Kellington Primary School
COMPUTING/ICT: CURRICULUM CONTENT AND PROGRESSION FRAMEWORK

At Kellington Primary School children develop their knowledge and skill based learning through accessing progressive units of work from 'The National Centre for Computing Education'.

Topics/Themes/Texts:	The key things we want children to know/be able to do
FOUNDATION	
Computer Science/Programming • Use of the interactive white board for Phonics and Maths games, mark making and writing • Floor robots – children to give instructions once provided with base mats, eg. Jack and the Beanstalk themed, get to the top of the beanstalk. ***E – Safety*** • Work with parents to ensure e-safety at home, link this with Tapestry introduction • As part of learning about ways to keep safe and healthy, learn about why it is important for our health not to spend too long on technology. • https://www.youtube.com/watch?v=d5kW4pI_VQw This video is great to show children about pop up adverts and keeping safe on games. ***Handling Data*** • Use the iPads to demonstrate the different means in which you can gather information. ***Creative Use of Media***	**Computer Science** • To make a floor robot move. e.g. Beebot, Bluebot, Code-a-pillar, Code & Go Mouse, Cubetto • To complete a simple program on a computer. e.g. 2Go, MiniMash activity, online counting game • To make choices about the buttons and icons pressed, touched or clicked on. **E-Safety** • To ask an adult when you want to use the Internet. • To explain to an adult when something worrying or unexpected happens while using the Internet. • To be kind to friends. • To talk about the amount of time spent using a computer / tablet / game device. • To be careful with technology devices. **Handling Data** • To explain different kinds of information such as pictures, video, text and sound. **Creative Use Of Media**

• Use of the interactive white board to create shapes and text on a screen • Ipads available for the children to use • Tripod and camera/ ipad set up in the room- children take own/ peers pictures of work they are proud of to go in their profile • Sound buttons for writing- record the sentence they plan to write and listen back ***Technology in our lives*** • 'Technology I use at home' questionnaire to be sent to parents	• To move objects on a screen. • To create shapes and text on a screen. • To use technology to show learning. e.g. Take photos, videos, use voice recording devices • To select and use technology for particular purposes. **Technology In Our Lives** • To talk about technology that is used at home and in school. • To operate simple equipment. e.g. music players, toys with knobs and pulleys

• CD player/ music resources in provision **Resources within areas of provision:** Interactive Whiteboard Ipads Sound buttons Floor robots CD player Cameras	• To use a safe part of the Internet to play and learn.

YEAR 1 and YEAR 2	
Topics/Themes/Texts:	**The key things we want children to know/be able to do**
Cycle A	**Year 1 Computer Science**

• Programming A - Moving a Robot - Year 1 • Programming A - Robot Algorithms - Year 2 **Cycle B** • Programming B - Introduction to Animation - Year 1 - links through to Space Race (History in Cycle B and Space Literacy Tree Units in Autumn). • Programming B - Introduction to Quizzes - Year 2 - link to Spring 2/Summer 1 for Seasonal Changes.	• To give instructions to others and follow their instructions to move around. • To describe what happens when a button is pressed on a robot. e.g. Beebot, Bluebot, Code-a-pillar, Code & Go Mouse, Cubetto • To press buttons in the correct order to make a robot do what you want. • To describe what actions are needed to make something happen and begin to use the word algorithm. • To begin to predict what will happen for a short sequence of instructions. • To begin to use software/apps to create movement and patterns on a screen. e.g. 2Go, Lightbot • To use the word debug when correcting mistakes when programming. **Year 2 Computer Science** • To give instructions to a friend (using forward, backward and turn) and physically follow their instructions. • To describe the order things need to be done to make something happen and talk about this as an algorithm. • To program a robot or software to do a particular task. • To look at a completed algorithm program and predict what will happen. • To use programming software to make objects move. e.g. 2Code, Logo, J2Code - Turtle • To watch a program execute and spot where it goes wrong so that it can be debugged.
E - Safety **Cycle A** Gmail passwords to get onto the classroom - Keep private. Talk about why this is important. Talk about what they would do if something came onto the computer that wasn't meant for them. Working with partners on the chrome books - taking it in turns - being kind and polite.	**Year 1 - E-Safety** • To keep a password private. • To explain what personal information is. • To tell an adult when unexpected or worrying content is found online. • To talk about why it's important to be kind and polite. • To recognise an age appropriate websites & games. • To agree and follow sensible e-Safety rules.

