

Skills and Progression Map

Computing

'Spirituality is the bitter-sweet yearning for beauty, truth, love and wonder beyond ourselves. It is a longing we pursue together and a treasure we glimpse in ourselves and one another and seek beyond us into eternity. It is life in all its fullness.'



Nebula Spirituality Statement



Computing: National Curriculum		
EYFS	Key Stage One	Key Stage Two
Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes	- Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions - Create and debug simple programs - Use logical reasoning to predict the behaviour of simple programs - Use technology purposefully to create, organise, store, manipulate and retrieve digital content - Recognise common uses of information technology beyond school - Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the Internet or other online technologies	- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts - Use sequence, selection, and repetition in programs; work with variables and various forms of input and output - Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs - Understand computer networks including the Internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration - Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content - 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 - Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

Curriculum Coverage

The National Curriculum has been divided up into three areas: Information Technology, Digital Literacy and Computer Science. Within each of these areas,

Information Technology	Digital Literacy	Computer Science
Audio/Visual Design Text and Images Data Handling - Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes - use technology purposefully to create, organise, store, manipulate and retrieve digital content - recognise common uses of information technology beyond school - 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	Uses of IT E-Safety Internet Research - Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes - use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. - Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration - Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content - Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact	Programming - Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes - understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions - create and debug simple programs - use logical reasoning to predict the behaviour of simple programs - Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts - Use sequence, selection, and repetition in programs; work with variables and various forms of input and output - Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

Core Skills have been identified and allocated to the ilearn2 units covered.

Within each ilearn2 unit covered, the Core Skills have been refined to correlate specifically to the learning and allow for progression of mixed age classes completing the same units.

ilearn2 Skills

Digital Art and Design (EYFS)		
Information Technology: Audio/Visual Design		
EYFS	Year 1	Year 2
To use digital software to explore colours.	To use digital software to explore colours and re-create a style.	To use digital software to explore colours and re-create a style with confidence.
To use digital software to move objects on the screen for a purpose.	To use digital software to move multiple objects on the screen for a purpose.	To use digital software to move multiple objects on the screen for a purpose with confidence and accuracy.
To use digital software to select objects and use tools to create 2D and 3D designs.	To use digital software to select objects and use tools to create multiple 2D and 3D designs.	To use digital software to select objects and use tools to create multiple 2D and 3D designs with confidence and accuracy.
To use digital software to experiment with the fill bucket tool to colour a picture.	To use digital software to colour a picture in multiple colours.	To use digital software to colour a picture in multiple colours with confidence and accuracy.

3D Design (Year 1)		
Information Technology: Audio/Visual Design		
EYFS	Year 1	Year 2
To begin to change the colour and pattern of elements.	To change the colour and pattern of elements.	To confidently change the colour and pattern of elements.
To begin position and rotate objects on a design.		
To begin to position objects in relation to each other.	To position objects in relation to each other.	To demonstrate independence and complexity in positioning objects.
	To resize, rotate, flip and arrange objects	To demonstrate independence and complexity in

	behind/in front of each other.	resizing, rotating, flipping and arranging objects.
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Digital Art (Year 2)			
Information Technology: Audio/Visual Design			
EYFS	Year 1	Year 2	Year 3
To explore different purposes of digital art.	To begin to create digital art for a purpose.	To create simple digital content for a purpose.	To create complex digital content for a purpose.
To explore using lines and fill tools.	To begin to use lines and fill tools.	To use lines and fill tools to make interesting patterns and mimic an artist's style (Mondrian).	To use a variety of lines and fill tools to make interesting patterns and mimic an artist's style with independence.
To explore adding shapes.	To add a shape (outlines and fill)	To add a variety of shapes (outlines and fill) and label them with text.	To add a variety of shapes (outlines and fill) and label them with text independently.
To explore pixels with colour.	To begin to use pixels with colour.	To re-create graphics using pixels with different colours.	To re-create graphics using pixels with different colours independently.

Music Creation (Year 3)			
Information Technology: Audio/Visual Design			
Year 2	Year 3	Year 4	Year 5
To begin to create digital scales and chords.	To create ascending and descending scales, chords, arpeggios and melodies.	To create ascending and descending scales, chords, arpeggios and melodies evenly across the scales.	To create a complex arrangement of scales, chords, arpeggios and melodies.
To begin adding a rhythm.	To add a steady and even rhythm.	To add rhythms of different tempo and structure.	To produce a variety of rhythms with different tempo and structure independently.
To identify what a sampled sound is.	To begin to use sampled sounds.	To use sampled sounds to create effective mixes which include a building beat and melody (tones).	To use sampled sounds to create effective mixes which include a building beat, melody (tones) and effects.

		To collaborate online to create music.	To collaborate online to create music.
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Graphic Design (Year 4)			
Information Technology: Audio/Visual Design			
Year 3	Year 4	Year 5	Year 6
To begin to combine shapes and lines.	To combine shapes and lines, then arrange them in front/behind each other.	To combine shapes and lines with complexity in arrangement.	To combine shapes and lines with complexity in arrangement with confidence and independence.
To begin to combine shapes, colour and text to re-create an icon.	To combine shapes, colour and text to re-create an icon.	To combine shapes, colour and text to re-create a variety of icons.	To combine shapes, colour and text to re-create a variety of icons with confidence and independence.
To begin to change the colour, size and style of text.	To change the colour, size and style of text to match an icon.	To change the colour, size and style of text to match a variety of icons.	To change the colour, size and style of text to match a variety of icons with confidence and independence.
	To begin using masking and opacity tools to arrange an image.	To use masking and opacity tools to arrange a variety of images.	To use masking and opacity tools to arrange a variety of images with confidence and independence.

