



Curriculum Learning Guide

Computing

How is Computing taught at Baildon CE Primary School?



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Curriculum Intent

What do we want to achieve with our Computing curriculum?

At Baildon CE Primary we are committed to ensuring that every learner is able to flourish and meet their full potential in a world which is becoming increasingly transformed by technology. Through engaging and creative Computing lessons, learners are equipped with the **skills, knowledge** and **understanding** necessary to allow them to use technology effectively and confidently. At Baildon CE Primary, we are starting to develop deep cross-curricular links between Computing and Mathematics, Science and Design Technology and we strive to provide a broad and balanced curriculum, whilst ensuring that learners become digitally literate and digitally resilient. Technology is ever-evolving and we aim to develop learners who can use technology to express themselves, develop their ideas, share information and thereby use communication technology at a suitable level for the future workplace and become active participants in an ever-changing digital world. We make the link between our chosen bible quote and Computing – “plans to give (children) hope and a future” – we recognise that Computing will be an enormous part of that future and that a solid foundation in this subject will set them up for success both at secondary school and within the wider world.

How will this be achieved?

Through our use of an adapted Purple Mash Scheme of Work, which is aligned to the National Curriculum, learners are equipped with the **skills, knowledge** and **understanding** necessary to allow them to use technology effectively and confidently. The subject leader is working with staff to ensure that every staff member who teaches Computing is a subject specialist and is able to deliver expert lessons to our children. The subject leader has also identified any gaps within the scheme (such as the lack of explicit teaching about the parts of a computer in KS1 and networks in KS2) and has worked to ensure that our curriculum covers this content in detail.

Learning is aligned to the three main strands of the National Curriculum: i) Computer Science, ii) Information Technology and iii) Digital Literacy. E-safety (Digital Literacy) is explicitly taught within Computing lessons, but is also embedded within all use of technology, both within and – wherever possible - outside of school.

Learning in the Computer Science strand equips our learners with knowledge and experience of algorithms (programming), computational thinking and problem solving. Through learning in the Communication Technology strand, our learners understand the technology and systems around them, and are able to find, create, organise, exchange, present and store content. Digital Literacy is a central focus for us, where learners develop their ability to use information in a discriminating, effective and safe way. The development of skills in these three areas enables our learners to become independent, confident, creative and safe users of technology. Cross-curricular use of technology and computing skills enables us to provide a broad and balanced curriculum which is enhanced by the effective use of technology.

Within Reception, children are given opportunities to use and understand technology, considering its many uses in the environments known to them.

In Key Stage 1, learners are taught the principles of information technology and computation, they participate in weekly computing lessons which enable them, initially, to gain confidence in using devices within the classroom and logging in, learning the importance of using passwords to keep their work and information secure. Learners are taught to understand basic programming, through the use of algorithms and precise instructions, moving on to creating and debugging simple programs. Learners use technology purposefully, to create, organise, store and manipulate information. Learners use classroom discussion to make links between information technology experiences in school, and that used in the wider world. Cross Curricular links are made wherever possible to enhance learning in other curriculum areas.

In Key Stage 2, learners build on their understanding of computer science and computational thinking. They develop control systems using their programming skills to accomplish a specific goal. Learners use input and output systems, as well as sequence, selection and repetition in programmes. Building on their understanding of algorithms, children learn to describe how they work and further develop their ability to detect and correct errors in a program. Learners develop their understanding of larger networks such as the Internet and are able to explain how they work. Through their use of search technologies, children in Key Stage 2 develop their Digital Literacy skills, learning about how search results are selected and ranked, as well as developing their skills to challenge and check information presented for reliability. The collection, analysis, evaluation and presenting of data is further developed through application to other curriculum areas wherever possible.

Across all key stages, teachers regularly make links to prior learning, ensuring that children have the opportunity to spiral key vocabulary and knowledge. For example, before a coding lesson using sequence, selection and repetition, the teacher might ask the children to write a short definition of an algorithm. Children also regularly have the opportunity to de-bug programs to look for errors in the coding. In this way, we aim to ensure that taught content reaches children's Long Term Memory and is learned.

