Computing

Curriculum Overview

	Guidance Areas	Autumn		Spring		Summer	
		Term 1	Term 2	Term 1	Term 2	Term 1	Term 2
EYFS		Understanding the World- Technology					
	Topic/Focus	IT		Computer Science		Online Safety	
	Key knowledge	**Plugs –** contain dangerous electricity that can hurt you. **Search –** look for some information. **Instruction –** an order of how to do something **Order -** what happens first, next and then the end. **Mouse**- a device that controls the pointer on a computer **Monitor**- the computer screen **Tablet-** a handheld computer **Keyboard**- what we use to type letters/numbers/ symbols. **Bee bot-** programmable robot **Occupation-** a career or job **Low technology**- washing and drying or transporting water with water to make things work					
	Key skills	**Low Technologies** **Explore** low technologies with water to make things work **Use** pipes, funnels and other tools to transport water from one place to another. **Play** with cause and effect **Mouse and keyboard** **Use** a dominant hand and move the arrow to a destination with instruction (hand over hand) **Hold** a mouse and move the arrow to a destination with some errors. **Hold** a mouse and move the arrow confidently to a destination. **Create** a drawing using a mouse **Click** on applications/programs with support. **Double** click on an application. **Find** given keys related to letters/numbers **Press** keys relating to letters and numbers with accuracy **Independently** press keys relating to letters and numbers **Type** name independently **Understand** How technology Is used in future careers. Create ambition.		**Computer Science** **Follow** 2 directional instructions verbally. (As a class, in pairs, independently) **Sequence** 3 images around a familiar event in order (first, then, last). (As a class, in pairs, independently) **Name** forward, back, left, right and go on a Beebot (with prompts and ind) **Applications** **Identify** basic apps and programs from images (tux paint, Maisie mouse skills) (As a class, independently) **Interacts** with age-appropriate software **Develops** digital literacy from engaging with a variety of software **Images/recordings** **Find** the camera app and take a picture. **Take** a picture independently on a tablet when on the app. **Take** pictures that link to a story **Create** a video recording **Draw** images on a screen		**Online Safety** **Know** that information can be retrieved from digital devices and the internet **Find,** with he help of an adult, online information that interests them **Identify** dangers around computers (eg. Electricity, water, wires, running in ICT). **Sit** on a chair in the ICT suit correctly. **Hold** a tablet safely and respectfully. **Talk** about the dangers of strangers. **Point** to images of people they should tell if something scares them on technology (out of a choice of two) **Name** people they should tell if something scares them on technology (out of a choice of two) **Equipment** **Identify** a mouse, monitor, tablet and keyboard from pictures. **Use** the vocab mouse, monitor, tablet and keyboard when talking about computers.	

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Year 1	Topic/Focus	Technology all around us (TeachComp)	Programming		Keyboard and Mouse Skills	Digital Art	Microsoft Word
	Key knowledge	**Technology-** Identify and define different digital devices inside and outside of school – tablet, TV, washing machine, toaster. **Understand-** digital devices come in all shapes and sizes. **Keyboard Functions-** letters, space bar and enter **Mouse-** left click	**Algorithm –** A set of clear instructions in a certain order. **Programmable** – Can receive instructions. **Beebot** – Programmable robot **Directional language** – left, right, go, forward, backward **Objective**- the goal you want to achieve/ what you want to happen **Input** – Adding information into a computer. **Outcome –** The result **Command –** An instruction. **Debug**- correcting a mistake in an algorithm.		**Technology-** Identify and define different digital devices inside and outside of school. **Digital devices**- any device which uses electronics to function- hairdryer, alarm clock **Uses**- the way in which we use a device for a particular purpose and need at that time. i.e. a hairdryer – hot for adults, cooler for children. **Understand-** digital devices come in all shapes and sizes. **Keyboard and Mouse Functions -** letters, space bar, enter **and** left click only	**Digital Art-** art created using computing **Tools**- a selection of items which change the way the art is created. i.e. pen, paint, brush **Pixels**- a minute area of illumination on a display screen, one of many from which an image is composed	**Power button –** Turns the power on and off. **Log on –** Getting on to your account/work. **Shutting down** – Getting off your account and turn off power. **Mouse** – Know the three different clicks. **Program Icons –** Need to know word, publisher, painting programs, camera, mouse skill games, keyboard games by icons.
	Key skills	**Turn** on a navigate a variety of devices **Log on** independently **Use** the mouse to left-click, select and drag **Find** letters on the keyboard and begin to type **Locate** examples of technology in the classroom **Explain** how these technology examples help us	**(Beebots)** **Create** an algorithm to get a Beebot from one place to another **Change** my algorithm to avoid obstacles **Debug** my algorithm **(The Foos)** **Solve** problems using algorithms and debugging **Recognise** errors and debug these in their algorithm		**Turn** on a navigate a variety of devices **Log on** independently **Use** the mouse to left-click, select and drag to play games. **Find** letters on the keyboard and begin to type with fluency.	**(KidsDoodle (iPad) and pixilart.com (comps)** **Explore** digital drawings **Discuss** what I like, dislike and interesting features **Explore** digital drawings using KidsDoodle **Use** the tools on Pixilart.com to create a digital drawing	**Open** a Microsoft Word Blank Document **Type** my name onto a Microsoft Word Document **Save** my work **Add and resize** a clipart image **Insert and type** into a text box?

