



Progression of skills – Computing



Curriculum intent:

At our school we want pupils to be MASTERS of technology and not slaves to it. Technology is everywhere and will play a pivotal part in students' lives,. Therefore, we want to model and educate our pupils on how to use technology positively, responsibly and safely. We want our pupils to be creators not consumers and our broad curriculum encompassing computer science, information technology and digital literacy reflects this. We want our pupils to understand that there is always a choice with using technology and as a school we utilise technology (especially social media) to model positive use. We recognise that the best prevention for a lot of issues we currently see with technology/social media is through education. Building our knowledge in this subject will allow pupils to effectively demonstrate their learning through creative use of technology We recognise that technology can allow pupils to share their learning in creative ways. We also understand the accessibility opportunities technology can provide for our pupils. Our knowledge rich curriculum has to be balanced with the opportunity for pupils to apply their knowledge creatively which will in turn help our pupils become skilful computer scientists. We encourage staff to try and embed computing across the whole curriculum to make learning creative and accessible. We want our pupils to be fluent with a range of tools to best express their understanding and hope by Upper Key Stage 2, children have the independence and confidence to choose the best tool to fulfil the task and challenge set by teachers.



	Intended experiences Nursery and Reception	Early Learning Goal
Computing Understanding the world Physical development	For example Understanding of the world : a role play area with a range of technology, both functioning and model / broken devices, or a variety of electronic toys, such as remote controlled cars, walkie-talkies and interactive pets, as part of continuous provision. Further technology could be included in conjunction with other activities, such as digital cameras for pupils to photograph their own learning, although children should ideally be given the opportunity to select and use technology for a certain purpose, rather than simply being given a device. OR Physical development: children entering Early Years settings are often familiar with tablet devices, although their ability to use a keyboard and mouse is often limited. This has recently become a more significant issue, due to the <u>prevalence of tablet devices in the home</u> . It is therefore important that children are given opportunities to become familiar with a range of input devices, including the keyboard and mouse, in order to develop the required fine motor skills.	Despite computing not being explicitly mentioned within the <u>Early Years Foundation Stage (EYFS) statutory framework</u> , which focuses on the learning and development of children from birth to age five, there are many opportunities for young children to use technology to solve problems and produce creative outcomes. In particular, many areas of the framework provide opportunities for pupils to develop their ability to use computational thinking effectively.

	National Curriculum	Year 1	Year 2
E safety (Digital literacy)	use technology safely and respectfully, keeping	<ul style="list-style-type: none"> To begin to use technology safely and respectfully. To discuss and help Digi- duck follow Safety rules 	<ul style="list-style-type: none"> To begin to understand that not everything on the internet is true. To begin to use safe search engines such as www.safesearchkids.com



	personal information private; identify where to go for help and support when they have concerns about material on the internet or other online technologies	<ul style="list-style-type: none"> To discuss who to talk to about inappropriate websites. To discuss the importance of being nice to people in the real world as well as online 	<ul style="list-style-type: none"> To know not to accept from people we don't know. To understand not to open pop ups. To begin to know not to share personal information online. To design a password WEAK, MEDIUM, STRONG
Technology (Digital literacy)	recognise common uses of information technology beyond school	<ul style="list-style-type: none"> To recognise the ways we use technology in our classroom. To recognise ways that technology is used in my home and community. To use links to websites to find information. To begin to identify some of the benefits of using technology. 	<ul style="list-style-type: none"> To explain why I need to keep my password and personal information private. To describe the things that happen online that I must tell an adult about. To talk about why I should go online for a short amount of time. To talk about why it is important to be kind and polite online and in real life. To understand that not everyone is who they say they are on the Internet.
Vocabulary	Choices, internet, equipment, buttons, movement, screen, mouse, images keyboard paint, technology, share, create, internet, collect, photos, organise, count,		
Information technology	1. Use technology purposefully to create, organise, store, manipulate and retrieve digital content	<ul style="list-style-type: none"> To use a trackpad on a laptop To begin to use a trackpad and clicking skills to create an image on paint. To use a simple paint/drawing app to create an image. To begin to learn how to switch a laptop on and off safely. To begin to use different colours on a paint app to fill a picture. To begin to understand examples of where technology is used in local community. 	<ul style="list-style-type: none"> To confidently turn on a computer and open an application. To begin to locate and type different letters on the keyboard. To begin to locate and type simple words using the keyboard. To begin to understand how to edit a word doc. To, in pairs, be able to save a word doc into the pupil shared work area. To develop skills of importing an image. To begin to learn how to edit and manipulate images.
Computer Science	. Understand what algorithms are; how	<ul style="list-style-type: none"> To predict how a set of instructions will affect a machine e.g Beebot. 	<ul style="list-style-type: none"> To begin to understand what a simple algorithm is.



