Distington Community School Computing Statement

Our curriculum is carefully designed to ensure coverage and progression. It provides pupils with memorable experiences, in addition to diverse and rich opportunities from which children can learn and develop a range of transferable skills. The children's own community, its heritage and traditions are frequently used as a starting point for engaging interest. A primary focus of our curriculum is to raise aspirations, create a sense of personal pride in achievement, and provide a purpose and relevance for learning. We provide a creative cross curriculum approach that has clear intent, a carefully designed and monitored implementation and a positive impact that allows children to develop knowledge, understanding and skills in each subject.

As programmers, we aim for our children to leave Distington Community School with:

- An understanding and ability to apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- The ability to analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems.
- A sound base of computing knowledge and vocabulary.
- The ability to evaluate and apply information technology, including new or unfamiliar technologies.
- A passion for and commitment to the subject and a real sense of curiosity to find out about how technology can enhance and improve the world and the life chances of the people who live there.
- The ability to express, in digital media, well-balanced opinions, rooted in very good knowledge and understanding about current and contemporary issues in society and the environment and being able to distinguish fact from opinion and 'fake news' from 'real news'
- Excellent learning behaviours that ensure they are responsible, competent, confident and creative users of information and communication technology.
- An excellent knowledge and understanding of how to keep themselves safe online, how to deal with cyber bullying and to understand their actions 'leave a trail' and they need to operate online as they would in normal day to day activities.

Our curriculum is carefully designed to ensure coverage and progression. We provide a creative cross-curricular approach that provides a purpose for learning whilst raising aspirations and creating a sense of personal pride and achievement.

By the end of **EYFS**, children will:

Computer Science

- Begin to understand an algorithm is a sequence of instructions or set of rules to get things done.
- Follow simple algorithms by responding to oral instructions.
- Begin to make my own simple algorithms by sequencing actions physically/verbally.
- Start to explain my thought processes and justifying my decisions (logical reasoning)
- Explain what is the same and what is different (pattern)
- Learn how digital toys and apps work through exploration (tinkering)
- Use simple toys to input more than one command (e.g. BeeBots)
- Use resilient trial and error to fix things that go wrong (debugging)

Information Technology

- Know how to play on a touch screen game and use computers/keyboards/mouse in role play.
- Know how to type letters with increasing confidence using a lower-case keyboard and tablet.
- Know how to dictate short, clear sentences into a digital device.
- To sort physical objects, take a picture and verbally discuss what I have done.
- Present simple data on a digital device and record my voice over a picture (e.g. apps like chatterpix)
- Know how to move things around on a touch screen using my finger.
- Know the difference between a photograph and a video.
- Be able to record simple videos using an iPad and watch these backs.
- Be able to take a photograph and create some art using simple painting apps through paint and brush tool exploration.
- Know how to find ways to change my voice (tubes, tin cans, shouting to create an echo)

Digital Literacy/E-Safety

- Know that I can say 'no', 'please stop', 'I'll tell', 'I'll ask' to somebody who asks me to do something that makes me sad, embarrassed, worried or upset. Understanding this can be in real life or online.
- Recognise some ways that the internet can be used for communication (e.g. facetime)
- Describe some ways that people can be unkind online and offer examples of how this might make people feel.
- Identify devices I could use to access the internet.
- Know that rules help to keep us safe in and beyond our home when using technology and give some examples of these rules.
- Identify some simple examples of my personal information (name, birthday, age) and describe who my trusted adults are that I can share this information with.
- Know that work I create belongs to me and that I can name my work so other people know it is mine.

By the end of **Year 1,** children will:

Computer Science

- Understand what algorithms are
- Be able to write simple algorithms
- Understand the importance of sequencing algorithms and programs
- Be able to debug simple algorithms
- Create simple programs on digital devices (e.g. BeeBots or iPads)
- Be able to locate and fix bugs on my programs

Information Technology

- Develop typing skills – being able to type with increasing speed and confidence on a digital device.
- Be able to use the space bar to make spaces and the delete button to delete letters/words

- Be able to use enter/return to start a new line
- Be able to dictate into a digital device, including some punctuation (e.g. full stops)
- Be able to use simple programs to collect data on a given device (with support)
- Create recordings of themselves explaining what they have done/demonstrating understanding
- Add labels to images with support
- Sequence pictures on digital devices (storyboards/topic understanding)
- Confidently take pictures on digital devices – understanding how to access stored pictures
- Know how to use paint/drawing apps