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	Guidance Areas	Autumn		Spring		Summer	
		Term 1	Term 2	Term 1	Term 2	Term 1	Term 2
Year 2	Topic/Focus	IT all round Us (TeachComp)	Programming- Scratch Jnr		Microsoft Word	Data Handling	Animation
	Key knowledge	**IT**- Information Technology. (See standardised slide) **Purpose**- why we use something **Barcode**- Consists of bars, spaces an numbers which tracks an item **Scanner**- a device for examining, reading or monitoring something.	**Algorithm** – clear instructions in a certain order to complete a task or solve a problem. **Sequence** – The order in which something is done. **Scratch Jr –**visual algorithms (these include: character, verb, destination i.e. dog, walking, shrink, run, outer space) **Scratch Jr Language–** predict, Invisible, shrink, blocks, sprite, wait, show, hide, repeat forever, repeat, move, character, record, sound, background and sequence. **Outcome –** the result of the algorithm; the reason we created the algorithm.	**Block coding** – name of the parts in the algorithms used in Scratch Jr. **Outcome –** the result of the algorithm; the reason we created the algorithm. **Sprite** – Character on Scratch Jr that can be coded. Online version of a beebot **Command –** An instruction given to a computer. **Debug** – Finding a mistake in an algorithm or making it better/faster. **Sequence** – The order in which something is done. **Turns-** full turn, half turn, quarter turn	**Spell check –** A tool for checking spelling. **Format –** to change the way an item looks. **Font** – the style of writing, colour **Copy –** A tool which copies but does not delete an item. **(Select, Right Click, Copy)** **Paste –** A tool which places a copied or cut item. **(Right Click, Paste)**	**Key** – represent letters, numbers, functions and symbols. **Power button –** Turns the power on and off. **Log on –** Getting on to your account/work. **Shutting down** – Getting off your account and turn off power. **Mouse** – Know the three different clicks. **Programs –** Need to know word, publisher, painting programs, camera, mouse skill games, keyboard games by icons.	**Animation**- the creation of multiple slides with a tiny amount of movement, which together looks like a video of movement **Frames**- each image taken **Storyboard**- the planning out of your animation **Movement**- the tiny amount of movement between each frame
	Key skills	**Identify** that a computer is a part of IT **Identify** examples of IT **Sort** school IT by what it's used for and where it is found **Identify** that some IT can be used in more than one way and why **Demonstrate** how IT devices work together **Discuss** different rules for using IT and how they keep me safe **Use** IT for different types of activities	(Scratch) **Create, follow and improve** an algorithm **Move** a character **Edit** an algorithm for precision **Avoid** obstacles **Debug** my algorithm	(Scratch) **Continued from Spring2** **Create, follow and improve** an algorithm **Move** a character **edit** my algorithm for precision **Avoid** obstacles **Debug** my algorithm	**Add, edit and format** text **Add and edit** an image **Copy and paste** text and images **Save** my work **Retrieve** my work	**Answer** questions about a pictogram **Collect** data for a pictogram **Label** a pictogram and add data to each column **Edit** a table to create a bar chart and a pie chart **Ask and answer** questions about graphs that I have created **Match** common symbols to basic definitions. (cross, save, windows symbol, word, print) **Find** a specific program independently	**Study and comment** upon animations **Experiment** with the Junior Infant Animation Tool and share my successes and difficulties **Plan** my own animation **Create** my own animation **Evaluate** my project