Music Creation (Year 5)			
Information Technology: Audio/Visual Design			
Year 3	Year 4	Year 5	Year 6
To identify layers of sounds and effects.	To begin to layer tracks using sounds and effects.	To layer tracks using sounds and effects.	To confidently and independently layer tracks using sounds and effects.
To begin to use online samplers.	To begin to use online samplers and sequencers.	To use online samplers and sequencers to create drums patterns and scales.	To confidently and independently use online samplers and sequencers to create drum patterns and scales.
To begin to create instrument tracks.	To create instrument tracks.	To create effective instrument tracks using a variety of instruments.	To confidently and independently create effective instrument tracks using a variety of instruments.
	To adjust the volume of a track.	To edit tracks by adjusting the volume and adding effects.	To edit tracks, by adjusting the volume and adding a variety of effects with

confidence.

Graphic Design (Year 6)

Information Technology: Audio/Visual Design

Year 4	Year 5	Year 6
To begin to add, adjust and fill shapes.	To add, adjust and fill shapes.	To add, adjust and fill a variety of shapes with shapes confidence and independence.
To begin to group shapes to improve accuracy and speed.	To group shapes to improve accuracy and speed.	To group shapes with confidence and independence.
To begin to add and customise gradient effects.	To add and customise gradient effects.	To add and customise gradient effects confidence and independence.
To begin to adjust transparency/opacity.	To adjust transparency/opacity.	To adjust transparency/opacity with confidence and independence.
To begin to use a colour picker.	To use a colour picker correctly.	To use a colour picker independently with confidence.
To begin to rotate shapes.	To accurately rotate shapes.	To accurately rotate a variety of shapes with confidence.

Computer Discovery (EYFS)

Information Technology: Text and Images

EYFS	Year 1	Year 2
To begin to identify parts of the computer and how they help us.	To identify parts of the computer and how they help us.	To explain the different parts of the computer and a variety of ways they help us.
To begin to understand that computers can need to be repaired and that parts can be dangerous.	To understand that computers can need to be repaired and that parts can be dangerous.	To show a strong understanding that computers can need to be repaired and name parts that can be dangerous.
To begin to use a mouse to select and move objects.	To use a mouse to select and move objects.	To use a mouse to select and move objects with confidence and independence.
To begin to use the keyboard to enter letter strings.	To use the keyboard to enter letter strings	To use the keyboard to enter letter strings with confidence and independence.

Text and Images (Year 1)		
Information Technology: Text and Images		
EYFS	Year 1	Year 2
To change the background colour of a page.	To change the background colour of a page with confidence.	
To begin to add, resize and position images (pictures) on a page.	To add, resize and position images (pictures) on a page.	To add, resize and position multiple images (pictures) on a page with confidence and independence.
To begin to type and position text on a page.	To type and position text on a page, if possible, using capital letters and punctuation.	To type and position text on a page, showing clear understanding of using capital letters and punctuation.
To begin to label pictures with text.	To label pictures with text.	To label multiple pictures with text with confidence.
To begin to use word-banks for writing sentences about pictures.	To use word-banks for writing sentences about pictures.	To use word-banks for writing sentences about pictures with confidence and independence.

Ebook Creation (Year 2)			
Information Technology: Text and Images			
EYFS	Year 1	Year 2	Year 3
To add a book cover with title	To add a book cover with title, author, colour	To add a book cover with title, author, colour and image.	To add a book cover with title, author, colour and multiple images.
To begin to add pages.	To add pages based on a theme.	To add multiple pages based on a theme.	To add multiple pages based on a theme with confidence and independence.
To begin to add text to a page.	To add text onto pages.	To add text on multiple pages.	To add text on multiple pages with different fonts.
To begin to add an image to a page.	To add images on different pages.	To add images on different pages to match the theme/text.	To add images on different pages to match the theme/text and explain choices.
		To add voice recordings.	To add multiple voice recordings to

			match the text and theme.
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Document Creation (Year 3)			
Information Technology: Text and Images			
Year 2	Year 3	Year 4	Year 5
To begin to copy and paste text and images	To copy and paste text and images	To begin to copy and paste text and images using shortcuts.	To copy and paste text and images using shortcuts (including undo) with speed and accuracy.
To begin to find and replace words	To find and replace words	To find and replace multiple words.	To find and replace multiple words with speed and accuracy.
To begin to format text for a purpose.	To format text for a purpose	To show an understanding of the variety of ways to format a text.	To accurately format text in a variety of ways.
To edit the style of an image.	To edit the size, style and text wrapping of an image.	To edit an image in a variety of ways.	To edit an image in a variety of ways with speed and accuracy.
To add bullet points to make lists.	To add bullet points and numbering to make lists.	To use a variety of bullet point styles with confidence.	To use a variety of bullet point styles with confidence.
	To experiment with keyboard shortcuts	To show an understanding of some keyboard shortcuts.	To show an understanding and use a variety of keyboard shortcuts with confidence.

Ebook Creation (Year 4)			
Information Technology: Text and Images			
Year 3	Year 4	Year 5	Year 6
To choose a suitable page shape, adding a title.	To choose a suitable page shape, adding a title and subtitle.	To format a page for a purpose in a variety of ways.	To format a page for a purpose in a variety of ways with speed and accuracy.
To change the background colour.	To change the background colour/texture.		
To begin to add, resize and change the colour of a shape, copy and pasting it.	To begin to add and format a shape using shortcuts.	To add and format a shape using shortcuts.	To add and format a shape using shortcuts with speed and accuracy.

To search for and add suitable images.	To search for and add suitable images, resizing and positioning them.	To search for and add suitable images, resizing and positioning them independently.	To search for and add suitable images, resizing and positioning them with speed and accuracy.
	To create additional pages.	To create additional pages with audio recordings of the page text.	To create additional pages with audio recordings of the page text independently and accurately.

App Design (Year 5)

Information Technology: Text and Images

Year 3	Year 4	Year 5	Year 6
To begin to format slides.	To format slide size and colour with confidence.	To format slides for a purpose in a variety of ways.	To format slides for a purpose in a variety of ways with speed and accuracy.
To begin to add text and Images across pages.	To add text and Images across pages.	To add text and transparent images across pages.	To add text and transparent images across pages with confidence and independence.
To begin to add icons to pages.	To add icons across pages.	To use shortcuts to add multiple icons across pages.	To use shortcuts to add multiple icons across pages with speed and accuracy.
		To add interactions using hyperlinks.	To add multiple interactions using hyperlinks with confidence and independence.