	<p>they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions 2. Create and debug simple programs 3. Use logical reasoning to predict the behaviour of simple programs</p>	<ul style="list-style-type: none"> To be able to give a machine a set of instructions to move e.g Beebot on a map. 	<ul style="list-style-type: none"> To, with support, attempt to debug a simple algorithm. To begin to write simple algorithms for everyday tasks.
Vocabulary		<p>Rules Online Private information Email Instructions Buttons Robots Patterns Program</p> <p>Photographs Video Sound Data Pictogram Digitally Purpose Online tools Communicate Videos Camera stills</p>	<p>Appropriate/inappropriate sites Cyber-bullying Digital footprint Keyword searching Forward Backward Right-angle turn Algorithm Sequence Debug Predict Capturing moments Magnified images Questions Data collection Graphs Charts Save Retrieve Information sources Communication</p>



		Sounds Image bank Word bank Space bar	Purposes Website content Paint effects Templates Animation Documents Index finger typing Enter/return Caps lock Backspace
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	National Curriculum	Year 3	Year 4	Year 5	Year 6
E safety (Digital literacy)	Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact	<ul style="list-style-type: none"> • To introduce SMART crew • To know all the SMART strands • To create an internet SMART poster • To understand what personal information I need to keep safe. • To begin to understand privacy settings • To begin to understand cyber bullying and how to address it. • To understand how to search safely 	<ul style="list-style-type: none"> • To consolidate SMART learning. Fully understand all the strands and how to resolve. • To create an information powerpoint explain SMART and how to stay safe. • To begin to understand restrictive blocks on websites and why we have them. • To fully understand how we can stay safe online and incorporate strategies 	<ul style="list-style-type: none"> • To understand the advantages, disadvantages and purposes of altering an image digitally and the reasons for this • To be aware of appropriate and inappropriate texts, photographs, videos and the impact of sharing them online. • To ensure reliability through using different methods of communication. • To recognise all the dangers of gaming online and how to stay safe. • To discover the dangers of spending too 	<ul style="list-style-type: none"> • To understand the difference between bullying and cyber bullying. Develop strategies to resolve both. • To identify secure websites by identifying privacy seals of approval • To identify how the media play a powerful role in shaping ideas about boys and girls. • To apply SMART and all e-safety knowledge to my online activities.



			<p>into online gaming.</p> <ul style="list-style-type: none"> To begin to understand age restrictions to join websites and why we have them 	<p>long online or playing a game.</p> <ul style="list-style-type: none"> To apply SMART and all e-safety knowledge to my online activities. 	
<p>Technology in our lives (Digital literacy)</p>	<p>Understand the opportunities [networks] offer for communication and collaboration 4. Be discerning in evaluating digital content 5.</p>	<ul style="list-style-type: none"> To save and retrieve work on the Internet, the school network or my own device. To talk about the parts of a computer. To tell you ways to communicate with others online. To describe the World Wide Web as the part of the Internet that contains websites. To use search tools to find and use an appropriate website. To think about whether I can use 	<ul style="list-style-type: none"> To tell you whether a resource I am using is on the Internet, the school network or my own device. To identify key words to use when searching safely on the World Wide Web. To think about the reliability of information I read on the World Wide Web. 	<ul style="list-style-type: none"> To describe different parts of the Internet. To use different online communication tools for different purposes. To use a search engine to find appropriate information and check its reliability. To recognise and evaluate different types of information I find on the World Wide Web. 	<ul style="list-style-type: none"> To protect my password and other personal information. To explain the consequences of sharing too much about myself online. To support my friends to protect themselves and make good choices online, including reporting concerns to an adult. To explain the consequences of spending too much time online or on a game. To explain the consequences to myself and others of not communicating kindly and respectfully.



		images that I find online in my own work.	<ul style="list-style-type: none"> To tell you how to check who owns photos, text and clipart. To create a hyperlink to a resource on the World Wide Web. 	<ul style="list-style-type: none"> To describe the different parts of a webpage. To find out who the information on a webpage belongs to. 	<ul style="list-style-type: none"> To protect my computer or device from harm on the Internet.
Information technology	2. Use search technologies effectively 3. 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	<ul style="list-style-type: none"> To begin to independently learn how to save and retrieve work on the internet and the school network. To begin to understand and choose the best way to communicate online. To use search tools to find and use an appropriate website. To retrieve images safely and import them into a document. 	<ul style="list-style-type: none"> To use a data logger to gather digital weather data. To use a digital device to take a picture and upload it to a shared work area. To begin to develop simple Excel skills. To begin to use excel as a tool to interpret data. 	<ul style="list-style-type: none"> To understand paper databases. To compare paper and computer databases. To understand how grouping and sorting data using a computer database, allows us to answer questions more promptly. To begin to understand that tools can be used to select specific data. 	<ul style="list-style-type: none"> To check appropriate digital content. To provide accurate crediting of sources. To use movie making software to produce a film. To use editing software to edit a film piece. To add music to a film piece To consolidate keyboard skills. To consolidate editing, importing and retrieval work. To use excel to input formula in cells To edit data in excel and discuss the effects