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		Term 1	Term 2	Term 1	Term 2	Term 1	Term 2
Year 3	Topic/Focus	Connecting Computers (TeachComp)	Programming		Apple Pages	Stop-Motion Animation	Powerpoint
	Key knowledge	**Digital device**-equipment that sends and receives data **Input**- put into a system **Output**- a system completes as a result of an input **process** – series of actions **Program**- controls a machine **Connection**- the link between a plug **Network**- 2 or more computers link which share info **Network switch**- forwards data between devices **Server**- a computer program which provides a service to another program **Wireless Access Point (WAP)**- wired device that allows wireless connections	**Program –** This is the purpose of the activity. **Block knowledge –** Flag, stop, motion, events, control, looks, sound. **Sprite –** The character. **Backdrop –** The background of the stage. **Script –** The sequence of the blocks. **Costumes –** The look of the sprite at a given time. **Repeat Function**- a way of block repeating instructions previously set **Turns-** full turn, half turn, quarter turn, clockwise, anti-clockwise		**Bold -** Slightly thinker font in the same style. **Italics –** Words typed are on a slight angle. **Alignment –** where the text is placed. (Left, Right, Center, Justify) **Text box Function** (I.e. Insert – Text Box – Draw Text Box/ Simple text box) **Crop –** making an image smaller by removing some parts of it.	**Stop motion Animation**- the creation of multiple slides with a tiny amount of movement, which together looks like a video of movement **Frames**- each image taken **Storyboard**- the planning out of your animation **Movement**- the tiny amount of movement between each frame **Onion skin**- in 2D computer graphics, is a technique used in creating animated cartoons and editing movies to see several frames at once. **Export**- To save a copy of the current open document, database, image or video into a file format required by a different application **iMovie**- a video editing application developed by Apple Inc.	**Slideshow –** a presentation made up of slides viewed in a sequence. **Text box –** a box that contains writing. **Background –** the colour or pattern on the slide or page. **Presentation –** another word for a slideshow. Design and create digital content to convey information.
	Key skills	**Explain** that digital devices accept inputs and produce outputs **Follow** a process **Identify** how devices in a network are connected with one another **Identify** networked devices around me **Identify** the benefits of computer networks **Classify** input and output devices **Design** a digital device **Model** a simple process **Explain** how messages and info are passed through multiple connections **Explain** the role of a network	**(Scratch)** **Decompose** an algorithm **Write** a program including text, wait and movement **Use** the repeat function **Write** programs using different inputs		**Type** an extended piece of work including paragraph, alignment, title, text box and an image **Format** typed work to change the font colour, underline, bold and italics. **Use** the spell check tool for all words in a text. **Save** my work **Retrieve** my work	**Study and comment** upon animations, focussing on the use of onion skin **Use** Stop Frame Animator to create my own animation **Create** my own Lego animation **Compare** the Lego Movie app and the Stop Frame Animator **Use** a storyboard to plan an animation **Choose** from Stop Motion Animation or StikBot to create my own animation **Export** my animation into iMovie	**Present** my learning on KN and PP **Add** slides to my presentation **Add** appropriate animations **Add** content using pictures and text. **Change** the background on my presentation

