



Computing Curriculum

Intent

The Computing curriculum at Slaithwaite CE is designed to inform, educate and equip the children with the knowledge and skills needed to use digital equipment in the 21st century. We aim to prepare our pupils for life in an ever-changing digital world. The national curriculum is the start point for planning and adapted to meet the individual needs of our children.

We teach children:

Algorithms programming

Information technology

Basic skills

Digital literacy

Implementation

Our Computing teaching focuses on enabling children to be digitally informed as well as making the right choices when online. We place emphasis on the children building a range of skills and depth of knowledge through a vast curriculum. We build upon prior learning by covering three strands in each year group (algorithms and programming, information technology and basic skills, digital literacy.) Children can access a wide range of resources to support their learning including laptops, I-pads and interactive resources e.g. Beebots. Engaging lessons are taught weekly using a progressive curriculum, alongside unplugged activities that are weaved amongst various other subjects.

Differentiation

We recognise that in all classes there are children of widely different abilities in history and we seek to provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. Resources and support for individuals or groups can allow all children to access the curriculum. Allowing the tasks to be of different difficulties, open ended, open for personal interpretation and discussion, means we can allow all children to meet their potential.

SEND

By maintaining an inclusive learning environment, we ensure that lessons are tailored to suit the needs of the individuals in class. Multi-sensory approaches to computing, including the use of 'unplugged tasks', allow all children to access tailored learning objectives regardless of their prior knowledge or access to technology. We aid children with both peer and adult support to assist their learning. Resources can also be modified and adapted to suit individual needs e.g. larger keyboard. Computing skills act as an essential tool to aid learning in the wider curriculum.

Mastery and Greater Depth

Children can gain a greater level of understanding in computing by being given a wide range of ample opportunities to demonstrate their skills in a range of contexts. By being offered challenges, children can show they have mastered computing by confidently using and applying skills they have previously learnt. Children who are greater depth in computing are encouraged to support their peers in their learning by explaining their understanding, demonstrating skills and peer tutoring.

Explicit curriculum links

As well as teaching computing as a discrete subject, computing is hugely cross-curricular due to the use of technology, logic, creativity and computational thinking to solve problems that cross many other curriculum areas.

English - Computing lends itself to many English topics. Depending on age and ability children develop skills on programmes such as Microsoft word, excel and PowerPoint as well as learning how to use communication networks such as social platforms and email.

Maths - Children learn a range of skills linking to maths, in particular reasoning and problem solving. Through developing skills such as debugging, children learn to use trial and error as well as logical thinking to solve problems. Children also build upon knowledge of position and direction.

Science - Children are able to use their computational thinking and logic to 'debug' in Scientific investigations. They become confident using and changing variables to gain different outcomes. Alongside this, there are many apps that

can enrich the knowledge of some scientific concepts such as the organs or solar system.

Art/Design Technology/Music - There are a wide variety of resources available to support the teaching of creative subjects through the use of computing. Not only is it a fantastic source of research and exemplar pieces, but there are many platforms on which the children can create their own pieces of art or music incorporating various media types.

PSHE - Computing contributes significantly to the teaching of PSHE. Children develop an awareness of personal ID as well as keeping themselves and their personal information safe. Children develop Digital Citizenship knowing how to behave in both the real and cyber world.

Impact

Assessment forms an integral part of the teaching and learning of computing. This is done by observing children working and performing, by listening to their responses and by examining work produced. Evidence is kept via photographs, examples of work and possibly videos in some instances. Teaching and learning in computing across school is assessed termly alongside all other Foundation Subjects and evidences the key skills being met through each unit, clearly showing which pupils are Working Towards, Working At and Working within Greater Depth of Expected Standards of Achievement in Years 1 to 6.

Teaching and learning, along with Assessment for Learning, is evaluated regularly by the computing Lead and class teachers to ensure curriculum coverage and key skills progression for all cohorts. Key areas which are working well are identified along with any areas for development, which are then addressed through future planning and provision.

Pupil Voice is such an important part of our school and continues to be an integral part of School Improvement Planning. Children's responses, thoughts and ideas are collated regularly through Curriculum questionnaires and are then, where possible, incorporated into future curriculum planning.

KS1 - Computing Curriculum (National Curriculum)

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.