Web Design (Year 6)

Information Technology: Text and Images

Year 4	Year 5	Year 6
To begin to create a static homepage and choose a suitable theme.	To create a static homepage and choose a suitable theme.	To create a static homepage with a suitable theme independently.
To begin to edit the site identity's title, tagline and website icon.	To edit the site identity's title, tagline and website icon.	To edit the site identity's title, tagline and website icon independently.
To upload a suitable header or background image.	To upload and edit a suitable header and background image.	To upload and edit a suitable header and background image with speed and accuracy.
To begin to adjust the website sidebar and add suitable	To adjust the website sidebar and add suitable	To adjust the website sidebar and add suitable widgets

widgets.	widgets.	with speed and accuracy.
To add text and Images across pages.	To add text and images across pages and begin to edit in a variety of ways.	To add text and images across pages and edit in a variety of ways with speed and accuracy.
To add multiple pages.	To add multiple pages, editing the navigation and including sub-menus.	To add multiple pages, editing the navigation and including sub-menus with speed and accuracy.
To begin to identify strengths and weaknesses of your classmates' websites.	To offer suggestions on how to improve your classmates' websites. .	To provide explanations of how to improve your classmates' websites.

Introduce Data Handling (Year 2)		
Information Technology: Data Handling		
EYFS	Year 1	Year 2
To begin to collect data as a tally.	To understand what data is and collect it as a tally.	To explain what data is and collect it as a tally.
To begin to explore pictograms.	To use software to label a pictogram and add data to each column.	To use software to label a pictogram and add data to each column with greater independence.
	To edit a table with correct titles and numbers.	To edit a table with correct titles and numbers with speed and accuracy.
To begin to explore bar and pie charts.	To use software to create a bar chart/pie chart/line chart suitable for the data.	To use software to create a bar chart/pie chart suitable for the data.
	To begin to interpret a pictogram/bar chart/line chart.	To interpret a pictogram/bar chart/line charts with explanations.

Branching Databases (Year 3)			
Information Technology: Data Handling			
Year 2	Year 3	Year 4	Year 5
To begin to create a branching database.	To understand and create a branching database.	To create complex branching databases.	To create complex branching databases with speed and accuracy.
To begin to identify suitable information.	To identify which information is suitable for a topic.	To explain what makes information suitable.	To explain what makes information suitable with examples.
To begin to add and label objects.	To add and label objects.	To add and label multiple objects.	To add and label multiple objects with speed and accuracy.
To begin to ask questions to sort (classify) objects correctly.	To ask questions to sort (classify) objects correctly.	To classify objects of complex branching databases.	To classify objects of complex branching databases with speed and

			accuracy.
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Data Handling (Year 4)			
Information Technology: Data Handling			
Year 3	Year 4	Year 5	Year 6
To change the colour of a cell.	To change appearance of cells in a spreadsheet (fill colour and border)	To change the appearance of cells and resize columns and rows.	To change the appearance of cells and resize columns and rows with speed and accuracy.
To begin to add text in a spreadsheet.	To add and align text in a spreadsheet.	To add, align, copy and paste text in a spreadsheet using shortcuts.	To add, align, copy and paste text in a spreadsheet using shortcuts with speed and accuracy.
To begin to add data to a spreadsheet.	To find and add data to a spreadsheet.	To find and add data to a spreadsheet including resizing cells.	To find and add data to a spreadsheet including resizing cells with speed and accuracy.
	To use the software to create a suitable chart with a title.	To use the software to create differing charts with a title.	To use the software to create various charts independently.

Data Handling (Year 5)			
Information Technology: Data Handling			
Year 3	Year 4	Year 5	Year 6
To change the colour of a cell.	To select, use and colour non-adjacent cells.	To change the appearance of non-adjacent cells including resizing multiple cells.	To change the appearance of non-adjacent cells including resizing multiple cells with speed and accuracy.
	To begin to copy and paste cells.	To copy and paste cells with shortcuts.	To copy and paste cells with speed and accuracy.
To begin to add text and data to a spreadsheet.	To find and add data to a spreadsheet.	To find and add data to a spreadsheet using shortcuts.	To find and add data to a spreadsheet using shortcuts with speed and accuracy.
	To use formulae to find the total and average.	To use formulae to find totals, averages and maximum/minimum numbers	To use formulae to find totals, averages and maximum/minimum numbers independently.
	To begin to search databases for	To search a database for specific	To search databases for information

	simple information.	information and begin to interpret results charts.	and interpret results charts.
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Data Detectives (Year 6)		
Information Technology: Data Handling		
Year 4	Year 5	Year 6
To begin to use spreadsheet tools (filters and conditional formatting) to find specific data.	To use spreadsheet tools (filters and conditional formatting) to find specific data.	To use spreadsheet tools (filters and conditional formatting) to find specific data with speed and accuracy.
	To begin to create data which can be filtered effectively.	To create data which can be filtered effectively and explain the reasons for this.

Mouse and Keyboard Skills (EYFS/Y1)		
Uses of IT		
EYFS	Year 1	Year 2
To begin to move the mouse or trackpad and left click to select an object. To begin to drag and drop with the mouse or trackpad to move objects around the screen. To begin to find letters or numbers on keyboard. To begin to touch typing with home row keys.	Move the mouse or trackpad and left click to select an object. Drag and drop with mouse or trackpad to move objects around the screen. Find letters or numbers on keyboard. To touch typing with home row keys.	All of Year 1 with greater speed and accuracy.

Internet Research (Year 2)			
Digital Literacy: Internet Research			
EYFS	Year 1	Year 2	Year 3
To begin to move around a website and identify its features.	To move around a website and identify its features with confidence.	To type in a URL to find a website.	To use a URL to find a multiple of websites independently.
		To add websites to favourites.	To add websites to favourites.
To begin to search a website for	To begin to search a website for	To use a search engine to find a range of	To use a search engine to find a range of

information.	information.	media.	media with speed and accuracy.
To identify some internet safety rules.	To identify some internet safety rules.	To understand a variety of rules when using a website.	To understand a variety of rules when using a website and explain the reasons for them.

