ICT Statement of Intent:

At the Carrdyke Federation our ICT curriculum will enable children to:
- Be literate with the functions of a laptop
- Be safe online, keeping themselves and their data safe especially while using social media.
- Be able to use ICT creatively through digital art, presentation of information, creating digital content.
- Understand that ICT is embedded in daily life
- To be able to think logically and understand the computational processes involved in tasks.

Implementation:

The ICT curriculum we provide is engaging, familiarising the children with ICT both on and off of the computer. We follow the Kapow curriculum that covers the National Curriculum subject content through termly units. The Kapow curriculum gives staff access to high quality planning, lesson slides, CPD Teaching resources and lesson activity resources that often link across subjects. Our teachers can then adapt the planning to suit their current cohort as Kapow offers ideas for differentiation. Kapow's comprehensive approach to the lesson planning provides staff with knowledge support should they need it.

The Kapow planning gives children a variety of ICT based learning activities from a broad range of starting points however the main strands that run through are:
- Digital Literacy and Online Safety
- Computational Thinking
- Computers and Hardware.

In each Key Stage these three strands are interwoven allowing children to focus on the different aspects of computing giving them a breadth of knowledge from EYFS. Children are exposed early to digital literacy and logical reasoning before moving onto more abstract concepts like decomposition of a laptop (Year 3) and binary code (Year 5).

ICT is taught weekly to mixed aged classes who follow a two-year rolling program as set out in the curriculum plan. Online safety is a crucial strand through our ICT and we aim for pupils to understand the risks associated with online search engines, data tracking and their online choices. Through Kapow's Online Safety strand, children are exposed to the idea of responsible surfing online continuing through to considering online judgements and their effects on others' mental wellbeing in Year 5.

EYFS

The children will learn new skills, knowledge and attitudes in the seven areas of the EYFS Framework. Their learning and development within these seven areas will be nurtured and challenged in the following ways.
- Continuous provision that stimulates investigation and questioning through an enabling environment.
- Child-initiated play where children can select resources for their own learning.
- Adult modelling provides a framework for role-play and activities the children can then recreate and develop independently.

Adult led activities which will focus on direct teaching and guided learning.

Subject Knowledge
Process Knowledge or key skills

EYFS	Term 1/2	Term 3/4	Term 5/6
	Unit 1: Exploring Hardware	Unit 2: Programming Bee-Bots Unit3: All About Instructions	Unit 4: Introduction to Data Unit 5 : Using a Computer