Key Vocabulary

Year 1

Beebot; instructions; programme, log on/off; mouse; track pad; application; undo/redo; SMART

Year 2

Code; debug; program; algorithms; digital; shift; save; store; retrieve; search engine; website

Year 1 - Computing Curriculum

Year 1 Computing		
<u>Algorithms and programming</u>	<u>Information technology and basic skills</u>	<u>Digital Literacy</u>
<ul style="list-style-type: none"> Programming Toys - introducing children to the principles of programming through unplugged tasks and use of Beebots <p>I can follow step by step instructions I can direct a Beebot I can programme a Beebot using the arrow buttons I can create a series of instructions using pictures and words I can plan a journey for a programmable toy</p> <p>Some children should be able to: I can say what an algorithm is I can check my work for mistakes (debug)</p>	<ul style="list-style-type: none"> Computer skills - development of basic computer skills in order to use a desktop PC, laptop or tablet <p>I can log on and log off independently I can click and drag with a mouse or track pad I can switch on and shut down a computer independently and correctly I can launch an application and/or website using double click I can use a camera</p> <p>Some children should be able to: I can record sound and play back</p>	<ul style="list-style-type: none"> The knowledge that enables children to use computers safely <p>I can recall some of the SMART rules for internet safety I know what personal information to keep private I know who to tell if someone online asks for personal information Some children should be able to: I can make links between the online and offline world e.g. stranger danger I can recall all the SMART rules</p>

<ul style="list-style-type: none">• Use a computer programme or tablet device to create artwork <p>I can paint using different colours I can paint with different brushes I can create shapes</p> <p>Some children should be able to: I can save a file I can add text I can fill an area with colour</p>	<ul style="list-style-type: none">• Word processing - development of word processing skills and using two hands to type• <p>I can create digital content I can type with two hands I can use undo and redo I can use space and enter correctly I can use backspace, delete and arrow keys</p> <p>Some children should be able to: I can store/save digital content I can retrieve digital content</p>	
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Year 2 - Computing Curriculum

Year 2 Computing		
<u>Algorithms and programming</u>	<u>Information technology and basic skills</u>	<u>Digital Literacy</u>
<ul style="list-style-type: none"> Coding using a range of software e.g. turtle logo, scratch jnr. <p>I can use a range of instructions e.g. direction, angles, turns</p> <p>I can test and debug a set of instructions</p> <p>I can write a simple program and test it</p> <p>I can add new characters and backgrounds</p> <p>I can predict what the outcome of a simple program will be using logical reasoning</p> <p>I can understand that precise instructions are required in programs</p> <p>I can understand that algorithms are used on digital devices</p> <p>Some children should be able to:</p>	<ul style="list-style-type: none"> Word processing - developing typing and word processing skills in more detail <p>I can type confidently with two hands</p> <p>I can use shift and Caps Lock for capital letters</p> <p>I can make text bold, italic and underlined</p> <p>I can change the colour of the text</p> <p>Some children will be able to:</p> <p>I can use different fonts</p> <p>I can add a picture to the word document</p>	<ul style="list-style-type: none"> Safe use of the internet and computing devices <p>I can use technology respectfully</p> <p>I know that people can use the information that is put online</p> <p>I know how technology is used in school and outside of school</p> <p>I am beginning to consider who a website could be aimed at</p> <p>I am beginning to identify possible dangers online</p> <p>Some children should be able to:</p> <p>I can understand what a digital footprint means</p>

<p>I can program 2 or more characters at the same time</p> <ul style="list-style-type: none"> • Computer art using computer programmes <p>I can use a range of tools to create effect</p> <p>I can make alterations to colour, size and brush</p> <p>I can access an appropriate program to achieve a specific task</p> <p>Some children should be able to:</p> <p>I can manipulate shapes or objects to re-create an art style</p>	<ul style="list-style-type: none"> • Using the internet <p>I can retrieve and manipulate digital content</p> <p>I can be specific when using a search engine</p> <p>I can follow a web link</p> <p>I can use a range of search engines</p> <p>I can navigate the web to complete simple searches</p> <p>Some children should be able to:</p> <p>I can identify the usefulness of search results</p>	
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KS2 - Computing Curriculum (National Curriculum)

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.