Digital Literacy/E-Safety

- Understand there may be people online who make them feel upset, embarrassed or sad.
- Give examples of when and how to speak to a trusted adult if something happens online that makes me feel uncomfortable, sad or worried.
- Understand and give examples of when I should ask permission to do something online, explaining why this is important.
- Understand that things can be interpreted differently by people online
- Understand why it is important to always be kind to others, even when/if online, respecting their choices
- Understand that information can stay online and can be copied – explaining that work I create belongs to me and explaining that even if I save something online, it belongs to the creator and not me (copyright)
- Be able to explain what information I should never share online and why this is important – including protecting my passwords

By the end of **Year 2,** children will:

Computer Science

- Know how to write algorithms for everyday tasks
- Use logical reasoning to predict the outcomes of algorithms and simple programs
- Understand that decomposition is breaking objects/processes down
- Know how to debug algorithms
- Know that programs follow precise instructions
- Create a range of programs on digital devices (e.g. BeeBots and ScratchJr)
- Know how to debug programs of increasing complexity

Information Technology

- Know to only use the space bar once between words and to begin to use touch typing techniques to navigate to words/letters that I need to edit
- Copy and paste images and text
- Use caps lock to input capital letters
- To add images alongside text in a word-processed document
- Dictate longer passages into a digital device with accurate punctuation
- To verbally record myself explaining what data presented/collected on a device shows me
- Create branching data bases using questions

- Sort digital objects into a range of charts such as bar charts and Venn diagrams (with support using different apps and software)
- To add a voiceover to a storyboard
- Add speech bubbles to pictures and use these to explain what characters are saying/thinking/feeling
- Import images to a project from the web or camera roll
- Create simple stop motion animations
- Begin to edit photos (crop/filter etc.)
- Create musical compositions using supporting software

Digital Literacy/E-Safety

- Understand that people may look and act differently online and offline.
- Give examples of issues online that might make someone feel sad, worried, uncomfortable or frightened and give examples of how they might get help.
- Give examples of how people may communicate with people online that they don't know offline and how/why this might be risky (e.g. email, online gaming, pen-pals)
- Know who I should ask before sharing things about myself or others online.
- Be able to explain why I have a right to say 'no' or 'I will have to ask someone'. I can explain who can help me if I feel under pressure to agree to something I am unsure about or don't want to.
- Identify who can help me if something happens online without my consent.
- Explain how it may make others feel if I do not ask their permission or ignore their answers before sharing something about them online.
- Understand why I should always ask a trusted adult before clicking 'yes', 'agree' or 'accept' online.
- Understand and explain how information online lasts a long time and can be seen by anyone.
- Explain what bullying can look like online – including how this makes people feel, how the person being bullied is not to blame and how to seek help in such circumstances.
- Navigate a simple web page to get the information I need.
- Use simple key words in search engines.
- Understand that information found online may not always be truthful.
- Explain what is meant by the word 'private' and how this applies to personal information online.
- Recognise that content on the internet belongs to different people.
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By the end of **Year 3,** children will:

Computer Science

- Know how to create algorithms for my programming projects
- Know how to decompose projects (such as animation) into steps to create an algorithm
- Understand that abstraction is focussing on important information
- Know how to identify patterns in an algorithm
- How to design a program
- Know how to create a program using a design
- Know how to create a sequence of code
- Know how to work with a variety of inputs/outputs
- Be able to evaluate my own programs

- Explain and understand that the computers in school are connected together in a network
- Understand why computers are networked

Information Technology

- Know how to best position my fingers on a keyboard when typing (e.g. left index fingers for s/d/f/g and right fingers for h/j/k/l.)
- Be able to edit the style and effect of my text and images to make my document more engaging/eye-catching. E.g. using borders or shadows.
- Understand how to use cut, copy and paste to quickly duplicate and organise text.
- Begin to understand how to input simple data into a spreadsheet.
- Use sorting diagrams with increasing confidence when completing data handling.
- Know how to create a simple digital timeline/mind map.
- Be able to improve stop motion animation clips with techniques like onion skinning.
- Know how to code a simple animation.
- Add titles and transitions to documents I create – e.g. film clips on iPad or PPT on computer.
- Confidently take and manipulate photos.
- Create digital images using a range of tools, pens, brushes and effects.