Ensuring that learners are safe, healthy and considerate users of technology is central to learning and any use of technology in school. Through our comprehensive E-safety coverage, learners in KS1 understand how to use technology safely and respectfully,

know what information should not be shared and know where to go for help in the event that it is needed. In Key Stage 2, learners are provided with opportunities to explore how to be safe and effective users of technology, to consider what behaviour is acceptable online and to learn different ways to report concerns or difficulties. A whole school focus on E-safety takes place annually on Safer Internet Day, ensuring that key messages are consistently embedded and that the high profile of E-safety is maintained. In addition to this, a local Community Police Officer visits annually to deliver E-safety sessions with years 4-6, in addition to this, year 5 and 6 have a yearly 'Cyberbullying' session also. Staff training takes place to ensure that our understanding and key themes covered in lessons are up to date. Opportunities to share information with parents are used to keep them up to date with current 'trends', associated risks, helpful information and signpost support. Our weekly parent newsletter contains regular Esafety messages to ensure a constant 'drip-feed' of key information to learners' homes. Other subject areas such as PSHE and P4C, for example, may also include themes and key learning around E-safety.

All learners at Baildon CE Primary take part in all aspects of our curriculum; where required, lessons and resources are adapted to ensure that all learners are included and can access the whole Computing curriculum. Computing has been used to develop the logic and reasoning skills of pupils with SEND and some pupils receive additional support within lessons.

Progress and attainment in Computing are assessed against National Curriculum objectives for each year group. We believe that age-appropriate demonstration of the **knowledge, skills** and **understanding** within these objectives ensures that our learners become successful, effective and safe users of technology. At the start of each unit of work, learners informally draw together their existing knowledge about a subject area (this takes different forms, such as group or whole class mind maps), with units usually taking a project form, where learners work towards creating something as an end point to their unit of work, in which the key **skills, knowledge** and **understanding** that they have gained is demonstrated. Formal assessment is undertaken annually, reported and then analysed by the Computing Subject Leader.

Additional extra-curricular computing opportunities are provided for learners in Key Stage 2, through the availability of Code Club, a well-established after school club where children further develop their coding skills, including programming and debugging, in a fun and engaging after school club.

Cross- Curricular Links

A wide variety of cross-curricular links are made with Computing, for example:

Maths – collecting and presenting data (pictograms, bar charts, pie charts)

English – presenting text with a particular purpose (multimedia presentations, publishing writing, recording videos)

Science – data collection and presentation (use of data loggers)

Creative Curriculum (History/Geography) – researching skills, selecting relevant and reliable information

Art – photography, digital artwork

Planning Module Overview Y1-6

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer2
Reception						
Y1	<p><i>Basic Skills – logging on, mouse skills, typing</i> Programs - various</p> <p>PM Unit 1.1 Online Safety & Exploring Purple Mash Weeks – 4 Programs – Various</p>	<p>PM Unit 1.3 Pictograms Weeks – 3 Programs – 2Count</p> <p>PM Unit 1.2 Grouping & Sorting Weeks – 2 Programs – 2DIY</p>	<p>PM Unit 1.5 Maze Explorers Weeks – 3 Programs – 2Go</p> <p>PM Unit 1.4 Lego Builders Weeks – 3 Programs – 2DIY</p>	<p>PM Unit 1.7 Coding Weeks – 6 Programs – 2Code</p>	<p>PM Unit 1.8 Spreadsheets Weeks – 3 Programs – 2Calculate</p> <p>PM Unit 1.9 Technology outside school Weeks – 2 Programs – Various</p>	<p>PM Unit 1.6 Animated Story Books Weeks – 5 Programs – 2Create A Story</p>
Y2	<p>PM Unit 2.1 Coding Weeks – 5 Programs – 2Code</p> <p><i>Standalone – what is a computer? (separate plan)</i></p>	<p>PM Unit 2.2 Online Safety Weeks – 3 Programs – Various</p> <p>PM Unit 2.5 Effective Searching Weeks – 3 Programs – Browser</p>	<p>PM Unit 2.4 Questioning Weeks – 5 Programs - 2Question, 2Investigate</p>	<p>PM Unit 2.3 Spreadsheets Weeks – 4 Programs – 2Calculate</p>	<p>PM Unit 2.6 Creating Pictures Weeks – 5 Programs – 2PaintAPicture</p>	<p>PM Unit 2.8 Presenting Ideas Weeks – 4 Programs – Various</p>
Y3	<p>PM Unit 3.1 Coding</p>	<p>PM Unit 3.2 Online safety</p>	<p>PM Unit 3.5 Email</p>	<p>PM Unit 3.4 Touch Typing</p>	<p>PM Unit 3.6 Branching</p>	<p><i>Animation project -</i></p>