		<ul style="list-style-type: none"> • To know what incredibox is. • To create and edit purposeful compositions using music software. • To experiment with live loops to create a song. • To mute or fade out an element during a piece of music. • To add a solo mix to a piece of music. • To develop a repeated chorus to a digital piece of music. 	<ul style="list-style-type: none"> • To choose the most suitable programme to present their data eg powerpoint or moviemaker. • To use green screening software to produce a weather report. • To begin to understand what a Wiki is. • To begin to understand how using a Wiki can make mass editing simpler. 	<ul style="list-style-type: none"> • To begin to plan and contribute to a blog. • To use editing tools to edit a blog. • To review an existing website and structure. • To plan features of a web page. • To design own website using a programmes editing tools. 	<ul style="list-style-type: none"> • To apply further functions e.g average, maximum and minimum in excel • To design a spread sheet for a specific purpose and use it to create a graph/pie chart
Computer science	4. Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into	<ul style="list-style-type: none"> • To begin to understand the WWW as the part of the internet that contains websites. • To begin to understand how 	<ul style="list-style-type: none"> • To begin to understand HTML. • To use HTML language to arrange text on a web browser. 	<ul style="list-style-type: none"> • To design and program a character game using block or java script code. • To design own programmable 	<ul style="list-style-type: none"> • To use variables and formulae in code • To achieve a specific goal • To code functions using formula • To use variables in more complex ways



	<p>smaller parts 5. Use sequence, selection, and repetition in programs; work with variables and various forms of input and output 6. Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs 7. Understand computer networks including the internet; how they can provide multiple services, such as the World Wide Web 8. Appreciate how [search] results are selected and ranked</p>	<p>computer networks work.</p> <ul style="list-style-type: none"> To begin to understand how search engines work. To create a storyboard for an animation using simple block code. To use scratch junior to explore simple block code. 	<ul style="list-style-type: none"> To use HTML language to edit pictures on a web browser. To know what an algorithm is. To begin to explore blocky code using minecraft. To begin to animate a sprite.. To debug an algorithm on a game. To use and adapt an already available template to design a times table game. 	<p>sprite character.</p> <ul style="list-style-type: none"> To add features and effects to enhance a game. To create a backdrop, sprite and new algorithm for a new game (no template). 	<ul style="list-style-type: none"> To use variables and loops to solve and maths challenges To create a mobile To program a new app
Vocabulary		<p>E-safety rules Secure passwords Report abuse button Gaming</p>	<p>E-safety rules Secure passwords Report abuse button Gaming</p>	<p>Responsible online communication Informed choices Virus threats Blogs</p>	<p>Responsible online communication Informed choices Virus threats Blogs</p>



		Blogs Sequence instructions Sequence debugging Test + improve Logo commands Sequence programming Multimedia Presentations Alignment Brush size Repeats Reflections Green screening Amend Copy Paste School network Devices Computer parts Collaborate Appropriate online communication Search tools Appropriate websites Owner Questioning Database Construct Contribute Recording data Data logger Present data	Blogs Type + edit logo commands Sensors Open-ended problems Bugs in programs Complex programming Creating + modifying Specific purpose Photo modifying Keyboard shortcuts Bullet points Spell check Constructive feedback Different networks Information collection Reliability Owners Database creation Database searches Inaccurate data	Messaging Explore procedures Refine procedures Variable Hardware + software control Change inputs Different outputs Articulate solutions Commands Online sharing Multimedia effects Multimedia modification Transitions Hyperlinks Editing tools Refining Online sharing Computing devices Internet parts Collaboration Responsibility Searching strategies Spreadsheets Complex searches (and/or: </>) Problem solving Present answers Analyse information Question data Interpret Webpages	Messaging Predicting outputs Plan, program, test & review a program Program writing Control mimics + devices Sensors Measure input Create variables Link errors Appropriate online tools Audience Atmosphere Structure Copyright Information collection HTML code Storing Information movement Connecting devices Different audiences Research strategies Search result rankings Acknowledge resources Generate Process Interpret Store Present information Plausibility Appropriate data tool Interrogate Investigations
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