ttps://www.youtube.com/watch?v=d5kW4pI_VQw Access phonics and maths resources *(using personal passwords e-safety link)* E-Safety Day (TBC) **Cycle B** Gmail passwords to get onto the classroom - Keep private. Talk about why this is important. Talk about what they would do if something came onto the computer that wasn't meant for them. Working with partners on the chrome books - taking it in turns - being kind and polite. ttps://www.youtube.com/watch?v=d5kW4pI_VQw Access phonics and maths resources *(using personal passwords e-safety link)* E-Safety Day - 8th February 2022.	**Year 2 - E-Safety** ● To explain why you need to keep a password and personal information private. ● To describe the things that can happen online that you must tell an adult about. ● To talk about why you 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 know that not everyone is who they say they are on the Internet.
Handling Data **Cycle A** Data and Information - Creating Pictograms (Year 2) to be interwoven into Maths. **Cycle B** Data and information - Grouping Data - Year 1 (to be interwoven into Science - Animals including Humans)	**Year 1 - Handling Data** ● To explain the different ways in which information can be shown. ● To use technology to collect information for a purpose, including photos, video and sound. ● To sort different kinds of information and present it to others. e.g. Venn Diagram, 2Count ● To add information to a pictograph and talk about what is found out. **Year 2 - Handling Data** ● To talk about the different ways we use technology to collect information, including a camera, microscope or sound recorder. ● To make and save a chart or graph using the data we collect. e.g. 2Count, 2Graph ● To talk about the data that is shown in a chart or graph. ● To start to understand a branching database. e.g. J2Data - Branch, 2Question, paper-based database ● To tell you what kind of information you could use to help you

	investigate a question.
Cycle A Creating Media - Digital Painting (Year 1) - portraits in art/other painting foci. Creating Media - Making Music (Year 2) - in place of Charanga one half term to fit with thematic learning. **Cycle B** Creating Media - Digital Photography (Year 2) to be interwoven into Art (Andy Warhol) Creating Media - Digital Writing (Year 1) - interwoven into the Summer term with traditional tales focus.	**Year 1 - Creative Use Of Media** ● To be creative with different technology tools. e.g. 2Paint, take digital photos and use in a collage ● To use technology to create and present ideas. e.g. poster, e-book ● To use the keyboard or a word bank on a device to enter text. ● To save information in a special place and retrieve it again. **Year 2 - Creative Use Of Media** ● To use technology to organise and present ideas in different ways. ● To use the keyboard on devices to add, delete and space text for others to read. ● To talk about an online tool that will help to share ideas with other people. ● To save and open files on the device being used.
Interwoven across the curriculum in both cycles **Deliberate and explicit references to this as we go.** **Have we examples of this ….eg. reliable sources of history**	**Year 1 - Technology in Our Lives** ● To recognise the ways we use technology in our classroom, home and community. ● To use links to websites/bookmarks to find information. ● To begin to identify some of the benefits of using technology. **Year 2 - Technology in Our Lives**

	• To explain why we use technology in the classroom, home and community. • To start to understand that other people have created the information we use. • To identify benefits of using technology including finding information, creating and communicating. • To explain the differences between the Internet and things in the physical world.
YEAR 3 and YEAR 4	
Topics/Themes/Texts:	**The key things we want children to know/be able to do**
Programming units to be delivered using SCRATCH. Teachers to create class logins to share online projects. **Cycle A** 1. Programming A (Year 3) - sequence in music - look at potential programmes to use…. do you need to do this particular unit or can it be taught through something else? 2. Programming B (Year 3) - events and actions. Should probably be timed to fit in with P+D work in maths.	**Year 3 - Computer Science** • To break an open-ended problem up into smaller parts. • To put programming commands into a sequence to achieve a specific outcome. • To keep testing a program and recognise when it needs debugging. • To use repeat commands. • To describe the algorithm that is needed for a simple task. • To detect a problem in an algorithm which could result in unsuccessful programming. **Year 4 - Computer Science**