	<p>Number of Weeks – 6 Main Programs – 2 Code</p>	<p>Weeks – 3 Programs – Various</p> <p>PM Unit 3.3 Spreadsheets Weeks – 3 Programs – 2 Calculate</p>	<p>(including email safety) Weeks – 6 Programs – 2 Email, 2 Connect, 2 DIY</p>	<p>Weeks – 4 Programs – 2 Type</p> <p>PM Unit 3.7 Simulations Weeks – 3 Programs – 2 Simulate, 2 Publish</p>	<p>Databases Weeks – 4 Programs – 2 Question</p> <p>PM Unit 3.8 Graphing Weeks – 3 Programs – 2 Graph</p>	<p><i>create an animation which shows how a computer works – AB planning</i></p>
Y4	<p>PM Unit 4.1 Coding Number of Weeks – 6 Main Programs – 2 Code</p>	<p>PM Unit 4.2 Online safety Weeks – 4 Programs – Various</p> <p>PM Unit 4.7 Effective Search Weeks – 3 Programs – Browser</p>	<p>PM Unit 4.3 Spreadsheets Weeks – 6 Programs – 2 Calculate</p>	<p>PM Unit 4.4 Writing for different audiences Weeks – 5 Programs – 2 Email, 2 Connect, 2 DIY</p>	<p>PM Unit 4.5 Logo Weeks – 4 Programs – Logo</p> <p>PM Unit 4.8 Hardware Investigators Weeks – 2</p>	<p>PM Unit 4.6 Animation Weeks – 3 Programs – 2 Animate</p> <p><i>What is a computer? Advanced – AB planning</i></p>
Y5	<p>PM Unit 5.2 Online safety Weeks – 3 Programs - Various</p> <p>PM Unit 5.4 Databases</p>	<p>PM Unit 5.3 Spreadsheets Weeks – 6 Programs – 2 Calculate, Excel</p>	<p><i>Scratch Coding – AB plans</i></p>	<p><i>Scratch Coding – AB plans</i></p>	<p>PM Unit 5.6 3D Modelling Weeks – 4 Programs – 2 Design and Make</p>	<p>PM Unit 5.7 Concept Maps Weeks – 4 Programs – 2 Connect</p>

	Weeks – 4 Programs – 2Question, 2Investigate					<i>What is a network? – AB planning</i>
Y6	PM Unit 6.2 Online safety Weeks – 3 Programs - Various PM Unit 6.4 Blogging Weeks – 5 Programs – 2Blog	PM Unit 6.3 Spreadsheets Weeks – 6 Programs – 2Calculate	<i>Scratch Coding – AB planning</i>	<i>Scratch Game Design – AB planning</i>	PM Unit 6.6 Networks Weeks – 3 <i>Create a video to explain how networks work and how the internet works</i>	PM Unit 6.7 Quizzing Weeks – 6 Programs – 2Quiz, 2DIY, Text Toolkit, 2Investigate

Internet Safety and Digital Literacy Coding and Computer Science Databases and Graphing Design and Technology
Spreadsheets and Documents

PM Units are Purple Mash units – these have detailed planning already in place.