Key Vocabulary

Year 3

Coding software; sequence/selection; debug; algorithms; digital footprint; online bullying; privacy; presentation; bookmark

Year 4

Logical sequence; algorithm; debug; functions; digital citizenship; transitions; animations; hyperlink; privacy settings; email; target audience; data; input/output; computer network

Year 5

Game development; algorithm; debug; formatting; spam email; subject; animation; social media; communication

Year 6

Actions and consequences; logical reasoning; spreadsheet; formulae; control/variables

Year 3 - Computing Curriculum

Year 3 Computing		
<u>Algorithms and programming</u>	<u>Information technology and basic skills</u>	<u>Digital Literacy</u>
<ul style="list-style-type: none"> • Use a range of software for coding e.g. turtle logo, scratch jnr and scratch <p>I can design a sequence of instructions including directional instructions</p> <p>I can write programs that accomplish specific goals</p> <p>I can create and debug algorithms</p> <p>I can use the repeat command</p> <p>I can draw regular polygons using software</p> <p>Some children should be able to:</p> <p>I can identify various forms of input and output</p>	<ul style="list-style-type: none"> • Word processing - using knowledge of word processing to develop further skills <p>I can align text</p> <p>I can cut, copy and paste text</p> <p>I can align text for a particular purpose</p> <p>I can insert, manipulate and edit digital images</p> <p>Some children should be able to:</p> <p>I can copy a screen grab or print screen</p> <p>I can use ctrl keyboard shortcuts</p>	<ul style="list-style-type: none"> • Online safety <p>I can explain that a digital footprint contains information about a person</p> <p>I can identify suitable websites that are age appropriate</p> <p>I can determine where it is best to use technology and understand where it adds little or no value</p> <p>I can recognise online bullying</p> <p>I can explain different ways I can get help if I am concerned</p> <p>I can explain about privacy settings</p> <p>Some children should be able to:</p> <p>I can explain what an online community is and how people belong to them</p>

	<ul style="list-style-type: none"> • Presentation skills - develop children's use of presentation software (powerpoint and keynote) <p>I can collect information from a variety of online sources</p> <p>I can design and create content</p> <p>I can create a simple presentation to present to others</p> <p>I can organise slides as required</p> <p>I can inset pictures, shapes and text boxes</p> <p>Some children should be able to:</p> <p>I can use animations and transition effects</p>	<ul style="list-style-type: none"> • Understanding internet research and communication <p>I can use the internet respectfully and responsibly</p> <p>I know and understand how word order affects the results returned in a search engine</p> <p>I can bookmark a page</p> <p>I can discuss how to effectively communicate online</p> <p>Some children should be able to:</p> <p>I can explain how and why online activity creates a digital footprint</p>
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Year 4 - Computing Curriculum

Year 4 Computing		
<u>Algorithms and programming</u>	<u>Information technology and basic skills</u>	<u>Digital Literacy</u>
<ul style="list-style-type: none"> • Use a range of software for coding e.g. turtle logo and scratch <p>I can experiment with a range of instructions to work out the most effective, logical sequences</p> <p>I can debug a program exploring variables</p> <p>I can use repetition, selection and duplicate function</p> <p>I can give an on-screen and/or off screen 'robot' specific instruction to get from A to B</p> <p>I can make an accurate prediction and explain why I believe something will happen (linked to programming)</p> <p>Some children should be able to:</p> <p>I can use a range of effects within their own program</p> <p>I can debug given algorithms (not developed by themselves)</p>	<ul style="list-style-type: none"> • Word processing - developing the knowledge and skills in more depth <p>I can select, edit and manipulate text in different ways</p> <p>I can use formatting tools to improve the layout</p> <p>I can add specific effects to images</p> <p>I can use the spell check tool</p> <p>I can collect and present data in a simple table</p> <p>Some children should be able to:</p> <p>I can create a hyperlink</p>	<ul style="list-style-type: none"> • Online safety - focus on digital citizenship <p>I can explain what digital citizenship is</p> <p>I can recognise acceptable and unacceptable behaviour using technology</p> <p>I can explain how being a good digital citizen is linked to being a good citizen in real life</p> <p>I can define online bullying</p> <p>Some children should be able to:</p> <p>I can give advice that relates to digital citizenship regarding specific online scenarios</p>

	<ul style="list-style-type: none"> • Presentation skills - developing the use of a range of presentation software e.g. powerpoint, keynote and recording devices <p>I can research a topic and create a presentation</p> <p>I can independently organise slides in an appropriate order</p> <p>I can insert pictures, shapes and textbox for a purpose</p> <p>I can insert images to create a simple animation</p> <p>Some children should be able to:</p> <p>I can insert hyperlinks to videos or websites</p> <p>I can use timers for transitions</p> <p>I can insert a voice recording</p>	<ul style="list-style-type: none"> • Internet research and communication - using the internet responsibly for a purpose <p>I can understand how to safely send an email (using a class email address)</p> <p>I can explain why particular results are returned by a search engine</p> <p>I can identify a targeted audience</p> <p>I can explain how privacy settings affect the search results within a computer network.</p> <p>Some children will be able to:</p> <p>I can explain why a subject is important in an email</p>
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Year 5 - Computing Curriculum