Internet Research (Year 4)			
Digital Literacy: Internet Research			
Year 3	Year 4	Year 5	Year 6
To begin to use search engines to find specific pieces of information.	To begin to find specific pieces of information using keywords and filters to improve searches.	To find specific pieces of information using keywords and filters to improve searches.	To find specific pieces of information using keywords and filters to improve searches with speed and accuracy.
To identify how search results are ranked.	To identify various strategies to improve finding information from search engines.	To begin to explain various strategies to improve finding information from search engines.	To explain various strategies to improve finding information from search engines.
To begin to understand the features of an Internet Browser.	To understand the features of an Internet Browser.	To explain the features of an internet browser.	To explain the features of an internet browser
To identify that a source is where information comes from.	To begin to reference sources of information.	To reference sources of information and begin to explain differences in reliability.	To reference sources of information and explain differences in reliability with clarity and examples.
To begin to cross-reference facts.	To cross-reference facts.	To explain reasons for cross-referencing facts.	To explain reasons for cross-referencing facts with clarity and examples.

Inside a Computer (Year 4)

Digital Literacy: Internet Research			
Year 3	Year 4	Year 5	Year 6
To identify some parts inside of a computer.	To identify some parts inside of a computer and their function.	To begin to explain how the different parts inside of a computer impact performance.	To explain with clarity how the different parts inside of a computer impact performance.
To use a URL to find a multiple of websites independently.	To begin to use filters to find specific pieces of information.	To use filters to find multiple pieces of specific information.	To use filters to find multiple pieces of specific information with speed and accuracy.

Computer Networks and the Internet (Year 5)			
Digital Literacy: Internet Research			
Year 3	Year 4	Year 5	Year 6
To understand that Computer Networks are connected.	To understand what Computer Networks, Internet, Cloud Computing and Bluetooth are.	To begin to explain how Computer Networks, Internet, Cloud Computing and Bluetooth help us.	To explain how Computer Networks, Internet, Cloud Computing and Bluetooth help us with clarity and examples.
To identify what an email is.	To identify various uses of emails.	To explain how to use email safely and identify others forms of online communication.	To explain how to use various forms of online communication safely with examples (FaceTime, Skype, messages, forums etc).
To identify what online collaboration is.	To begin to identify reasons for collaborating online.	To explain how and why we collaborate online (including blogging).	To explain positive and negative aspects of online communication.

Computers: Past, Present and Future (Year 6)		
Digital Literacy: Internet Research		
Year 4	Year 5	Year 6
To identify ways in which computers and digital computers help us at school.	To identify ways in which computers and digital computers help us and our family at home.	To show an awareness of how computers and digital technology help wider society.
To identify how technology has changed.	To research and present some changes to	To research, present and offer explanations for

	technology over time.	the reasons of technological changes.
		To predict how technology will change in the future.
To identify positive and negative impacts of technological changes on society.	To explain why technological changes can be positive or negative on society.	To offer opinions on ways to improve the negative impacts technological changes on society.

Early Programming (EYFS)		
Computer Science: Programming		
EYFS	Year 1	Year 2
To recognise that people control computers.	To begin to explain the instructions needed for programmable toys to work.	To explain the instructions needed for programmable toys to work.
To explore programmable toys.		
	To begin to input a short sequence of instructions to control a device.	To input a short sequence of instructions to control a device.
	To begin to sequence directions to get a desired outcome.	To sequence directions to get a desired outcome.

Introduce Programming (Year 1)		
Computer Science: Programming		
EYFS	Year 1	Year 2
To explore ordering instructions.	To place instructions into the correct order (sequence) to make something work.	To place instructions into the correct order (sequence) to make something work with confidence and accuracy.
To explore moving objects.	To use direction arrows to move an on-screen object (character/sprite) to achieve an objective.	To use direction arrows to move an on-screen object (character/sprite) to achieve an objective with confidence and accuracy.
To begin to make predictions about routes and	To predict a route and sequence direction	To predict a route and begin to explain sequence

movements.	commands (algorithm) to achieve an objective.	direction commands (algorithm) made.
	To begin to correct the errors if necessary (debug).	To correct the errors if necessary (debug) and begin to offer explanations for actions made.
	To predict and sequence movement and pen commands to program the drawing of different 2D shapes.	To predict and sequence movement and pen commands to program the drawing of different 2D shapes with confidence and accuracy.
	To begin to sequence code blocks, including movements and execute (start program) blocks to write a program to achieve an objective.	To sequence code blocks, including movements and execute (start program) blocks to write a program to achieve an objective.

Developing Programming (Year 2)			
Computer Science: Programming			
EYFS	Year 1	Year 2	Year 3
To explore programming movements.	To begin to program movements to create a desired outcome.	To program movements to create a desired outcome.	To program movements to create a desired outcome with confidence and accuracy.
To explore programming outputs for audio or text.	To begin to program outputs for audio or text.	To program outputs for audio or text.	To program outputs for audio or text with confidence and accuracy.
To explore debugging.	To begin to find errors in a program, identifying what debugging means.	To find errors in a program, identifying what debugging means and begin to offer explanations for options for fixing.	To find errors in a program, identifying what debugging means and explain options for fixing.
	To begin to program Inputs through touch or clicking.	To program Inputs through touch or clicking.	To program Inputs through touch or clicking with confidence and accuracy.
	To begin to program selections/conditions e.g. if one sprite hits another.	To program selections/conditions e.g. if one sprite hits another.	To program selections/conditions e.g. if one sprite hits another with confidence and accuracy.
	To begin to create and debug simple programs.	To create and debug simple programs.	To create and debug simple programs with confidence and accuracy.
	To begin to predict the behaviour of simple programs.	To predict the behaviour of simple programs.	To predict the behaviour of simple programs with clear and reasoned explanations.
	To begin to simplify a program by using a loop.	To simplify a program by using a loop.	To simplify a program by using a loop with confidence and accuracy.