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		Term 1	Term 2	Term 1	Term 2		Term 1	Term 2
		switch, server, and wireless access point in a network					**Add** a title and sound to my animation video	
Year 4	Topic/Focus	**The Internet** (TeachComp)	**Programming**		**Data Handling**	**Apple Pages / Microsoft Word**	**Video- Green Screen**	**Apple Keynote**
	Key knowledge	**Internet**- worldwide system of computer networks **Security**- establishes rules to prevent against attacks **Server**- uses HTTP across the world **Web page**- doc on the WWW **Web address**- location of a web page **Router**- connects 2 or more networks **Routing**- a path for traffic in a network **Route tracing**- diagnotics **World Wide Web**- collection of web pages **Browser**- access the WWW **Content**- information **Download**- transmission of a file from a network **Adverts**- online advertisement	**Decomposing –** Know that algorithms can be broken down into smaller parts to solve a problem. **Loop –** A piece of program that repeats for a given amount of time. **Conditional –** are used to decide the flow of the algorithm. (E.g. when I click) **X and Y axis** – position on the backdrop **Turns-** as Year 3 plus 45, 90, 180, 360 degrees to be used		**Cell –** an individual box on excel. **Spreadsheet –** the name of a page in excel. **Data -** text or numbers entered into a cell. **Formula –** a mathematical statement that the computer will work out using information in the cells.	**Thesaurus –** A tool which gives suggestions of other words that mean the same. **Cut -** A tool which moves an item from one place to another. **(Select, Right Click, Cut) (Ctrl – Alt – X)** **Resize –** changing the size of an item. (The role of holding shift for equal sizing) **Bullet points –** a tool which allows you to add in bullet points. **Subheading –** a smaller title. **Table –** a tool which allows you to add in a table with cells, rows and columns. **Smart art –** editable pictures which allow you to present work. **Navigate –** A way to move around on the computer.	**Green screen**- software that allows the placement of any image onto the green screen's interchangeable background **Autocue**- a device which projects an enlarged image of a script for use by the presenter/reader **Content**- the make-up of the animation	**Spell check –** A tool for checking spelling. **Text box –** a box that contains writing. **Format –** to change the way an item looks. **Font** – the style of writing. **Presentation –** another word for a slideshow. **Copy –** A tool which copies but does not delete an item. **(Ctrl – Alt – C)** **Paste –** A tool which places a copied or cut item. **(Ctrl – Alt – V)** **Bold -** Slightly thinker font in the same style. **Italics –** Words typed are on a slight angle. **Alignment –** where the text is placed. (Left, Right, Center, Justify)
	Key skills	**Demonstrate** how information is shared across the internet **Describe** the internet as a network of networks and why it needs protecting **Describe** the different networked devices and how they connect **Understand** how the WWB works **Create** media, found on websites **Recognise** that I can add content to the WWW **Explain** that there are rules to protect content	**(Scratch)** **Take** screenshots and add to Keynote **Use** sprites and background tools to create a scene? **Use** an 'if' statement in my algorithm **Use** a repeat loop **Add** additional characters and make them move **Experiment** with conditionals **Use** a repeat loop multiple-times **Include** a conditional		**Ask and answer** questions about spread sheets **Use** given data to create a spread sheet **Add** formulas to add totals **Gather and present** data in a spread sheet **Use** data to create a graph **Copy and paste** the graph onto	**Type** an extended piece of work including paragraph, alignment, title, text box, an image and subheading, including bullet points and a table. **Format** typed work to change the font colour, underline, bold and italics.	**Experiment** with green screen by changing the background to my picture **Work** in a group to plan a video **Create** an autocue script on Apple Pages **Work** in a group to record content for my video (including green screen)	**Add** in a new slide **Add**, edit and format text **Copy and paste** text and images. **Add** an image and edit it inside a document **Change** the background of the presentation **Save** my work **Retrieve** my work

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	Guidance Areas	Autumn		Spring		Summer	
		Term 1	Term 2	Term 1	Term 2	Term 1	Term 2
		Explain that websites and their content are created by people and they won it **Explain** that not everything on the World Wide Web is true.			another programme or spread sheet **Add** a border **Use** the spell check tool and the thesaurus **Cut and paste** with instruction to change order.		
Year 5	Topic/Focus	**The Internet** (TeachComp)	**Programming**		**Apple Keynote (App Design) / PowerPoint**	**Video Editing/Green Screen**	**Data Handling (Excel)**
	Key knowledge	**System**- a group of computers and networks **Connection**- the link between a plug or a jack into a port **Process**- a programme running in a computer **Protocol**- rules that dictate how info is shared **Slide deck**- a series of slides used as a visual aid **Remix**- a piece of media, edited. **Packet**- consists of info and is carried through a network	**Loop-** A piece of program that repeats for a given amount of time. **Data variables-** something that can be changed such as text or numbers. **Conditions**- are used to decide the flow of the algorithm **Sensing**- can sense movement **Python** – One of many computer languages. **Decomposing –** Know that algorithms can be broken down into smaller parts to solve a problem.		**Timings –** Set length of a slideshow or individual slide. **Navigate –** A way to move around on the computer. **Hyperlink –** a shortcut to another page/slide/website. **Transitions –** The movement from one slide to another. **Animations –** The movement of items on a slideshow (e.g. a floating title) **Bullet points –** a tool which allows you to add in bullet points. **Subheading –** a smaller title. **Table –** a tool which allows you to add in a table with cells, rows and columns. **Smart art –** editable pictures which allow you to present work.	**Green screen**- software that allows the placement of any image onto the green screen's interchangeable background **Autocue**- a device which projects an enlarged image of a script for use by the presenter/reader **Content**- the make-up of the animation **Edit**- change something created to better suit the outcome and improve it.	**Cell –** an individual box on excel. **Spread sheet –** the name of a page in excel. **Data -** text or numbers entered into a cell. **Formula –** a mathematical statement that the computer will work out using information in the cells.
	Key skills	**Describe** that a computer system features inputs, processes, and outputs **Explain** the benefits of a given computer system **Identify** tasks that are managed by computer systems as well as the human elements. **Explain** that data is transferred over networks in packets **Understand** that networked digital devices have unique addresses **Send** information over the internet in different ways **Compare** working online with working offline **Explain** how the internet enables	**(Scratch)** **Take** screenshots and add to Keynote **Decompose** a Scratch game into smaller parts **Define**, create and debug a series of algorithms **Program** inputs **Program** conditionals **Identify** the incorrect inputs in a 30 part algorithm using Scratch **Experiment** with sensing and variables **Add** multiple conditions and sensing for interaction **Add** data variables for scoring and a game timer		**Adjust** slide size to mimic a phone or tablet. **Edit, crop and add** images together **Add** icons and text to use as navigation. **Create** hyperlinks to have navigation. **Duplicate** slides to create multiple pages of the app. **Use** reliable internet research **Add** in a new slide, start and end a slideshow. **Change** the background of the presentation **Add** transitions and animations to 5 slides **Create** a headline to accompany a created image **Add** a border, images, shapes and text	**Experiment** with green screen by changing the background to my picture **Work** in a group to plan a video **Create** an autocue script on Apple Pages **Work** in a group to record content for my video (including green screen) **Add** a video to iMovie and add backgrounds, text, music and transitions **Present** my work and provide feedback to others **Utilise** other strands of computing learnt previously	**Ask and answer** questions about spread sheets **Use** given data to create a spread sheet **Add** formulas to add totals **Gather and present** data in a spread sheet **Use** data to create a graph **Copy and paste** the graph onto another programme or spread sheet **Utilise** the data sheets created within another programme

