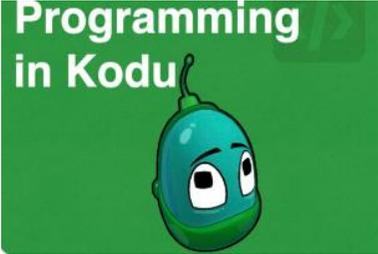


Progression of Skills and Vocabulary within the Various Strands of Computing.

Strand	Year Group and Units	Skills	Vocabulary (only new vocabulary is added each year group – vocabulary from the previous year group will be re-used).
Programming	<p>Y1 Introduce Programming</p>  <p>Main activities:</p> <ul style="list-style-type: none"> • Big Bad Wolf • Program the Robot • Code blocks (Beaver Dam) 	<ul style="list-style-type: none"> • Place instructions into the correct order (sequence) to make something work. • Use direction arrows to move an on-screen object to achieve an objective. • Predict a route and sequence direction commands (algorithms) to achieve an objective. Correct the errors if necessary (de-bug) • Predict and sequence movement and pen commands to program the drawing of different 2D shapes. • Sequence code blocks, including movements and execute (start program) blocks to write a program to achieve an objective. 	<p>sequence algorithm bug program instructions predict direction arrows turn left turn right execute debug character / sprite code blocks</p>
Programming	<p>Y2 Develop Programming</p>  <p>Main activities:</p> <ul style="list-style-type: none"> • Code Blocks (Beaver Dam) • Code Blocks (Program a Van) • Rabbit Jump Code 	<ul style="list-style-type: none"> • Create and debug simple programs by selecting code blocks, placing them in the correct sequence and executing a program. • Use logical reasoning to predict the behaviour of simple programs. • Simplify a program using a loop. • Use inputs in a program. 	<p>loop simplify repeat keyboard input touch-screen input</p>

Programming	<ul style="list-style-type: none"> • Rodocodo • Mario's Secret Adventure <p>Y2 Programming with Scratch Jnr</p>  <p>Main activities:</p> <ul style="list-style-type: none"> • Gruffalo Storyboard • Maths quiz • Space Game 	<p>In Scratch Jnr on iPads:</p> <ul style="list-style-type: none"> • Program movements • Program outputs for audio or text • Find errors in a program • Program inputs • Program selections / conditions 	<ul style="list-style-type: none"> backdrop sprite text selections conditions outcomes paint mode drag and drop
	<p>Y3 Programming in Kudo</p>  <p>Main activities:</p> <ul style="list-style-type: none"> • 3D world creation • Football Game • River Racer 	<ul style="list-style-type: none"> • Create a 3D place using various design tools • Write a program to control a character using inputs • Write a program with conditions to create an 'if statement' (if the character touches an object it will disappear) • Add a multi-player aspect • Write a program with variables • Program operators (equals) to achieve a score and win a game. 	<ul style="list-style-type: none"> 3D multiple players / multi-player scoring system if statement trails variables operators equals export save
	<p>Y4 Programming in Scratch</p>	<ul style="list-style-type: none"> • Program inputs with loops, selection and sensing for interactions. 	<ul style="list-style-type: none"> sensing goals data variables

<p style="text-align: center;">Programming</p>	 <p>Programming in Scratch</p> <p>Main activities:</p> <ul style="list-style-type: none"> • Scratch Racing Game • Scratch Rock Band • Scratch Debugging • Coral Reef Clean-up Robot Challenge 	<ul style="list-style-type: none"> • Work with variables and various forms of input and output. • Debug programs that accomplish goals. • Use selection, data variables and operators. • Program a virtual robot using Scratch blocks. 	<p>PRIMM – predict, run, investigate, modify, make controls</p>
	<p>Y5 Programming with Sphero</p>  <p>Main activities:</p> <ul style="list-style-type: none"> • Shape movements • Maze • Story Telling 	<ul style="list-style-type: none"> • Understand Bluetooth technology as an input device. • Write programs for Sphero using movement and repetition (loops) • Write a program to trace a maze / route with Sphero and debug. • Write a program with outputs • Write a program with random variables. 	<p>Bluetooth input device physical device calibrate connect programming language operating systems random variables</p>
	<p>Y6 Programming in Scratch</p>	<ul style="list-style-type: none"> • Program keyboard / touch screen inputs, selection (conditions), loops and random variables for unpredictability (operators). • Program and use inputs, selection, loops, sensing, costume changes and broadcasts. 	<p>unpredictability broadcasts</p>

