Knowledge Progression
Year 1 Computing

	Computational Thinking	Computers & Hardware	Digital Literacy & eSafety
Key Vocabulary	Algorithm, Instructions, Computer, Tasks, Order, Specific, Solution, Directions, Bug, De-Bug, Code, Predict, Explore, Explain, Sequence, BeeBot, Judge, Chunks, Pause, Decompose, Control.	Log in, Log off, Computer, Mouse, Mouse pointer, Click, Keyboard, Screen, Software, Button, Tablet, Camera, Input, Output, Search engine, Right click, Left click, Drag, Undo, Control, Brushes, Fill, Outline, Bring to front, Programming, Edit, Sensor, Motion, Photo, Delete, Image, Digital.	Password, Account, Data, Inputting, Cells, Measure, Distance, Pictogram, Pictures, Label, Resize, Values, Charts, Experiment, Table Pie chart, Bar chart, Block graph, Spreadsheet, Photo editing, Visual effects, Crop, Filter, Import, Online, Keyword, Search engine, Image, Save as, Internet, Edit, Technology, Username, Distance, Designing document, Branching diagram, Data collection.
Previous knowledge/ Learning	In EYFS, our pupils learnt to: ➢ Use, 'paint' on the whiteboard. ➢ Drive a remote-control car.	In EYFS, our pupils learnt to: ➢ Use a variety of mobile devices and equipment during outdoor and indoor provision. ➢ Recognise that technology is used in places such as the home and schools, and select technology for specific purposes. ➢ Familiarise themselves with touch screen tablets as well as a mouse and keyboard.	In EYFS, our pupils learnt to: ➢ Explore how information can be retrieved from a computer search ➢ Interact with age-appropriate computer software safely
N.C. Objectives	➢ 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.	➢ 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. ➢ Use technology purposefully to source and manipulate digital content.
Resources	Selection of reading books for sorting 2D shapes for drawing around Dressing up clothes and accessories e.g. scarves and hats Selection of small animals and toys - the children can bring these in from home Digital cameras/tablets Laptops or desktop computers Counting data e.g. lolly sticks, cubes etc. Paper Colouring pencils Tablet or digital camera Laptops or desktop computers	Paper and pencils Coloured shapes Mirrors or photography software on class computers Laptops or desktop computers Bee-bots or Blue-bots Building blocks Digital recording devices to record visuals and sound Several coloured cones Whiteboards and pens Dice Clipboards Computers, laptops or tablets	Sturdy paper or firm card Coloured paper Cardboard boxes Card Plastic bottles Tape Foil Sequins Tissue paper Plastic packaging Felt tips Trundle wheels or metre sticks

Cycle 1:	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Kapow:	Getting Started	Programming	Algorithms Unplugged	Digital Literacy	Introduction to Data	Rockets to the Moon

Powerful Knowledge
Year 1 Computing

Key Knowledge – what do we want our children to know before they leave our phase? How will we get them there? How is that personalised to Tranmere?

Computational Thinking	Computers & Hardware	Digital Literacy & eSafety
POWERFUL KNOWLEDGE: Our children will: *C1* - Tinker with technology by: ➢ Thinking about what it might do first ('predicting'). ➢ Trying it out ('exploring'). ➢ Seeing if they were right ('explaining'). ➢ Can fix errors (debug it) and explain the problem it caused. *C2* - Use programming to give clear instructions. ➢ Debug instructions and directions if they go wrong by identifying and correcting the mistake. ➢ Explain that an algorithm is a clear set of instructions to carry out a task. ➢ Know that these instructions need to be carried out in a specific order. ➢ Know that algorithms are used by computers to help them carry out tasks correctly. ➢ Show how there can be more than one solution to solve a problem. *C3* - Explain that decomposition is where you break a problem into smaller manageable chunks. *C4* - Know that sequencing is important (rocket designs) in Computing. **HOW DOES THIS LOOK AT TRANMERE?** 1. Pupils explore and tinker with Bee-Bot devices and human bots, predicting what they might do, trying out the buttons (forward, go, left, right) and explaining the outcome. Undertake this using the Bridges and 3 Little Pig activities. 2. Pupils write an algorithm to dress a doll and share it with partners, intending to write such explicit instructions that the end result is the same. The lesson will begin by studying Phil Bagge's jam sandwich activity and debugging a drawing lesson. 3. Pupils create shape pictures using decomposition to explain how to break-down the task into smaller chunks – leading to creating a comic strip. 4. Taking inspiration from picture books, children design their own stories using photos and sequencing skills within their stories, helping lay the foundations of computational thinking. 5. The children will debug directions using lesson 5 in the algorithm unplugged session.	**POWERFUL KNOWLEDGE:** Our children will: *C5* - Recognise what we mean by a computer. ➢ Navigate a computer using a mouse. ➢ Type using a keyboard and understand what we mean by drag, drop and click (left/right). *C6* - Identify input and output devices and recognise that some can be both. *C7* - Use a variety of different digital painting tools to create different effects. ➢ Use different tools such as: brush, stamp, fill, clip art, undo, duplicate and outline, tools to create a desired effect. ➢ Check their surroundings for good conditions (light, stability etc.). ➢ Crop, bring to front, resize and add a colour filter to photos. **HOW DOES THIS LOOK AT TRANMERE?** 1. Pupils are introduced to using computers more purposefully, learning how to login and navigate around a computer, develop their mouse skills, learn how to drag, drop, click (right and left) and control their cursor to create works of art inspired by Kandinsky and self-portraits. 2. By acting like Alexa, Siri or another virtual assistant, pupils develop their understanding of inputs and outputs. 3. Pupils use their creativity and imagination to plan a miniature adventure story and capture it using their developing photography skills. They learn to enhance their photos using a range of editing tools (cropping) as well as searching for and adding other images to their project, resulting in a high-quality photo collage showcase.	**POWERFUL KNOWLEDGE:** Our children will: *C8* - Log in and log out of an account on school computers. ➢ Know images can be found online. ➢ Think of keywords that reflect a key part of the image that is being searched for. ➢ Identify different types of digital content (words and pictures) ➢ Know how to download images by using 'right click; save as' or dragging to desktop. ➢ Create a digital image using a graphics editor. ➢ Save digital images to the correct folder. *C9* - Know what to do if they find something uncomfortable. *C10* - Represent data in different ways. ➢ Answer questions about data. ➢ Create a branching database. ➢ Explain how a list made on a computer can be saved and shared more easily. ➢ Can open a spreadsheet and input data into cells. **HOW DOES THIS LOOK AT TRANMERE?** 1. Pupils log in and tinker with the website Sketchpad and create digital prints, developing their mouse skills, learning to fill, drag and drop, duplicate and outline. 2. Pupils learn how to edit photos and know that images online can be edited and may not be real. 3. Pupils collect and collate data about minibeasts (Excel). 4. Pupils build (debugging their instructions) and launch rocket, collecting (designing and creating lists on word) and collating data about the distance travelled (Excel). 5. Pupils are introduced to the word 'data' through an animal themed activity that involves identifying the number of animals at a zoo and developing visual ways to represent the numbers (pictograms/charts). 6. An animal guess who game will be created using branching databases.