	To begin to use inputs in a program	To use inputs in a program	To use inputs in a program with confidence and accuracy.
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Programming with Scratch Jr (Year 2)			
Computer Science: Programming			
EYFS	Year 1	Year 2	Year 3
To explore programming movements.	To begin to program movements	To program movements	To program movements to create a desired outcome with confidence and accuracy.
To explore programming outputs for audio or text.	To begin to program outputs for audio or text.	To program outputs for audio or text	To program outputs for audio or text with confidence and accuracy.
To explore debugging.	To begin to find errors in a program.	To find errors in a program	To find errors in a program and explain fixing options.
	To begin to program Inputs through touch or clicking.	To program Inputs (touch or clicking)	To program Inputs through touch or clicking with confidence and accuracy.
	To begin to program selections/conditions e.g. if one sprite hits another.	To program selection/conditions (if one sprite hits another)	To program selections/conditions e.g. if one sprite hits another with confidence and accuracy.

Programming in Kodu (Year 3)			
Computer Science: Programming			
Year 2	Year 3	Year 4	Year 5
To explore creating 3D places	To create a 3D place using various design tools	To create a variety of 3D places.	To create a variety of 3D places with confidence and accuracy.
To explore writing programmes using inputs.	To write a program to control a character using inputs	To write a program using a variety of inputs.	To write a program using a variety of inputs with confidence and accuracy.
To explore conditions.	To write a program with conditions to	To write a program with a variety of	To write a program with a variety of

	create an if statement (If the character touches an object it will disappear)	conditions and if statements.	conditions and if statements with confidence and accuracy.
To explore using variables.	To write a program with variables (scoring system)	To write a program with multiple variables.	To write a program with multiple variables with confidence and accuracy.
To explore program operators.	To introduce program operators (equals) to achieve a score and win game.	To use multiple program operators.	To use multiple program operators with confidence and accuracy.

Programming in Scratch (Year 4)			
Computer Science: Programming			
Year 3	Year 4	Year 5	Year 6
To begin to program inputs with loops, selection and sensing for interactions.	To program inputs with loops, selection and sensing for interactions.	To program inputs with multiple loops, selection and sensing for interactions.	To program inputs with multiple loops, selection and sensing for interactions with confidence and accuracy.
To begin to work with variables and various forms of input and output.	To work with variables and various forms of input and output.	To work with a variety of variables and various forms of input and output.	To work with a variety of variables and various forms of input and output with confidence and accuracy.
To begin to debug programmes that accomplish goals.	To debug complex programs that accomplish goals.	To debug a variety of programs that accomplish goals. (correcting errors)	To debug a variety of programs that accomplish goals with confidence and accuracy.
To begin to use selection, data variables and operators.	To use selection, data variables and operators.	To use a variety of selection, data variables and operators.	To use a variety of selection, data variables and operators with confidence and accuracy.

Programming in Scratch (Year 5)			
Computer Science: Programming			
Year 3	Year 4	Year 5	Year 6
To explore inputs for control, selection and sensing for interaction, exploring	To begin inputs for control, selection and sensing for interaction, exploring	To program inputs for control, selection and sensing for interaction, exploring	To program multiple inputs for control, selection and sensing for interaction,

data variables for scoring and game timers.	data variables for scoring and game timers.	data variables for scoring and game timers.	exploring data variables for scoring and game timers.
To explore programming distance, sensing and movement.	To begin to program distance sensing and movement.	To program distance sensing and movement.	To program distance sensing and movement with speed and accuracy.
To begin to program inputs with loops, selection and sensing and variables.	To program inputs with loops, selection and sensing and variables.	To program a variety of Inputs, outputs, loops, selection, sensing and variables.	To program a variety of Inputs, outputs, loops, selection, sensing and variables with confidence and accuracy.
To explore list variables.	To program list variables.	To program a variety of list variables.	To program a variety of list variables with confidence and accuracy.

Programming in Python (Year 6)		
Computer Science: Programming		
Year 4	Year 5	Year 6
To begin to write basic python syntax.	To write basic python syntax.	To write basic python syntax with confidence.
To begin to print text in Python.	To print text in Python.	To print text in Python accurately.
To begin to use the program Python as a calculator	To use the program Python as a calculator	To use the program Python as a calculator.
To begin to program loops to repeat text.	To program loops to repeat text.	To program multiple loops to repeat text.
To begin to program interactive inputs.	To program interactive inputs.	To program a variety of interactive inputs.
To begin to find errors in a program (debugging).	To find errors in a program (debugging).	To find errors in a program (debugging) with confidence.
To begin to program a trivia chatbot using 'send message' functions.	To program a trivia chatbot using 'send message' functions.	To program a trivia chatbot using 'send message' functions with confidence.

DEEPER LEARNING QUESTIONS

	Information Technology	Computer Science	Digital Literacy
EYFS	What are you making?	Which one did you choose?	When do you use technology?
Year 1	How did you make that?	Describe what happens when your code runs.	Who can you tell if you don't like something you see online?
Year 2	How can you describe your end result?	How would you identify if your code was working?	What could happen if you told a stranger online your phone number?
Year 3	How could you improve your end result?	How would you fix a bug in your code?	What could the result be if someone told others their password?
Year 4	How would you change your end result for a different audience?	How would you explain what your code does?	Why do you think people say unkind things online?
Year 5	What are the advantages and disadvantages of the software you have used?	Predict the outcome if you swapped the order of two pieces of your code.	How do people get scammed online?
Year 6	What is your favourite software to use for this purpose? Why?	Is there any part of your code you could remove without changing how it functions?	What might you suggest if someone regrets what they have said to someone else online?

Vocabulary is taught progressively across the school, allowing the key knowledge to be built upon each academic year. Below is our vocabulary ladder with the key vocabulary taught sorted by year group.

