouse? • What is an Ipad?		Children will present their algorithms at the ASPIRE event. They will be able to talk about their learning process. Prompt questions for parents to include: • What is an algorithm? • What is a sequence? • What does debug mean? • How have you sorted your data? • How do you create an algorithm?		Children will present their algorithms at the ASPIRE event. They will be able to talk about their learning process. Prompt questions for parents to include: • What have you created your questionnaire on? • Wbat formula have you used on your spreadsheet? • What is a micro:bit? Y6 to use the aspire event to get their questionnaires completed so they can analyse their results the following lesson	