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		effective collaboration **Recognise** that connected digital devices can allow us to access shared files stored online			to both a KN and PP **Amend** tables by inserting/deleting columns, rows and cells. **Add** transitions and animations **Evaluate** software by debating strengths and weaknesses	within green screen recordings and edits	
Year 6	Topic/Focus	**Internet Communication** (TeachComp)	**Programming** **(Swift Playgrounds)**		**Project Work**	**Website Design**	**Project work**
	Key knowledge	**Search**, **Search engine**- search the WWB on one webpage **Online Programmes** (Google, Bing, Yahoo!, Swisscows, DuckDuckGo) **Index**- determines the websites level of interaction and efficiency **Crawler**- indexes the results in a search engine **Bot**- malware that enables control of a computer from an attacker **Ranking**- sorting in order of importance etc. **Optimisation**- how to improve network performance **Public/Private**- whether information online can be seen by only a selected audience, or all **one-way, two-way, one-to-one, one-to-many**- how a communication takes place **Communication types**- (SMS, email, WhatsApp, blog, YouTube, Twitter, BBC Newsround)	**Application of previous knowledge through new program.** **Loop-** A piece of program that repeats for a given amount of time. **Data variables-** something that can be changed such as text or numbers. **Conditions**- are used to decide the flow of the algorithm **Sensing**- can sense movement **Python** – One of many computer languages. **Decomposing –** Know that algorithms can be broken down into smaller parts to solve a problem.		**All previous, appropriate, key knowledge**	**Word wide web –** a directory of websites that can be accessed using a browser. **Website-** a set of related web pages located under a single domain name **Hyperlink –** a shortcut to another page/slide/website. **Navigate –** A way to move around on the computer. **Buttons-** are used on forms, website homepages, dialog boxes, and toolbars. Buttons are used when you want a user to act (submit, cancel, delete) **It is important to differentiate between buttons and links.** **Links-** are used to direct users to other pages (about me, read more)	**All previous, appropriate, key knowledge**
	Key skills	**Compare** results from different search engines **Complete** a web search to find specific information and refine my search **Recognise** the role of web crawlers in creating an index **Explain** that a search engine follows ranking rules and suggest some criteria the page used to do so **Explain** how search engines make money	**Swift Playgrounds (iPad app)** **Define, create and debug** a series of algorithms **Decompose** a game into smaller parts **Program accurately** inputs, conditions and sensing for interaction, data variables for scoring and a game timer		**Study** features of different websites and evaluate them **Add** and format text within a website **Organise** sections and pages **Add and edit** images **Create** videos to add onto my website **Include** features such as hyperlinks, buttons and files **Evaluate** my work and provide feedback for others	**Independent** application of all previous units of learning. This will be based around a relevant topic chosen by the class teacher.	**Independent** application of all previous units of learning. This will be based around a relevant topic chosen by the class teacher.

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		Recognise some of the limitations of search engines **Identify** that there are a variety of ways of communicating over the internet, some of which may not be private					