Vocabulary Ladder						
EYFS	Y1	Y2	Y3	Y4	Y5	Y6
Mouse Trackpad Computer Keyboard Components Cursor Monitor Tools Sequence	All previously learnt as well as: Panel Scale Arrange Flip Resize Rotate Home row Algorithm Debug	All previously learnt as well as: Pixels Fill Text PNG/GIF Microprocessor Analogue Digital Execute Inputs Outputs Loops Data	All previously learnt as well as: Copy Paste Replace Edit Bullet Points Effects Sampled Sound Database Branching Database Variables Program Program Conditions Program Operators	All previously learnt as well as: Page Background Audio Recording Hyperlinks Icon Opacity Hard Drive Fan Core Processing Unit Graphics Card Random Access Memory Sensing Operators Cell Spreadsheet	All previously learnt as well as: Navigation Duplicate Layer Tracks Samplers Blogging Cloud Computing Network IP Address Email Inbox Outbox CC and BCC Formula Field Selection	All previously learnt as well as: Wordpress Static Page Sidebar Widgets Domain Name Grouping Gradient Transparency Colour Picker Arrange Binary Microchip Conditional Formatting Filter Syntax Print Range

E-Safety Skills Ladder

EYFS	KS1		KS2			
YR	Y1	Y2	Y3	Y4	Y5	Y6
Self-image and identity Exploring the differences between online and offline identity, beginning with self-awareness, shaping online identities and media influence and propagating stereotypes.						
I can recognise, online or offline, that anyone can say 'no' / 'please stop' / 'I'll tell' / 'I'll ask' to somebody who makes them feel sad, uncomfortable, embarrassed or upset.	I can recognise that there may be people online who could make someone feel sad, embarrassed or upset. If something happens that makes me feel sad, worried, uncomfortable or frightened. I can give examples of when and how to speak to an adult I can trust and how they can help.	I can explain how other people may look and act differently online and offline. I can give examples of issues online that might make someone feel sad, worried, uncomfortable or frightened; I can give examples of how they might get help.	I can explain what is meant by the term 'identify' I can explain how people can represent themselves in different ways online. I can 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.	I can explain how my online identity can be different to my offline identity. I can describe positive ways for someone to interact with others online and understand how this will positively impact on how others perceive them. I can explain that others online can pretend to be someone else, including my friends, and suggest reasons why they might do this.	I can explain how identity online can be copied, modified or altered. I can demonstrate how to make responsible choices about having an online identity, depending on context.	I can 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. I can describe issues online that could make anyone feel sad, worried, uncomfortable or frightened. I know and can give examples of how to get help, both on and offline. I can explain the importance of asking until I get the help needed.
Online Reputation - Exploring the concept of reputation and how others may use online information to make judgments.						
I can identify ways that I can put information on the Internet.	I can recognise that information can stay online and could be copied I can describe what information I should not put online without asking trusted adult first.	I can explain how information put online about someone can last for a long time. I can describe how anyone's online information can be seen by others. I know who to talk to if something has been put online without consent or it is incorrect.	I can explain how to search for information about others online. I can give examples of what anyone may or may not be willing to share about themselves online. I can explain the need to be careful before sharing anything personal. I can explain who someone can ask if they're unsure about putting something online.	I can describe how to find out information about others by searching online. I can explain ways that some of the information about anyone online could have been created, copied or shared by others.	I can search for information about an individual online and summarise the information found. I can 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 can explain the ways in which anyone can develop a positive online reputation. I can explain strategies anyone can use to protect their 'digital personality' and online reputation including degrees of anonymity.

Online Relationships						
Exploring how technology shapes communication styles and identifies strategies for positive relationships and online communities.						
I can recognise some ways in which the internet can be used to communicate. I can give examples of how I (might) use technology to communicate with people I know.	I can give examples of when I should ask permission to do something online and explain why this is important. I can use the internet with adult support to communicate with people I know (e.g. video call apps or services). I can explain why it is important to be considerate and kind to people online and to respect their choices. I can explain why things one person finds funny or sad online may not always be seen in the same way by others.	I can give examples of how someone might use technology to communicate with others they don't know offline and explain why this might be risky. (e.g. email, online gaming, a pen-pal in another school/country). I can explain who I should ask before sharing things about myself or others online. I can describe different ways to ask for, give, or deny my permission online and can identify who can help me if I am not sure. I can explain why I have the 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 do. I can identify who can help me if something happens online without my consent. I can explain how it may make others feel if I do not ask their permission or ignore their answers before sharing something about them online. I can explain why I should always ask a trusted adult before clicking 'yes', 'agree' or 'accept' online.	I can describe ways people who have similar likes and interests can get together online. I can explain what it means to 'know someone' online and why this might be different from knowing someone offline. I can explain what is meant by '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. I can explain why someone may change their mind about trusting anyone with something if they feel nervous, uncomfortable or worries. I can explain how someone's feelings can be hurt by what is said or written online. I can 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 can describe strategies for safe and fun experiences in a range of online social environments (e.g. livestreaming, gaming platforms). I can give examples of how to be respectful to others online and describe how to recognise healthy and unhealthy online behaviours. I can explain how content shared online may feel unimportant to one person by may be important to other people's thoughts, feelings and bel	I can give examples of technology-specific forms of communication (e.g. emojis, memes and GIFs). I can explain that there are some people I communicate online who may want to do me or my friends harm. I can recognise that this is not my/our fault. I can describe some of the ways people maybe involved in online communities and describe how they might collaborate constructively with others and make positive contributions. (e.g. gaming communities or social media groups). I can explain how someone can get help if they're having problems and identify when to tell a trusted adult. I can demonstrate how to support others (including those who are having difficulties) online.	I can explain how sharing something online may have a negative impact either positively or negatively. I can 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. I can describe how things shared privately online can have unintended consequences for others. E.g. screen-grabs explain that taking all sharing inappropriate images of someone (e.g. embarrassing images), even if they say it is OK, may have an impact for the sharer and others; And who can help if someone is worried about this.