	 <p>Programming in Scratch</p> <p>Main activities:</p> <ul style="list-style-type: none"> • Slalom Skiing • Space Invaders • Tennis • Paint <p>Y6 Binary Code</p> 	<ul style="list-style-type: none"> • Work with multiple Sprites to send broadcast messages between them. <p>(KS3 Skills)</p> <ul style="list-style-type: none"> • Understand why computers / electronics use binary. • Match a sequence of binary code to create digital art. • Convert binary code to denary numbers (decimal numbers) and visa versa. 	<p>binary code language position</p>
Strand	Year Group and Units	Skills	Vocabulary (only new vocabulary is added each year group – vocabulary from the previous year group will be re-used).
E-Safety	<p>Y1 E-Safety</p> 	<ul style="list-style-type: none"> • Understand what the internet is and how people use it. • Understand what personal information is and why we keep personal information private. • Understand why websites want personal information. 	<p>internet website personal information nickname private online post friend (online)</p>

	<p>Main activities:</p> <ul style="list-style-type: none"> • Hector’s World videos • Lee and Kim video – ‘Funny in your tummy’ song 	<ul style="list-style-type: none"> • Identify when and where to go for help when concerned. 	
	<p>Y2 E-Safety</p>  <p>Main activities:</p> <ul style="list-style-type: none"> • Lee and Kim video – ‘Funny in your tummy’ song • Jessie and Friends videos • Make power point to show things to remember when using internet. 	<ul style="list-style-type: none"> • Understand the dangers of sharing photos online. • Understand that people online are not always who they say they are. • Explore how/ why we cannot always trust information that we see online. • Understand how to use the internet responsibly. • Understand how to be respectful online. 	<p>online sharing profile appropriate block report inappropriate polite</p>
	<p>Y3 E-Safety</p>  <p>Main activities:</p>	<ul style="list-style-type: none"> • Understand what to do if something upsets you online. • Understand why and how people can be nasty online. • Describe the term ‘sharing online’ and why we need to get permission to share photos and videos of other people. • Understand why people pretend to be someone else online. 	<p>permission identity make public trust</p>

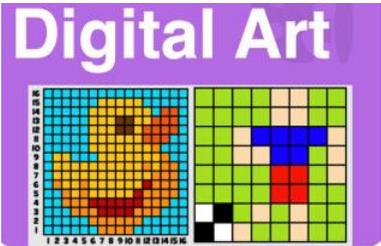
	<ul style="list-style-type: none"> • Band runner videos and scenarios • Band Runner game 		
	<p>Y4 E-Safety</p>  <p>Main activities:</p> <ul style="list-style-type: none"> • Interland activities: Kindness Kingdom, Mindful Mountain and Tower of Treasure. • Avatar video and making task 	<ul style="list-style-type: none"> • Understand the importance of being kind in the real world and also online. • Understand why we should not always trust what we read online and how to check. • Understand how to protect digital content with a strong password. • Understand the importance of using avatars and how to make them. 	<p>respect protect content password strong password avatar online profile</p>
	<p>Y5 E-Safety</p> 	<ul style="list-style-type: none"> • Know how to keep personal information private. • Respect and protect against online bullies • Understand the consequences of sharing photos / videos online. • Understand the term digital footprint. 	<p>privacy cyber-bullying trolling digital footprint report</p>

	<p>Main activities:</p> <ul style="list-style-type: none"> • Jigsaw Video • Online Safety Quiz • Poster making 		
	<p>Y6 E-Safety</p>  <p>E-safety KNOW</p> <p>Main activities:</p> <ul style="list-style-type: none"> • Caught in the Web video and discussion. • Trusting the internet work-pack, linked to internet research. • In-app purchasing video. 	<ul style="list-style-type: none"> • Know how we can check if online content is trustworthy. • Know how, where and to whom we can report concerns if we have to. • Understand the pitfalls of in-app purchases. • Understand how and why companies / people track our online behaviour and how we can prevent this. 	<p>fake news in-app purchases online content track</p>

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Data Handling	<p>Y2 Introduction to Data Handling</p>  <p>Main activities:</p> <ul style="list-style-type: none"> Physical data collection and tally chart. Use 'Junior Infant Tools Pictogram' and 'Junior Infant tools Chart' websites to create charts with different data (link with Geography). 	<ul style="list-style-type: none"> Understand what data is and collect it as a tally. Use software to label a pictogram and add data to each column. Edit a table with correct titles and numbers. Use software to create a bar chart / pie chart / line graph suitable for the data. Interpret a pictogram / bar chart / line chart. 	<p>data collection compare bar chart tally line graph pie chart table title edit column row axis</p>
	<p>Y3 Branching Database</p>  <p>Main activities:</p> <ul style="list-style-type: none"> Use 'Junior Infant Tools Branch' website to make branching databases. 	<ul style="list-style-type: none"> Add and label objects within a branching database. As questions to sort (classify) objects. 	<p>database label classify group sort yes / no questions</p>