Year 5 Computing		
<u>Algorithms and programming</u>	<u>Information technology and basic skills</u>	<u>Digital Literacy</u>
<ul style="list-style-type: none"> Use a range of software for coding in game development <p>I can build and edit algorithms for a simple game</p> <p>I can design algorithms that use repetition and 2-way selection</p> <p>I can programme a sequence of instructions with actions and consequences</p> <p>I can debug a programme I have written to make it more effective for a specific audience</p> <p>Some children should be able to: I can add additional effects and features such as sound or point scoring</p>	<ul style="list-style-type: none"> Word processing and presentation skills- selecting the appropriate program to given purposes <p>I can select, edit and manipulate text in different ways</p> <p>I can use formatting tools to improve the layout and images</p> <p>I can create a powerpoint or keynote using timers, transitions and effects</p> <p>I can create a document with hyperlinks to text</p> <p>Some children should be able to: I can apply these skills independently</p> <ul style="list-style-type: none"> Presenting visually - developing the use of a range of software to present information 	<ul style="list-style-type: none"> Online safety <p>I can understand that not everything is true and/or safe online</p> <p>I can understand how false photos can make people feel bad about themselves</p> <p>I can identify unsafe behaviour online</p> <p>I can use technology safely, respectfully and responsibly and explain how to do so.</p> <p>Some children should be able to: I can identify how to minimise risk</p> <ul style="list-style-type: none"> Internet research and online communication <p>I can safely send an email with a clear address and subject</p>

	<p>I can insert images to create a simple animation</p> <p>I can use appropriate software to record, arrange and present own videos and sounds</p> <p>I can edit a video or recording</p> <p>I can rehearse and improve my presentation</p> <p>Some children should be able to:</p> <p>I can enhance sound effects</p>	<p>I can identify a spam email</p> <p>I can explain the ways in which people may communicate online</p> <p>I can understand how to make good and safe choices regarding online communication</p> <p>I can explain what privacy settings can be used online</p> <p>Some children should be able to:</p> <p>I can identify warning signs that content may not be trustworthy</p>
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Year 6 - Computing Curriculum

Year 6 Computing		
<u>Algorithms and programming</u>	<u>Information technology and basic skills</u>	<u>Digital Literacy</u>
<ul style="list-style-type: none"> Using a range of software for coding (e.g. KODU programming) <p>I can program using KODU to move a character and add objects</p> <p>I can create a racetrack with an end goal for a game using KODU</p> <p>I can program an effective sequence of instructions with actions and consequences</p> <p>I can use logical reasoning recognise different solutions that can exist for the same problem (as well as providing solutions for 'what if' scenarios)</p> <p>I can work with variables</p> <p>I can independently explain how an algorithm works</p> <p>I can use SCRATCH to animate characters with movement and speech</p> <p>Some children should be able to:</p> <p>I can add interactive features to a scene</p>	<ul style="list-style-type: none"> Understanding spreadsheets and how they work on Microsoft Excel <p>I can enter text and numbers into a spreadsheet</p> <p>I can identify and refer to cells by row and column</p> <p>I can begin to enter formulae with the SUM function</p> <p>I can create a graph from the data</p> <p>Some children will be able to:</p> <p>I can edit data and discuss the effects</p> <p>I can explore further functions</p>	<ul style="list-style-type: none"> Online Safety <p>I can identify and explain the dangers of revealing personal information online</p> <p>I can understand the consequences of online scenarios (to demonstrate knowledge of safe digital use)</p> <p>I can identify situations and explain how to be careful online in relation to online bullying</p> <p>I can discuss the risks of online use of technology (inc. gaming)</p> <p>I can explain why someone might want online friendship and know how to keep myself safe</p>

<p>I can control smooth transitions</p>	<ul style="list-style-type: none"> • Demonstrate confident use of software, technology and digital devices <p>I can select and confidently use a range of technology for a specific project.</p>	<ul style="list-style-type: none"> • Internet research and purposeful communication <p>I can identify warning signs that a website or email may not be safe</p> <p>I can explain how search engine results are ranked</p> <p>I can explain what privacy settings are used online and why they are beneficial</p> <p>Some children should be able to:</p> <p>I can explain how the online world negatively impact on the 'real' lives of users</p> <p>I can reflect on my own online activity</p>
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