- Online Bullying - Exploring bullying and other online aggression and how technology impacts those issues.						
I can describe ways that people can be unkind online. I can offer examples of how this can make others feel.	I can describe how to behave online in ways that do not upset others and give examples.	I can explain what bullying is, how people may bully others and how bullying can make someone feel. I can explain why anyone who experiences bullying is not to blame. I can talk about how anyone experiencing bullying can get help.	I can describe appropriate ways to behave towards other people online and why this is important. I can give examples of how bullying behaviour could appear online and how someone can get support.	I can recognise when someone is upset, hurt or angry online. I can describe ways people can be bullied for a range of media (e.g. Image, video, text, chat). I can explain why people need to think carefully about content they post my affect others, their feelings and how it might affect how people feel about them (their reputation).	I can recognise online bullying can be different to bullying in the physical world and can describe some of those differences. I can describe how what one person perceives as playful joking and teasing (including 'banter') might be experienced by others as bullying. I can explain how anyone can get help if they are being bullied online identify when to tell a trusted adult. I can identify a range of ways to report concerns and access support both in school and at home about online bullying. I can explain how to block abusive users. I can describe the helpline services which can help people experiencing bullying and how to access them (e.g. Childline or The Mix).	I can describe how to capture bullying content as evidence (e.g. Screen grab, URL, profile) to share with others who can help me. I can explain how someone would report online bullying in different contexts.

Managing Online Information Exploring how online information is found, viewed and interpreted.						
I can talk about how to use the Internet as a way of finding information online. I can identify devices I could use to access information on the Internet.	I can give simple examples of how to find information using digital technologies, (e.g. Search engines, voice activated searching). I know/ understand that we can encounter a range of things online including things we like and don't like as well as things which are real or make believe/ a joke. I know how to get help from a trusted adult if we see content that makes us feel sad, uncomfortable, worried or frightened.	I can use simple keywords in search engines. I can demonstrate how to navigate a simple web page to get information I need (e.g. home, forward, back buttons; links, tabs and sections). I can explain what voice activated searching is and how it might be used, and know it is not real person (e.g. Alexa, Google, Now, Siri). I can explain the difference between things that are imaginary, 'made-up' or 'make believe' and things that are 'true' or 'real'. I can explain why some information I find online may not be real or true.	I can demonstrate how to use key phrases in search engines to gather accurate information online. I can explain what autocomplete is and how to choose the best suggestion. I can explain how the Internet can be used to sell and buy things. I can explain the difference between a 'belief', an 'opinion' and a 'fact'. I can give examples of how and where they might be shared online, e.g. in videos, memes, posts, news stories etc. I think not all opinions shared may be accepted as true or fair by others (e.g. Monsters under the bed). I can describe and demonstrate how we can get help from a trusted adult if we see content that makes us feel sad, uncomfortable, worried or frightened.	I can analyse information to make a judgement about probable accuracy and I understand why it is important to make my own decisions regarding content and that my decisions are respected by others. I can describe how to search for information within a wide group of technologies and make a judgement about the probable accuracy (e.g. Social media, image sites, video sites). I can describe some of the methods used to encourage people to buy things online (e.g. Advertising offers; In app purchases, pop ups) and can recognise some of these when they appear online. I can explain why lots of people sharing the same opinions or beliefs online do not make those opinions or beliefs true. I can explain that technology can be designed to act like or impersonate living things (e.g. bots, AI) and describe what the benefits and risks might be. I can explain what is meant by fake news.	I can explain the benefits and limitations of using different types of search technologies e.g. Voice activated search engine. I can explain how some technology can limit the information I am presented with e.g. Voice activated searching giving only one result. I can explain what is meant by being sceptical; I can give examples of when and why it is important to be 'sceptical'. I can evaluate digital content and can explain how to make choices about what is trustworthy e.g. Differentiating between adverts and search results. I can explain key concepts including information, reviews, fact, opinion, belief, validity, reliability and evidence. I can identify ways the Internet can draw us to information for different agendas, e.g. Website notifications, pop-ups and targeted ads.	I can explain how search engines work and how results are selected and ranked. I can explain how to use search technologies effectively. I can describe how some online information can be opinion and can offer examples. I can explain how and why some people may present 'opinions' as 'facts'; why the popularity of an opinion or the personalities of those promoting it does not necessarily make it true, fair or perhaps even legal. I can define the terms 'influence', 'manipulation' and 'persuasion' and explain how someone might encounter these online (e.g. advertising an ad targeting and targeting for fake news). I can understand the concept of persuasive design and how it can be used to influence people's choices.

Copyright and Ownership						
- Exploring the concept of ownership of online content.						
I know that work I create belongs to me. I can name my work so that others know it belongs to me.	I can explain why work I create using technology belongs to me. I can say why it belongs to me (e.g. 'I designed it' or 'I filmed it'). I can save my work under a suitable title/ name so others know it belongs to me I understand that work created by others doesn't belong to me if I save a copy.	I can recognise that content on the Internet may belong to other people. I can describe why other people's work belongs to them.	I can explain why copying someone else's work from the Internet without permission isn't fair and can explain what problems this might cause.	When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it. I can give some simple examples of content which I must not use without permission from the owner, e.g. videos, music, images.	I can assess and justify when it is acceptable to use the work of others. I can give examples of content that is permitted to be reused and know how this content can be found online.	I can demonstrate the use of search tools to find and access online content which can be reused by others. I can demonstrate how to make references to and acknowledge sources I have used from the internet.
Health, Well-Being and Lifestyle						
- Exploring the impact that technology has on health, well-being and lifestyle e.g. Mood, sleep, body health and relationships.						
I can identify rules that help keep us safe and healthy in and beyond the home when using technology. I can give some simple examples of these rules.	I can explain rules to keep myself safe on using technology both in and beyond the home.	I can explain simple guidance for using technology in different environments and settings e.g. accessing online technologies in public spaces and the home environment. I can say how those rules/ guides can help anyone accessing online technologies.	I can explain why spending too much time using technologies can sometimes have a negative impact on anyone, e.g. Mood, sleep, body, relationship; I can give some examples of both positive and negative activities where it is easy to spend a lot of time engaged (e.g. Doing homework, games, films, videos). I can explain why some online activities have age restrictions, why it is important to follow them and know who I can talk to if others pressure me to watch or do something online that makes me feel uncomfortable (e.g. age restricted gaming or websites).	I can explain how using technology can be a distraction from other things, in both a positive and negative way. I can identify times or situations when someone may need to limit the amount of time they use technology e.g. I can suggest strategies to help with limiting this time.	I can describe ways technology can affect health and well-being both positively (e.g. mindfulness apps) and negatively. I can describe some strategies, tips or advice to promote health and well-being with regards to technology. I can recognise the benefits and risks of accessing information about health and well-being online and how we should balance this with talking to trusted adults and professionals. I can explain how and why some apps and games may request or take payment for additional content (e.g. in app purchases, lootboxes) and explain the importance of seeking permission from a trusted adult before purchasing.	I can describe common systems that regulate age-related content (e.g. PEGI, BBFC, parental warnings) and describe their purpose. I can recognise and discuss the pressures that technology can place on someone and how/ when they could manage this. I can recognise features of persuasive design and how they are used to keep users engaged (current and future use). I can assess and action different strategies to limit the impact of technology on health (e.g. Night shift mode, regular breaks, correct posture, sleep, diet and exercise).