	To know what technology is available to them. To know how technology is used at home (who,what,why) Know how technology is used at school. Know what a keyboard is Know what a mouse is Take photos with a digital camera		Know directional arrows Know that an algorithm is a set of instructions to carry out a task, in a specific order Following instructions as part of practical activities and games and learning to debug when things go wrong. Learning to give simple instructions. Experimenting with programming a Bee-bot/Bluebot and learning how to give simple commands		To know that data is information To know that data is sorted for variety of reasons Representing data through pictograms Representing data through sorting and categorising objects in unplugged scenarios Exploring branch databases through physical games	
Class 2 Year A	Programming 2: Bee-Bots	Computing systems and networks: Improving mouse skills	Computing systems and networks 1: What is a computer?	Programming 2: ScratchJr	Creating media: Digital imagery	Data handling: International Space Station
	Bee-Bot – locating the buttons, battery compartment, on/off switch, wheels and speaker Understanding Bee-Bot instructions and button functions – move forwards/backwards, turn left/right, clear, pause, go Learning how to explore and tinker with hardware to find out how it works. Constructing a series of instructions into a simple algorithm. Applying computing concepts to real world situation in an unplugged activity.	Keyboard skills – locating the letters of individual names Computer menus - file, open, save, close Using a mouse – click and drag, drag and drop, left/right click, mouse mat Recognising common uses of information technology. Logging in and saving work on their own account. Knowing what to do if they have concerns about content or contact online. Understanding of how to create digital art using an online paint tool. Learning to locate where keys are on the keyboard. Developing basic mouse skills.	Different types of technology – cameras, phones, torches, microwave, alarm clock, remote control Inputs e.g. keyboard, mouse Outputs e.g. monitor, speakers, printers Learning about inputs and outputs and how they are used in algorithms. Understanding what a computer is and the role of individual components.	Coding – Scratch Jr, code blocks, algorithms, sprites/speeds, repeat and loop control blocks, start/finish, direction Blocks – triggering, motion, looks, sound, end, control Creating and debugging simple programs. Using logical reasoning to predict the behaviour of simple programs. Understanding what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. Using technology purposefully to create, organise, store, manipulate and retrieve digital content.	How sequences work Camera types and basic photography techniques Tell a trusted adult about any online safety concerns Using technology purposefully to create, organise, store, manipulate and retrieve digital content. Knowing what to do if they have concerns about content or contact online. Using cameras or tablets to take photos. Using logical reasoning to predict the behaviour of simple programs.	International Space Station – Node 1,2,3, Zvezda, Zarya, Destiny, Columbus, Kibo, survival items, growing plants in space Using technology to create and label images and to put data into a spreadsheet. Consider inputs and outputs to understand how sensors work
Class 2 Year B	Kapow Year 1 – Algorithms unplugged Algorithms in real life	Kapow Year 2- Algorithms and debugging Programming: Plugged in and unplugged	Kapow Year 1 – Rocket to the moon Keyboard skills, sequencing and debugging in a rocket project	Kapow Year 2 – Word Processing Touch typing and staying safe online	Kapow Year 1 – Introduction to data Gathering and recording animal data	Kapow Year 2 – Stop motion Storyboarding then creating simple animations
	Planning and execution of an algorithm/set of instructions for a simple activity Basic debugging concepts	Zooming in and out of maps on Planet Earth Unplugged algorithms and instructional writing Abstraction/key information	Computer files and formats – .jpegs, .txt, folders Using a computer to make a list/drawing and saving the document to a folder How to make a bottle rocket	Word processing – fonts, bold, italics, underline, highlight Keyboard skills – delete, enter, spacebar E-books and e-documents	How branching databases work Other ways of collecting data – tally chart, bar graph, line graph, pictogram	Animations – how still images become moving images Use of animation software Sketching and planning

	Decomposition – how to breakdown objects into separate parts and categorise them **Understanding how to create algorithms.** **Learning that computers need information to be presented in a simple and clear way.** **Understanding how to break a computational thinking problem into smaller parts in order to solve it.**	**Decomposition/smaller chunks** **Creating and debugging simple programs.** **Using logical reasoning to predict the behaviour of simple programs.** **Understanding what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.**	**Using technology purposefully to create, organise, store, manipulate and retrieve digital content.** **Selecting software appropriately.**	**Using word processing software to type and reformat text.** **Understanding the importance of staying safe online.**	**Using technology purposefully to create, organise, store, manipulate and retrieve digital content.** **Selecting software appropriately.** **Recognising uses of technology beyond school.**	**Using technology purposefully to create, organise, store, manipulate and retrieve digital content.** **Understanding how to use tablets or computers to take photos**
Class 3 Year A	Emailing Y3	Collaborative Learning Y4	Programming – Scratch Y3		Journey Inside Computer Y3	Investigating Weather Y4
	Keyboard skills - @ symbol **Email compose windows – addresses, subjects** **Be careful with unexpected emails** **Learn about cyberbullying and fake emails.** **Understanding the purpose of emails**	**Collaborative online documents Presentation skills** **Selecting using and combining a variety of software to design and create a range of programs, systems and content that accomplish given goals.** **Understanding opportunities offered by the World Wide Web for communication and collaboration.**	**Scratch coding blocks – motion, sound, looks, events, control, operators, sensing, variables, my blocks Scratch sprites** **Using logical reasoning to explain how simple algorithms work.** **Designing, writing and debugging programs that accomplish specific goals, including controlling or simulating physical systems.** **Solving problems by decomposing them into smaller parts.** **Using sequence, selection and repetition in programs.** **Working with variables and various forms of input and output.**		**Computer parts – CPU, GPU, RAM, HDD QR Codes and how to use them Other portable electronic devices** **Understanding what different components of a computer do.** **Understanding that programs execute by following precise and unambiguous instructions.**	**Weather station – sensors, anemometer, probes, data recording, solar panel, rain gauge Weather satellites – altimeter, GPS, solar array, data transmission Green screen – how a subject can placed in a different background (chroma key)** **Understanding why some sources are more trustworthy than others.** **Understanding the role of inputs and outputs in computerised devices.**
Class 3 Year B	Networks and the internet Y3	Top Trumps databases Y3	Programming – Scratch Y4		Online Safety Y3	Website Design Y4
	Network maps – house, router, ISP, smart phones, web server, cables Internet uses – communication, file sharing, websites, uploading/downloading, streaming media, games **Identifying network components and understand how they are used to connect to the internet and how data is transferred.** **Understanding computer networks, including the internet; how they can provide multiple services, such as the**	**Identifying and reading databases Understanding bar graphs and pie charts** **Using technology purposefully to create, organise, store, manipulate and retrieve data.**	**Scratch coding blocks – motion, sound, looks, events, control, operators, sensing, variables, my blocks Scratch sprites** **Using logical reasoning to explain how simple algorithms work.** **Designing, writing and debugging programs that accomplish specific goals, including controlling or simulating physical systems.** **Solving problems by decomposing them into smaller parts.** **Using sequence, selection and repetition in programs.** **Working with variables and various forms of input and output.**		**Know the steps to take when faced with upsetting online content.** **Know the difference between fact, opinion and belief.** **Know age restrictions for popular online platforms** **Learn to distinguish between facts, opinions and beliefs on the internet.** **Learn how to deal with upsetting online content.** **Learn about how to protect our personal information using privacy settings and how to be discerning about what**	**Websites – making a new site, building a new page, add text boxes, inserting files, changing themes, embedding links** **Selecting using and combining a variety of software to design and create a range of programs, systems and content that accomplish given goals.** **Understanding opportunities offered by the World Wide Web for communication and collaboration.**