Italic units are planned in school and cover the skills and knowledge absent from the Purple Mash scheme. In Years 5 and 6, we move Coding away from Purple Mash and into Scratch. This builds to a “design” task in Year 6 where pupils design and build their own games in Scratch.

National Curriculum Objective Mapping – for Assessment

Year 1

Purple Mash Computing Scheme of Work – Overview - Year 1

English National Curriculum Objectives (Key Stage 1)

National Curriculum Objective	Strand	Units
Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.	Computer Science	1.4 1.5 1.7
Create and debug simple programs	Computer Science	1.5 1.7
Use logical reasoning to predict the behaviour of simple programs.	Computer Science	1.5 1.7
Use technology purposefully to create, organise, store, manipulate and retrieve digital content	Information Technology	1.2 1.3 1.6 1.7 1.8
Recognise common uses of information technology beyond school	Digital Literacy	1.9
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.	Digital Literacy	1.1

English National Curriculum Objectives (Key Stage 1)

National Curriculum Objective	Strand	Units
Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.	Computer Science	2.1
Create and debug simple programs	Computer Science	2.1
Use logical reasoning to predict the behaviour of simple programs.	Computer Science	2.1
Use technology purposefully to create, organise, store, manipulate and retrieve digital content	Information Technology	2.3 2.4 2.5 2.6 2.7 2.8
Recognise common uses of information technology beyond school	Digital Literacy	2.5*
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.	Digital Literacy	2.2*

*And in other units when appropriate.

English National Curriculum Objectives (Key Stage 2)

National Curriculum Objective	Strand	Units
Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.	Computer Science	3.1
Use sequence, selection and repetition in programs; work with variables and various forms of input and output.	Computer Science	3.1
Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	Computer Science	3.1
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.	Computer Science	3.5
Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	Information Technology	
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.	Information Technology	3.4 3.5 3.6 3.7 3.8
Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	Digital Literacy	3.2 3.5

English National Curriculum Objectives (Key Stage 2)

National Curriculum Objective	Strand	Units
Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.	Computer Science	4.1 4.5
Use sequence, selection and repetition in programs; work with variables and various forms of input and output.	Computer Science	4.1 4.5
Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	Computer Science	4.1 4.5
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.	Computer Science	4.2 4.7 4.8
Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	Information Technology	4.7
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.	Information Technology	4.1 4.3 4.4 4.6
Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	Digital Literacy	4.2*

*And discussed in other units

English National Curriculum Objectives (Key Stage 2)

National Curriculum Objective	Strand	Units
Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.	Computer Science	5.1 5.5
Use sequence, selection and repetition in programs; work with variables and various forms of input and output.	Computer Science	5.1
Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.	Computer Science	5.1
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.	Computer Science	5.2
Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	Information Technology	Various Search technologies are taught more specifically in unit 4.7. Children will utilize this knowledge in many Internet based sessions in all areas of the 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.	Information Technology	5.1 5.3 5.4 5.5 5.6 5.7
Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	Digital Literacy	5.2 and discussed in other units

English National Curriculum Objectives (Key Stage 2)

National Curriculum Objective	Strand	Units
Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.	Computer Science	6.1 6.5
Use sequence, selection and repetition in programs; work with variables and various forms of input and output.	Computer Science	6.1
Use sequence, selection and repetition in programs; work with variables and various forms of input and output.	Computer Science	6.5
Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.	Computer Science	6.1 6.5
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.	Computer Science	6.2
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.	Computer Science	6.4
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.	Computer Science	6.6
Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	Information Technology	6.2
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.	Information Technology	6.1, 6.3 6.4, 6.5 6.7
Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact*.	Digital Literacy	6.2 6.4

*And discussed in other units.