Digital Literacy/E-Safety

- Explain what is meant by the term 'identity'
- Explain how people can represent themselves in different ways online
- Explain ways in which someone might change their identity depending on what they are doing online (e.g. gaming, using an avatar, social media) and why.
- Understand and explain what it means to 'know someone' online and why this might be different from knowing someone offline.
- Be able to explain what is meant from 'trusting someone online', why this is different from 'liking someone online', and why it is important to be careful about who to trust online, including what information and content they are trusted with.
- Explain why someone may change their mind about trusting anyone with something if they feel nervous, uncomfortable or worried.
- Explain how someone's feelings can be hurt by what is said or written online.
- Explain the importance of giving and gaining permission before sharing things online; how the principles of sharing online is the same as sharing offline (e.g. sharing images and videos)
- I understand why I need to be careful before sharing anything personal online.
- I can explain and give examples of appropriate ways to behave towards other people online and why this is important.
- Give examples of how bullying may present online and what to do if it does.
- Explain the difference between a belief, an opinion and a fact. Giving examples of where they might be shared online (e.g. videos, memes, posts, news stories etc.)
- I can demonstrate how to use key phrases in search engines to gather accurate information online, including the understanding of autocomplete and how to choose the best suggestion.
- Understand and explain why spending too much time using technology can have a negative impact on people (e.g. mood, sleep, body, relationships – giving examples of both positive and negative activities where it is easy to spend a lot of time engaged – e.g. doing homework, games, films…)

- Understand and explain the importance of age restrictions online.
- Describe how connected devices can collect and share anyone's information with others.
- Describe simple strategies for creating and keeping passwords private.
- Explain why copying someone else's work from the internet without permission isn't fair and can explain what problems this might cause.

By the end of **Year 4,** children will:

Computer Science

- Know how to use abstraction to focus on what's important in my designs
- Be able to write more precise algorithms for use when programming
- Know how to use simple selection and repetition in algorithms and programs
- Understand how to use logical reasoning to systematically detect and correct errors in programs
- Be able to use a variety of inputs and outputs
- Understand that servers on the internet are located across the planet
- Know the difference between the internet and the WWW
- Understand how web pages are viewed across the internet

- **Information Technology**
- Be able to combine digital images from different sources, objects and text to make a final piece of a variety of tasks: posters, documents, eBooks, scripts, leaflets.
- Know how to confidently and regularly use text shortcuts such as cut, copy and paste and delete to organise text.
- To be able to use font sizes appropriately for audience and purpose.
- Use spell check tools embedded in programs and through artificial intelligence technologies like Siri
- Be able to input data into a spreadsheet and export the data in a variety of ways: charts, bar charts, pie charts etc.
- Understand how data is collected
- Begin to use and explore hyperlinks
- Begin to embed sound and video within works on different software/programs
- To use animated titles and transitions in multimedia
- Know how to enhance digital images and photographs using crop, brightness, contract and resize
- Use shapes and drawing tools to create digital art

Digital Literacy/E-Safety

- Explain how my online identity can be different to my offline identity.
- Describe positive ways for someone to interact with others online and understand how this will positively impact on how others perceive them.
- Explain that others online can pretend to be someone else, including my friends, and suggest reasons as to why people might do this.
- Describe strategies for safe and fun experiences in a range of online social environments (e.g. gaming platforms)
- Be able to give examples of how to be respectful online – discussing healthy and unhealthy online behaviours.
- Explain how content shared online may feel unimportant to one person but may be important to other people's thoughts, feelings and beliefs.