Cycle B 1. Programming A (Year 4) - Repetition in shape Should be done in conjunction with geometry/shape units in maths 2. Programming B (Year 4) - Repetition in games Probably best done straight after the first unit.	• To use logical thinking to solve an open-ended problem by breaking it up into smaller parts. • To use an efficient procedure to simplify a program. • To use a sensor to detect a change which can select an action within my program. • To know that there is a need to keep testing my program while putting it together. • To use a variety of tools to create a program. • To recognise an error in a program and debug it. • To recognise that an algorithm will help me to sequence more complex programs. • To recognise that using algorithms will also help solve problems in other learning such as Maths, Science and Design and Technology.
Cycle A Gmail passwords to get onto the classroom - Keep private. Talk about why this is important. Talk about what they would do if something came onto the computer that wasn't meant for them. Working with partners on the chrome books - taking it in turns - being kind and polite. ttps://www.youtube.com/watch?v=d5kW4pI_VQw Access phonics and maths resources *(using personal passwords e-safety link)* Computing systems and the Internet - (Year 4) lesson 6. Links to reliability, internet safety, sharing of information and content (legal and illegal) - to be delivered as part of E-Safety Day. E-Safety Day - TBC - include social media and cyber bullying. **Wider curriculum links** JIGSAW PSHE - Relationships Piece 3 - How I keep myself safe including online (Year 3)	**Year 3 - E-Safety** • To talk about what makes a secure password and why they are important. • To protect personal information when doing different things online. • To use the safety features of websites as well as reporting concerns to an adult. • To recognise websites and games appropriate for my age. • To make good choices about how long is spent online. • To ask an adult before downloading files and games from the Internet. • To post positive comments online. **Year 4 - E-Safety** • To choose a secure password when I am creating an account. • To talk about the ways you can protect yourself and friends from harm online. • To use the safety features of websites as well as reporting concerns to an adult. • To know that anything posted online can be seen by others. • To choose websites and games that are appropriate for my age. • To help friends make good choices about the time they spend online.

Cycle B Gmail passwords to get onto the classroom - Keep private. Talk about why this is important. Talk about what they would do if something came onto the computer that wasn't meant for them. Working with partners on the chrome books - taking it in turns - being kind and polite. ttps://www.youtube.com/watch?v=d5kW4pI_VQw Access phonics and maths resources *(using personal passwords e-safety link)* Computing systems and the Internet - (Year 4) lesson 6. Links to reliability, internet safety, sharing of information and content (legal and illegal) - to be delivered as part of E-Safety Day. E-Safety Day - 8th February 2022. **Wider curriculum links** JIGSAW PSHE - Relationships Piece 3 - How I keep myself safe including online (Year 3)	• To talk about why it is needed to ask a trusted adult before downloading files and games from the Internet. • To comment positively and respectfully online.
Cycle A **Cycle B** Data and Information - Data Logging (Year 4) Science learning focus dependent. Data and Information - Branching Databases (Year 3) Science and categorizing (Animals including Humans) - Or as part of the 'In a State' science unit in cycle B: use them to organise and classify materials.	**Year 3 - Handling Data** • To talk about the different ways data can be organised. • To search a ready-made database to answer questions. • To collect data help me answer a question. • To add to a database. • To make a branching database. • To use a data logger to monitor changes and can talk about the information collected. **Year 4 - Handling Data** • To organise data in different ways. • To collect data and identify where it could be inaccurate. • To plan, create and search a database to answer questions. • To choose the best way to present data to an audience.

	• To use a data logger to record and share readings with others..
Cycle A Creating Media - Animation (Year 3) - This could link to history. Use the animation unit to retell a historical event being studied. Creating Media - Photo Editing (Year 4) This could work well in Cycle B during the 'Local Area Study' work. They could photograph something in the village and then enhance and edit the picture. The scheme talks about advertising and imaginary place, so it could also work well as part of a fiction unit in English. **Cycle B** Creating Media - Desktop Publishing (Year 3) - This looks at designing a magazine front cover. This could be adapted to do the Iron Man menus in Cycle B autumn term. Creating Media - Audio Editing (Year 4) in place of Charanga half term. This would be good as part of an English unit, maybe as a final piece of story telling. It would go well in a fiction unit where the outcome is to recount a story or create a story that then they can record, edit and enhance with sound effects. Maybe make an audio book. Organise dependant on thematic learning.	**Year 3 - Creative Use Of Media** • To create different effects with different technology tools. • To combine a mixture of text, graphics and sound to share ideas and learning. • To use appropriate keyboard commands to amend text on a device, including making use of a spellchecker. • To evaluate work and improve its effectiveness. • To use an appropriate tool to share work online. **Year 4 - Creative Use Of Media** • To use photos, video and sound to create an atmosphere when presenting to different audiences. • To explore new media to extend what I can achieve. • To change the appearance of text to increase its effectiveness. • To create, modify and present documents for a particular purpose. • To use a keyboard confidently and make use of a spellchecker to write and review my work. • To use an appropriate tool to share my work and collaborate online. • To give constructive feedback to friends to help them improve their work and refine my own work.
Cycle A **Cycle B** **Interwoven across the curriculum in both cycles** **Deliberate and explicit references to this as we go.** **Have we examples of this ….eg. reliable sources of history**	**Year 3 - Technology in Our Lives** • To independently save and retrieve work on the Internet, the school network or a personal device. • To talk about the parts of a computer. • To discuss 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 reuse online content (movies, text,