	<p>Y4 Data Handling</p>  <p>Main activities:</p> <ul style="list-style-type: none"> • Battleship Game and Multiplication Games on spreadsheets. • Internet Research unit task 1 on mini beasts. • Use of Excel on computers or Numbers on iPad to create spreadsheets and charts using the data. 	<ul style="list-style-type: none"> • Change appearance of cells in a spreadsheet (fill colour and border) then add and align text. • Find and add data to a spreadsheet, resize cells and use the software to create a suitable chart with a title. 	<p>spreadsheet cell resize organise border align format text</p>
	<p>Y5 Data Handling</p>  <p>Main activities:</p> <ul style="list-style-type: none"> • Pixel Art on Spreadsheet (using Excel on computers) • Tour de France data project on Excel. • Use 'J2Data' website to practice searching for data on a database. 	<ul style="list-style-type: none"> • Select and use non-adjacent cells in a spreadsheet. Resize multiple cell widths and copy / paste cells. • Use formulae on spreadsheets to find totals, averages and maximum / minimum numbers. • Find data and create a spreadsheet to suit it. • Search a database for specific information. 	<p>non-adjacent resize formula average record field sort search</p>

	<p>Y6 Data Detectives</p>  <p>Main activities:</p> <ul style="list-style-type: none"> • Use Excel spreadsheets to solve crimes using formatting and filtering of information. 	<ul style="list-style-type: none"> • Use comprehension skills to find clues that match the column headings of a spreadsheet. • Use spreadsheet tools (filters and conditional formatting) to find the specific data to match the clues. 	<p>filter conditional formatting relevant</p>
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<p>Digital Art and Design</p>	<p>Y1 Digital Art</p>  <p>Main activities:</p> <ul style="list-style-type: none"> Pixel mosaics: animals, game characters and cartoons on 'digipuzzle/mosaics' grids. Colour by numbers and Pixel painter activities. <p>Y1 3D Design</p>  <p>Main activities:</p> <ul style="list-style-type: none"> Use the online games to design an animal shelter; treehouse; city and robot. 	<ul style="list-style-type: none"> Change the colour of individual pixels to accurately recreate basic and more detailed artwork. Edit and make changes where required. Use custom colours to make digital art of your own. Use zoom controls to help fill small shapes. <ul style="list-style-type: none"> Change the colour and pattern of elements. Position and rotate objects on a design. Position objects in relation to each other. Resize, rotate, flip and arrange objects behind / in front of each other. 	<p>Digital art pixels grid fill check click tap custom colour zoom</p> <p>3D 2D resize rotate arrange flip edit add choose CAD (computer aided design)</p>

Digital Art and Design

Y2 Digital Art



Main activities:

- Use PixilArt website to set up grids using lines and use fill tools to create art in style of Mondrian; and grids for cartoon graphics.
- Use Paintz website to develop graphics by combining shapes.

Y2 Introduction to Animation



Main activities:

- Add and move objects in Junior Infant Tools Animate website
- Add backgrounds and text using ACDya Make an Animation website.
- Stop motion animation on iPad app 'I can animate'.

- Use lines and fill tools to make interesting patterns and mimic an artist's style (Mondrian).
- Add a variety of shapes (outlines and fill) and label them with text.
- Re-create graphics using pixels with different colours.

lines
fill tools
patterns
outline
text
graphic
PNG file
undo
redo
label

- Add a background and objects to a frame (including text)
- Copy/ clone a frame and move objects to create an animation, including flipping objects.
- Create an animation with several objects moving simultaneously.
- Create stop-motion animation with photos.
- Create animated drawings of characters by cropping photos and adjusting points of movement.

frame
clone
background
object
animate
copy / duplicate
flip
onion skin
frame rate
crop
paste

