Computing: progression document

Nursery	Reception	
Knowledge and Skills	**Knowledge and Skills**	
Vocabulary First, next, instruction, rule, turn, stop, go, forwards, backward, repeat, pattern, same, different, again **Knowledge/ Skills** **Algorithms and programming** • Extends and create ABAB patterns – stick, leaf, stick, leaf. • Follow 1-2 step instructions • Gives simples instructions • Predicts what comes next • Notice and correct an error in a repeating pattern (debugging). • Respond to and ask "I wonder..." questions **Information Technology** • Know how to operate simple equipment and toys with knobs, pullies etc. • Children can switch devices on & off • Navigate familiar apps on smartboard **Digital Literacy** • Uses ICT hardware to interact with age-appropriate computer software • Completes a simple program on electronic devices **Online Safety** • Children know that being on screen al the time can mean they miss out on other things • Children can talk about different things to do when not on screen	**Vocabulary** Sequencing/directional words (first, next, last, before, after, left, right, up, down etc), because, why, try, fix, change, improve, sort **Knowledge/ Skills** **Algorithms and programming** • Follow 3 + step instructions • Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...' (this later becomes an algorithm) • Programmes movement using Beebots or role play • follow and create sets of instructions for a planned outcome, test and debug • Solve a practical problem through trial and improvement • Ask questions about the best way to solve a problem **Information Technology** • To make toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images • Describe some of the ways in which ICT might be used in day-to-day family life. • Select, open and navigate familiar apps **Digital Literacy** • Can create content such as a video recording, stories, and/or draw a picture on screen • Independently use classroom technology purposefully during independent learning time. **Online Safety** • Children understand that we need to be safe online • Children understand that we should not buy things online before checking with a trusted adult • discuss why we need to be open and honest with trusted adults explain that we should never arrange to meet someone we have met online	

Year 1	Year 2	Year 3
Knowledge and Skills	**Knowledge and Skills**	**Knowledge and Skills**
Vocabulary Instruction, algorithm, program, debug, click, drag, save, search, personal information, private, safety, sort, group **Knowledge/ Skills** **Algorithms and programming** • Children can give a set of instructions orally • Children can use symbols to represent actions (e.g. forward, backwards, left, right) • Children can give instructions to make a programmable toy move • "Troubleshoot" a set of flawed instructions using a logical approach **Information Technology** • Children can decide how to sort and group objects to answer a question • Children can compare groups of objects using given criteria **Digital Literacy** • Children can click and drag with a mouse or trackpad. • Children can launch an application by double clicking it • Children can use art software to create images **Online Safety** • Children understand the meaning of personal information • Children know to speak to an adult if they are unsure/upset about something they see online	**Vocabulary** Algorithm, debug, tinker, precise, software, images, edit, content, pictogram **Knowledge/ Skills** **Algorithms and programming** • Children understand the need for precise instructions. • Break down an algorithm into smaller parts to refine it • Children know how to program a Beebot and debug errors in their algorithms • Children can make predictions using logical reasoning. **Information Technology** • Children can enter data onto a computer • Children can use a computer program to present information in different ways • Children can use pictograms to answer simple questions **Digital Literacy** • Children can use software to edit photographs. • Children can use technology to create, store, manipulate, and retrieve digital music content • Children can use search engines to locate specific information. **Online Safety** • Children can identify uses of technology both inside and outside of school. • Children know and understand the school online safety rules. • Children can explain what to do if they are concerned about online content.	**Vocabulary** Algorithm, debug, tinker Input, output, research, software, video, cut, paste, safety, database **Knowledge/ Skills** **Algorithms and programming** • Children know how to write an algorithm to control an online sprite. • Children can match a piece of code to an outcome. • Children understand the role of debugging and can modify an algorithm following a test **Information Technology** • Children can collect information by designing questions and content. • Children can create and use branching databases **Digital Literacy** • Children can explain the difference between text and images • Children can recognise that text and images can communicate messages clearly • Children can identify use of desktop publishing in the real world. • Children can use software to design and create a stop motion animation. • Children know the difference between inputs (video cameras and microphones) and outputs (the video images and sound) **Online Safety** • Children can explain and demonstrate how to use technology safely. • Children know what to do when they encounter a problem online.

Year 4	Year 5	Year 6
Knowledge and Skills	**Knowledge and Skills**	**Knowledge and Skills**
Vocabulary Algorithm, debug, tinkering, decomposition, variable, data, input, output, control count loop, forever loop, reliability of sources **Knowledge/ Skills** **Algorithms and programming** • Children can explain the meaning of a variable within coding • Children can write algorithms to accomplish specific tasks • Children can use computational thinking to make predictions • Children can identify errors in their code and take steps to correct it • Children can identify ways to improve the efficiency of code (e.g count loop) **Information Technology** • Children can collect, analyse, evaluate and present data and information in a variety of forms. • Children can collect data using a data logger and interpret the data that has been collected. **Digital Literacy** • Children can select, use and combine a variety of software (including internet services) on a range of digital devices, including inputs and outputs. • Children can combine text, images and audio. • Children can develop key questions and use key words to search for specific information when carrying out research. • Children understand how a green screen works **Online Safety** • Children can identify ways to stay safe online. • Children can explain why certain online behaviours are acceptable/unacceptable.	**Vocabulary** Algorithm, debug, tinker, decomposition, code, selection, sort, filter, function, data, vector drawing, condition, "if, then, else", forever loop, misinformation, disinformation, field, record, abstraction **Knowledge/ Skills** **Algorithms and programming** • Children can design, write, and debug programs that accomplish specific goals, including controlling or simulating physical systems – Edison robots. • Children can use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. • Children can use selection (an 'if…then…' statement) to direct the flow of a program **Information technology** • Children can explain what a field and a record is in a database. • Decide what information is important for a database (abstraction) • Children can navigate a real-world flat-file database to answer questions. • Children can explain how 'AND' and 'OR' can be used to refine data selection **Digital literacy** • Children can identify that drawing tools can be used to produce different outcomes • Children can create a vector drawing by combining shapes. • Children can capture video using a range of techniques. • Children can turn a storyboard into a video • Children can combine video, sound effects and music **Online safety** • Children can explain how to apply online safety rules to given scenarios. • Children understand that not everything they see online is true. • Children can identify how to minimise risks online	**Vocabulary** algorithm, debug, decomposition, tinkering, computational thinking, procedure, spreadsheet, hyperlink, navigation path, phishing, cell, formula, abstraction **Knowledge/ Skills** **Algorithms and programming** • Children can design a solution by breaking the problem up. • Children can create procedures to use within algorithms. • Children can use logical reasoning to detect and debug errors in algorithms. • Children recognise that different solutions can exist for the same problem and can evaluate these. **Information Technology** • Children can use Excel to build a spreadsheet. • Children understand that a spreadsheet is presented in rows and columns and that individual boxes are called cells. • Children understand that a formula is a calculation based on the contents of cells or a total of a combination of cells. • Children understand that information can also easily be sorted and filtered by a spreadsheet. • Children identify uses for spreadsheets in real life and understand how they can be useful tools. **Digital Literacy** • Children can use a wide range of word processing skills. • Children can combine text and images on a range of devices. • Children can make multiple pages and link them using hyperlinks. • Children can create and explain the importance of navigation paths. **Online Safety** • Children can review their personal use of technology and online activity. • Children develop understanding of T&C of social media apps. • Children consider the pros and cons of social media use. • Children recognise the impact of social media use on mental well-being.