Computing systems and the Internet - (Year 4) lesson 6. Links to reliability, internet safety, sharing of information and content (legal and illegal) - to be delivered as part of E-Safety Day.	images) from the WWW. **Year 4 - Technology in Our Lives** ● To tell whether a resource being using is on the Internet, the school network or my own device. ("The Cloud"). ● To identify key words to use when searching safely on the World Wide Web. ● To think about the reliability of the information is read on the World Wide Web. ● To tell how to check who owns photos, text and clipart. ● To create a hyperlink to a resource on the World Wide Web.
YEAR 5 and YEAR 6	
In Upper Key Stage 2, all projects should, where possible, have a brief to be creatively met and evaluated against by pupils (audience, purpose criteria, composition).	
Topics/Themes/Texts:	**The key things we want children to know/be able to do**
Cycle A Programming A - A Selection in Physical Computing (Year 5)- unit of work to be taught to link with DT fairground rides and electricity science unit. (Spring term) Programming B - Selection in Quizzes (Year 5)- stand alone lessons to teach the skills of algorithms, alongside 'Circle of Life' science subject knowledge. (Spring term) **Cycle B** Programming A - Variables in Games (Year 6) stand alone lessons. Programming B - Sensing (Year 6) stand alone lessons.	**Year 5 - Computer Science** ● To decompose a problem into smaller parts to design an algorithm for a specific outcome and use this to write a program. ● To refine a procedure using repeat commands to improve a program. ● To use a variable effectively. e.g. Scores, Timers ● To change an input to a program to achieve a different output. ● To use 'if' and 'then' commands to select an action. ● To talk about how a computer model can provide information about a physical system. ● To use logical reasoning to detect and debug mistakes in a program. ● To use logical thinking, imagination and creativity to extend a program.

	Year 6 - Computer Science· ● To be able to design and deconstruct a problem into smaller steps. ● To explain and write/program each of the steps in an algorithm. ● To evaluate the effectiveness and efficiency of an algorithm while continually testing the programming of that algorithm for "bugs". ● To recognise when there is a need to use a variable to achieve a required output. ● To use a variable and operators to stop a program. ● To use different inputs (including sensors) to control a device or onscreen action and predict what will happen. ● To use logical reasoning to detect and correct errors in algorithms and programs.
Cycle A **Cycle B** **Wider Curriculum Links** JIGSAW PSHE - Relationships - Pieces 4/5/6 Age restricted content/online chat rooms and apps/ Being on Devices and SMART Rules for online safety (Year 5). JIGSAW PSHE - Relationships - Piece 5/6 SMART Rules for online safety (Year 6).	**Year 5 - E-Safety** ● To protect my password and other personal information. ● To explain the need to protect oneself and friends and the best ways to do this, including reporting concerns to an adult. ● To know that anything I post online can be seen, used and may affect others. ● To talk about the dangers of spending too long online or playing a game. ● To explain the importance of communicating kindly and respectfully. ● To discuss the importance of choosing an age-appropriate website or game. ● To explain why I need to protect my computer or device from harm. ● To know which resources on the Internet I can download and use. **Year 6 - E-Safety** ● To understand the need to use and protect a strong password and other personal information. ● To explain the consequences of sharing too much about oneself online. ● To support friends to protect themselves and make good choices online, including reporting concerns to an appropriate body. ● To explain the consequences of spending too much time online or

	on a game. ● To explain the consequences to oneself and others of not communicating kindly and respectfully. ● To protect a computer or device from harm on the Internet.
Cycle A Data and information - Spreadsheets (Year 6) skills to be taught through maths projects linked to money. (Summer term) **Cycle B** Data and information - Flat-file database (Year 5) Use prior learning of data gathered through links to science (Earth- Autumn term) or geography (mountains) end of unit skills to be taught through statistics in maths, use graphs and charts alongside.	**Year 5 - Handling Data** ● To use a spreadsheet and database to collect and record data. ● To choose an appropriate tool to help collect data. ● To present data in an appropriate way. ● To search a database using different operators to refine my search. ● To talk about mistakes in data and suggest how it could be checked. **Year 6 - Handling Data** ● To select the most effective tool to collect data for an investigation. ● To check the data collected for accuracy and plausibility. ● To interpret the data that is collected ● To present the data collected in an appropriate way. ● To use the skills developed to interrogate a database.
Cycle A Creating Media - Vector Drawing (Year 5) software to be used during the Pop Art art unit to create an image. Creating Media - 3D Modelling (Year 6) to be taught alongside 'shape' in maths. (Summer Term) **Cycle B** Creating Media - Video Editing (Year 5) to be taught alongside the Suffragette history unit/Literacy Tree units (eg King Kong, The Arrival) Creating Media - Web Page Creation (Year 6) subject knowledge links to Ancient Greece/WW1 and 2 or a Literacy Tree unit/class novel.	**Year 5 - Creative Use Of Media** ● To use text, photo, sound and video editing tools to refine work. ● To use the skills already developed to create content using unfamiliar technology. e.g. across chromebook to laptop technology/ software. ● To select, use and combine the appropriate technology tools to create effects that will have an impact on others. ● To select an appropriate online or offline tool to create and share ideas. ● To review and improve my own work and support others to improve their work. **Year 6 - Creative Use Of Media** ● To talk about audience, atmosphere and composition when planning a particular outcome. ● To combine a range of media, recognising the contribution of each to achieve a particular outcome.