	<p>Y3 Digital Art</p>  <p>Main activities:</p> <ul style="list-style-type: none"> • Making wallpaper • Landscape reflections • Computer game graphics <p>All on PixilArt website.</p>	<ul style="list-style-type: none"> • Use various lines and fill tools plus copy / paste and rotation to create pattern effects. • Use shapes, fill, copy / paste, zoom and flip to create reflective symmetry effects. • Use stamps, copy / paste, layers and multiple frames to create animated GIF computer game graphics. 	<p>rotation zoom symmetry GIF Stamps layers animation</p>
<p>Digital Art and Design</p>	<p>Y4 Animation</p>  <p>Main activities:</p> <ul style="list-style-type: none"> • Create stop motion animations in key note or Power Point. <p>Y4 3D Design</p>	<ul style="list-style-type: none"> • Create a stop-motion video by duplicating slides that include backgrounds and shapes. • Create animation using transition and animation effects (morph, motion paths, pulse etc), including taking and editing a screenshot. • Animate individual elements of objects. • Create animated GIF files by animating pixels. 	<p>timeline transition stop-motion clone morph motion path pulse transition</p>

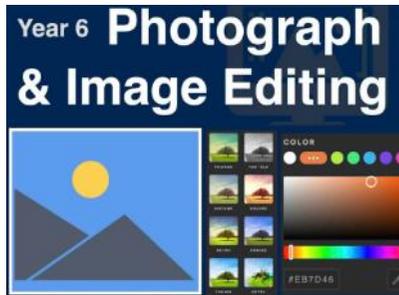


Main activities:
Use the 'TinkerCAD' website to design and make a 3D village from different shapes.

- Understand 3D spatial awareness.
- Add 3D shapes, resize, adjust height, duplicate and use the different perspective.
- Re-create different types of buildings using 3D shapes.
- Create roads/paths by adjusting the height of 3D shapes.
- Add windows and door shapes.

work-plane
mode
grid
perspective mode
orthographic mode
faces
duplicate

Y6 Image Editing



Main activities:
Use Pixlr X Website to manipulate and edit images to produce different effects.

- Adjust the colours, brightness and contrast to improve a photo.
- Create a before and after slide in presentation software.
- Take and crop a screenshot.
- Add drawing and text layers.
- Import new images as layers and resize them to fit.
- Add colour elements to a black and white photo using layers and eraser tools.
- Use Artificial Intelligence to remove objects from photographs.

filters
crop
aspect ratio
blur
grain
colour editing
light editing
saturation
brightness
contrast
vibrance
exposure
tint

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Document Creation	<p>Y1 Text and Images</p>  <p>Main activities:</p> <ul style="list-style-type: none"> • Find and label pictures using a word bank to help • Write simple sentences about pictures using word banks to help. 	<ul style="list-style-type: none"> • Change the background colour of a page. • Add, resize and position images (pictures) on a page. • Type and position text on a page, if possible using capital letters and punctuation. • Label pictures with text. • Use word-banks for writing sentences about pictures. 	<p>icon text icon drag delete undo sticker text box image word-bank</p>
Document Creation	<p>Y3 Comic Creation</p>  <p>Main activities:</p> <ul style="list-style-type: none"> • Create a story board for a comic. 	<ul style="list-style-type: none"> • Add, resize and organise colour or picture backgrounds. • Add, resize, organise characters/objects to different panels. • Add narration using text and direct speech using speech bubbles. • Save comic with name and title. 	<p>panel story-board narration scenes stickers scale arrange flip speech bubbles</p>

	<ul style="list-style-type: none"> Use the 'Make Belief Comix' website to create a comic digitally. 		
	<p>Y4: E-Book Creation</p>  <p>Year 4 Ebook Creation</p> <p>Main activities:</p> <ul style="list-style-type: none"> Use 'Book Creator' to make a book review of a favourite book. 	<ul style="list-style-type: none"> Choose a suitable page shape and add a title and subtitle. Change the background colour/texture of a page. Add, resize and change the colour of a shape then copy and paste it. Search for and add suitable images then resize and position them. Create another page with a background, image, shapes and text. Add an audio recording of the page text. Use hyperlinks for navigation between the pages. 	<p>page shape content inspector hyperlinks preview format</p>
	<p>Y6: Web Design</p>  <p>Year 6 Web Design</p> <p>Main activities:</p> <ul style="list-style-type: none"> Research information about a state of the USA and create a webpage to share information about it. 	<ul style="list-style-type: none"> Create a static homepage. Choose a suitable theme for your website. Change the site identity to a suitable title, tagline and website icon. Upload a suitable header and/or background image. Adjust the website sidebar and add suitable widgets. Add text and images to a page and edit them. Add multiple pages and edit the navigation, including sub-menus. Provide constructive feedback for your classmates' websites. 	<p>Wordpress static page theme header sidebar widgets navigation domain name</p>