Privacy and Security Exploring how personal online information can be used, stored, processed and shared.						
I can identify some simple examples of my personal information (e.g. Name, address, birthday, age, location). I can describe who would be trustworthy to share this information with; I can explain why they are trusted.	I can explain that passwords are used to protect information, accounts and devices. I can recognise more detailed examples of information that is personal to someone (e.g. where someone lives and goes to school, family names). I can explain why it is important to always ask a trusted adult before sharing any personal information online, belonging to myself or others.	I can explain how passwords can be used to protect information, accounts and devices. I can explain and give examples of what is meant by 'private' and 'keeping things private'. I can describe and explain some rules for keeping personal information private (e.g. creating and protecting passwords). I can explain how some people may have devices in their home connected to the Internet and give examples (e.g. lights, fridges, toys, televisions.)	I can describe simple strategies for creating and keeping passwords private. I can give reasons why someone should only share information with people they choose to and can trust. I can explain that if they are not sure or feel pressured then they should tell a trusted adult. I can describe how connected devices can collect and share anyone's information with others.	I can describe strategies for keeping personal information private, depending on context. I can explain that Internet use is never fully private and is monitored, e.g. adult supervision. I can describe how some online services may seek consent to store information about me; I know how to respond appropriately and who I can ask if I'm not sure. I know what the digital age of consent is and the impact this has on online services asking for consent.	I can explain what a strong password is and demonstrate how to create one. I can explain how many free apps or services may read and share private information (e.g. friends, contacts, likes, images, videos, voice, messages, geolocation) with others. I can explain what app permissions are and can give some examples.	I can describe effective ways people can manage passwords (e.g. storing them securely or saving them in the browser). I can explain what to do if a password is shared, lost or stolen. I can describe how and why people should keep their software and apps up to date e.g. auto updates. I can describe simple ways to increase privacy on apps and services that provide privacy settings. I can describe ways in which some online content targets people to gain money or information illegally; I can describe strategies to help me identify such content (e.g. scams, phishing).

Computing Curriculum - Cross Curricular Links and Curriculum Enrichment

Where possible, the individual subjects within our curriculum lend themselves to a variety of cross-curricular or inquiry-based tasks. This gives the children a greater purpose to their learning, making further links to the wider world and to developing the skills they are being taught.

These examples of cross-curricular links are non-exhaustive and just give an example of ways the curriculum subjects can enhance the children's learning. Teachers will use their discretion when selecting these opportunities, so as to avoid tenuous links, while making the learning purposeful and engaging.

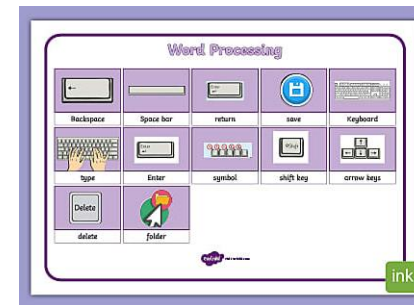
Cross Curricular Links
• Maths – collecting and presenting data (pictograms, bar charts, pie charts) • English – presenting text with a particular purpose (multimedia presentations, publishing writing, recording videos) • Science – data collection and presentation (use of data loggers) • History/Geography – researching skills, selecting relevant and reliable information • Art – photography, digital artwork • PSHE – E-Safety, online reputations and managing information

Curriculum Enrichment
• School Trips – to computing exhibitions, The Forum Gallery and BBC centre and The Centre for Computing History • Visitors – Norfolk Constabulary to discuss E-Safety, school based workshops • Whole School Projects – annual participation in Internet Safety Day, class and school displays. • After School or Lunchtime Clubs – Micro-bit Club, coding on Scratch JR, digital art

SEN

Provision for Pupils with SEN
Here are some recommendations for ways in which the computing curriculum can be adapted to meet the needs of children with SEN:

- Video presentations can have subtitles and/or audio descriptions.
- Keyboard shortcuts can be taught instead of using a mouse/trackpad.
- Sticky keys feature can be turned on to reduce the need to hold multiple buttons down.
- Increased font sizes can be used on screens.
- Writing on screens can be read aloud by a screen reader.
- Keyboard stickers can be used to enlarge the letters.
- Touch screens can be used for writing/drawing instead of typing.
- Predictive text can be used to lessen the need for typing.
- Symbol-processing software or picture communicators can take away needing to read large amounts.
- Word banks of key vocabulary can be used to support embedding of language.
- Software demonstrations can be shown in short steps to reduce amount needing to be remembered.



Hold down the
CONTROL KEY
For Windows and...

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- | | |
|----------|-----------------|
| C | → Copy |
| V | → Paste |
| X | → Cut |
| A | → Select ALL |
| R | → Refresh Page |
| L | → Highlight URL |
| F | → Find |
| S | → Save |
| P | → Print |
| T | → New Tab |
| W | → Close Tab |
| Z | → Undo |