- Explain ways that information about anyone online can be used by others to make judgements about an individual and why these may be incorrect.
- Be able to recognise when someone is upset, hurt or angry online.
- Describe ways that people can be bullied through a range of media (image, video, text, chats)
- Think carefully about how content that is posted might affect others, their feelings and how it may affect how others feel about them (their reputation)
- Begin to discuss probable accuracy and understand why it is important to make my own decisions regarding content and that my decisions are respected by others.
- Describe some of the methods used to encourage people to buy things online (e.g. pop ups, in-app purchases, advertising) and can recognise when some of these appear online.
- Understand that even if lots of people share the same opinion/belief online, it doesn't make these opinions/beliefs true.
- Explain that technology can be designed to act like or impersonate living things (e.g. robots) and discuss the risks with these.
- Understand what is meant by fake news.
- Explain that the internet is never fully private and is monitored (e.g. adult supervision)
- Describe and understand how some online services may ask for and store information about me and understand how to respond appropriately and identify who I can ask if I am not sure (trusted adults)
- To know what the digital age of consent is and the impact this has on online services asking for consent.
- Understand and explain that I need to consider who owns the content I use online and whether I have the right to reuse it – giving examples of content I must not use without permission (e.g. music and images)

By the end of **Year 5,** children will:

Computer Science

- Know how to solve problems by decomposing them into smaller parts
- Know how to use selection in algorithms
- Know how to use logical reasoning to explain how a variety of algorithms work
- Be able to evaluate the effectiveness of algorithms
- Know how to create programs by decomposing them into smaller parts
- Be able to use a variety of selection commands in programs
- Know how to work with variables
- Know how to use conditions in repetition commands
- Know how to create programs that control or simulate physical systems
- Be able to evaluate my work and identify errors
- Understand and demonstrate the effective use of search technologies
- Understand that web spiders index the web for search engines
- Appreciate how pages are ranked in a search engine

Information Technology

- Be able to input and use hyperlinks confidently
- Know how to import sounds to accompany and enhance the text in my document.
- Know how to organise and reorganise text on screen to suit a purpose

- Be able to use simple formulae to solve calculations including =, sum and other statistical functions
- Know how to edit and format different cells in a spreadsheet.
- Know how to collaborate with peers using online tools (e.g. shared blogs, DOJO and Office 365 email)
- Know how to make a digital photo using camera settings
- Know how to enhance digital photos and images using crop, brightness and resize tools
- Know how to link and explain how to photoshop images and how this is used in the media
- Be able to manipulate shapes to create more detailed digital art

Digital Literacy/E-Safety

- Explain how online identity can be modified, copied or altered.
- Demonstrate responsible choices about my online identity, depending on context.
- Give examples of specific forms of technological forms of communication (e.g. emojis, memes and GIFs)
- Explain that there are some people I communicate with online who may want to do me or my friends harm – and recognise that this is not my/our fault.
- Describe some of the ways people may be involved in online communities and describe how they might collaborate constructively with others to make positive contributions (e.g. social media groups or gaming communities)
- Explain how someone can get help if they are having problems and identify when to tell a trusted adult.
- Demonstrate how to support others (including those who are having difficulties) online.
- Search for information about an individual online and summarise the information found.
- Describe ways that information about anyone online can be used by others to make judgments about an individual and why these may be incorrect.
- I recognise online bullying can be different to bullying in the physical world and can describe some of those differences.
- Describe how what one person perceives as playful joking and teasing (including ‘banter) might be experienced by others as bullying.
- Identify a range of ways to report concerns and access support both in school and at home about online bullying.
- Explain how to block abusive users.
- Describe the helpline services which can help people experiencing bullying, and how to access them (e.g. Childline or The Mix)
- Explain the benefits and limitations of using different types of search technologies (e.g. voice-activated searching only gives one result)
- Understand what it means to ‘be sceptical’.
- Evaluate digital content and explain how to make choices about what is trustworthy.
- Identify ways that the internet can draw us to information for different agendas (e.g. pop-ups, targeted ads)
- Explain what is meant by the term ‘stereotype’, how ‘stereotypes’ are amplified and reinforced online and why accepting ‘stereotypes may influence how people think about others.

- Describe how fake news may affect someone's emotions and behaviour and explain why this may be harmful.
- Understand and describe what is meant by a 'hoax'. I can explain why someone would need to think carefully before they share things.
- Describe ways that technology can affect health and well-being both positively (e.g. mindfulness software) and negatively.
- Understand the importance of seeking permission from a trusted adult before purchasing additional content available online.
- Demonstrate what a strong password is and be able to make one.
- Explain what permissions are and give some examples.
- Assess and justify when it is acceptable to use the work of others and give examples of content that is permitted to be reused and know how this can be found online.