	e.g. editing photos, audio and videos to be used purposefully in a project.
Interwoven across the curriculum in both cycles **Deliberate and explicit references to this as we go.** **Have we examples of this ….eg. reliable sources of history** **Links to Web Page Creation unit in Cycle B.**	**Year 5 - Technology in Our Lives** ● To describe different parts of the Internet. ● To use different online communication tools for different purposes. ● To use a search engine to find and evaluate appropriate information on the WWW and check its reliability. ● To describe the different parts of a webpage. ● To find out who the information on a webpage belongs to. **Year 6 - Technology In Our Lives** ● To explain the available Internet services needed to use for different purposes. ● To describe how information is transported across computer networks and on the Internet. ● To select an appropriate tool to communicate and collaborate online. ● To talk about the way search results are selected and ranked. ● To check the reliability of a website by cross referencing. ● To describe copyright and acknowledge the sources of information that are found online.
YEAR 7	
Topics/Themes/Texts: (To be decided by individual schools)	**The key things we want children to know/be able to do**
	Computer Science ● To use a graphical programming language to create games involving sequence, selection and iteration. e.g. Kodu and Scratch ● To be introduced to physical computing. e.g. Microbit, programmable robots

	E-Safety ● To understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting online identity and privacy. ● To recognise inappropriate content, contact and conduct and know how to report concerns. e.g. CEOP, Childline ● To learn how to ensure passwords are safe and secure.
	Handling Data ● To be able to put data into a form for graphing, checking the validity. e.g. bar charts summarising research
	Creative Use Of Media ● To create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability. e.g. taking images from different sources and combining to persuade

	Technology In Our Lives ● To learn how to manage, name and share files. ● To use the advanced search tools to customise searches. e.g. image size, copyright status, type of image ● To learn how to collaborate on documents. e.g. Research project gathering info and putting on to a Google doc

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YEAR 8 / end of KS3	
Topics/Themes/Texts: (To be decided by individual schools)	**The key things we want children to know/be able to do**
	Computer Science • To understand how to use text based programming to create simple programmes where they can see the relationship between what they type and what is created. e.g. SmallBASIC and Python • To understand how to control physical devices featuring inputs, outputs and processing. e.g. programmable robots accomplishing a task • To understand how numbers can be represented in binary and be able to convert between number systems e.g. binary-decimal conversions, binary addition, hex-decimal conversion
	E-Safety • To understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy. • To recognise inappropriate content, contact and conduct and know how to report concerns. • To learn how to ensure passwords are safe and secure e.g. use password strength checker, explain purpose
	Creative Use Of Media • To understand the concept of Photoshopped images, their widespread use and impact. e.g. mental health, morals, false impressions • To be able to combine and edit photographs. e.g. Photoshop collage, cloning • To be able to edit videos with skills including: transitions, splitting,

Commented [1]: Progression across the Year groups is good, but I'm concerned that in the entire document there is no use of either the word 'app' or the phrase 'social media'. (CD players get a mention however.) Are we losing touch?

	effects, text. e.g. charity music concert • To understand that there are different file formats for media for different purposes. e.g. PNG, JPG, GIF and TIFF, BMP • To understand the differences between between bitmapped and vector-based graphics. • To understand the purpose of compression and the impact it has on images in particular. e.g. the basic idea, JPG to illustrate
	Technology in our lives • To understand the role of hardware and software in a computer system. e.g. understand the basic components, software needed • To understand the difference between input and output devices e.g. mouse, printer - what about touch screen • To understand the role of the main components of a computer. e.g. CPU, RAM, hard drive

YEAR 9	
Topics/Themes/Texts: (To be decided by individual schools)	**The key things we want children to know/be able to do**