	World Wide Web, and the opportunities they offer for communication and collaboration.				information we share and who with	
Class 4 Year A	KAPOW Online Safety	Search Engines	KAPOW Micro:bit	Sonic Pi	KAPOW Mars Rover 1	Mars Rover 2
	Forms of online communication- memes, gifs, emojis The importance of creating strong passwords Online bullying- what it is and what to do about it. Understanding permissions required by apps to access personal information. Considering online judgements that people make and how they treat others online.	Search Engines – search bar, company logo, hyperlink, keywords, fake news Recognising that information on the internet might not be true or correct. Know how to use keywords to quickly find accurate information.	BBC Micro:bit – front and back features that can be included as part of an algorithm Code blocks key – basic, input, music, LED, radio, loops, logic, variables, math(s) Using block coding to program a device. To explore variables and different forms of input. Understand how external devices can be programmed by a separate computer.		Mars Rover – distance and time travelled Binary numbers and equivalent decimal values Understanding 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. Using search technologies effectively, appreciating how results are selected and ranked, and be discerning in evaluating digital content. Recognising that computers transfer data in binary and understand simple binary addition.	Digital Images – a series of programmed pixels RGB colour mode – produces a spectrum of colours Developing their CAD skills. Understanding how image data is transferred
Class 4 Year B	KAPOW Bletchley Park 1		KAPOW Intro to Python	Big DATA 1	Big DATA 2	Skills Showcase
	Demographic and amount of workers, The Colossus, encrypted messages, date shift cypher, first electronic programmable computer Understanding the importance of secure passwords and using searching and word processing skills to create a presentation. Using programming software to understand hacking, relating this to computer cracking codes in WWII.		Python code – indentation, variable, loop Teaches computers to think for themselves - AI Algorithm – making a cup of tea Understanding that websites can be altered by exploring the code beneath the site. Designing, writing and debugging programs that accomplish specific goals Solving problems by decomposing them into smaller parts.	Infrared light, barcodes – how they work and their uses Understanding how learning can be applied to a real world context. Selecting, using and combining a variety of software to design and create a range of programs, systems and content to collect, analyse, evaluate and present data. Understanding that computer networks provide multiple services Understanding how barcodes and QR codes work.	Wireless data transfer – barcodes, QR codes, NFC, Bluetooth, RFID What 100MB looks like – real life examples (e.g. one 30 minute TV show) Selecting, using and combining a variety of software to design and create a range of programs, systems and content to collect, analyse, evaluate and present data.	Showcasing their digital literacy skills. Demonstrating their computational thinking skills by designing and debugging programs, using different inputs and outputs. Understanding how search engines work and knowing how to use them safely and effectively.