By the end of **Year 6,** children will:

Computer Science

- Know how to decompose a design or code to focus on specific parts
- Know how to use abstraction to hide complexity in my design or code
- Know how to recognise and make use of patterns in my design and code
- Know how to critically evaluate my work and suggest improvements
- Know how to use a range of sequence, selection and repetition commands to implement my design
- Know how to identify the need for, and work with, variables
- Know how to create procedures to hide complexity in programs
- Understand what HTML is and recognise HTML tags

Information Technology

- Know how to confidently choose the best application to demonstrate my learning.
- Know how to format text to suit a purpose.
- Know how to publish my documents online regularly and discuss the audience and purpose of my content.
- Be able to write spreadsheet formula (e.g. to solve more challenging maths problems)
- Be able to choose applications to communicate to a specific audience.
- Know how to create videos using a range of media – green screen, animation, film and image.
- Understand how to edit a picture to remove items, add backgrounds, merge 2 photos etc.
- Be able to evaluate and discuss images explaining effects and filters that have been used to enhance the media.
- Use 3D drawing apps to create realistic representations of world objects.
- To use software to compose soundtracks.

Digital Literacy/E-Safety

- Identify and critically evaluate online content relating to gender, race, religion, disability, culture and other groups, and explain why it is important to challenge and reject inappropriate representations online.

- Describe issues online that could make anyone feel sad, worried, uncomfortable or frightened – giving examples of how to get help, both on and offline.
- Explain the importance of asking until I get the help needed.
- Explain how sharing something online may have an impact either positively or negatively.
- Describe how to be kind and show respect for others online including the importance of respecting boundaries regarding what is shared about them online and how to support them if others do not.
- Describe how things shared privately online can have unintended consequences for others (e.g. screenshotting)
- Explain that taking/sharing inappropriate images of someone, even if they say it is ok, may have an impact for the sharers and others that are lifelong.
- I can explain the ways in which anyone can develop a positive online reputation.
- Explain strategies anyone can use to protect their digital personality and online reputation, including the concept of anonymity.
- Describe how to capture bullying content as evidence and share this with those that can help me (trusted adults)
- Explain how someone can report online bullying in different contexts.
- Discuss how search engines work and how results are selected and ranked.
- Understand and discuss how the popularity of an opinion online or the personalities of those promoting the opinion does not make it true, fair or even legal.
- Understand the concept of persuasive design and how this influences choices.
- Explain and understand the differences between misinformation and dis-information.
- Explain why information on a large number of sites may be inaccurate or untrue – assessing how this might happen (e.g. the sharing of mis or dis-information)
- Identify, flag and report inappropriate content.
- Describe common systems that regulate age-related content (e.g. parental warnings) and describe the need for these.
- Discuss the pressures technology can place on someone and how to manage this.
- Describe effective ways that people can manage passwords (e.g. storing them securely)
- Explain what to do if a password is lost, shared or stolen.
- Describe simple ways to increase privacy on apps and software that provide privacy settings.
- Demonstrate how to make references to and acknowledge sources I have used from the internet.

Inclusive Learning for SEND in Computing

At DCS, we believe that every child is entitled to receive a high-quality, broad and balanced education regardless of their needs or disabilities. All of our children can expect to receive a history education that enables them to achieve the best possible outcomes and become confident and able to communicate their own views and understanding in their own preferred styles. Some ways in which we provide for such a curriculum are:

- Targetted/planned in support from teachers/Tas
- Alteration of programs used – e.g. using Sphereo for voice coding/drawing coding
- Stem sentences and key vocabulary mats used when/where needed
- Screen reading options available – whether this is provided by the in-built screen reading technology or assistance from an adult.
- Accessibility tools utilised for specific pupils

- Visual representations of instructions or tasks where needed
- Paired work to allow for scaffolded support from peers
- Brightness/sound settings adjusted as needed
- Headphones available for children
- Individual log in cards available with personalised text styles to suit individuals where needed

Every teacher at DCS is a teacher of SEND. Our provision is led by the SENDCo's and is enhanced by the collaboration of teachers, senior leaders, learning support staff, external agencies/professionals, parents and most importantly of all – the child. Therefore, provision may vary from classroom to classroom to ensure the specific needs of all children are met in accordance to their own individuality.