Computing Curriculum Skills Progression

INTENT: At Lyndhurst we aim to provide a foundation for understanding the world by **equipping pupils to become computational and creative thinkers**. We recognise the close **links between computing, mathematics, science and design technology,** as well as the important role digital literacy plays in supporting learning. Therefore, computing skills are taught through a cross-curricular approach, making links in learning explicit and purposeful. Pupils are introduced to the **principals of information and computation** through programming; developing their language, collaboration and problem-solving skills through structured, play-based activities. In order to develop their **knowledge and understanding,** pupils **use information technology** to manipulate and create simple content and programs. We support children to become **digitally literate** by giving them varied opportunities to use, develop and express their ideas through information and communication technologies. Fun, purposeful, collaborative tasks within real-life contexts help to develop pupils' confidence and their understanding of the potential for information technology to support their future work, learning and well-being.

Our aim is for pupils to:
- become responsible, competent, confident and creative users of ICT.
- begin to experience, understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation.
- begin to solve problems in computational terms through practical experience using computer programs and by following, creating and debugging simple algorithms.
- begin to recognise applications and uses of information technology in the wider world. Use and evaluate familiar and new programs and information technologies, understanding how they might help solve problems.

SEND Provision

At Lyndhurst Infant School we believe that every child is respected as an individual and has the right to learn and develop their talents and abilities (Article 29) We adapt the curriculum and supply resources to suit individual needs, including; social, emotional and mental health, physical, sensory and cognitive, so that every child can access the curriculum and further their learning.

Children with complex needs including children with autism and social communication needs access the curriculum at their own level of personal development. This may not follow the continuum, therefore not necessarily accessing all aspects of the progression map in order.

PROGRAMMING:	Needs altering	YEAR 1	YEAR 2
IMPLEMENTATION	Begin to understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation. Begin to analyse problems in computational terms, and have repeated practical experience of using and writing computer programs in order to solve problems.		
	• Select and use technology for particular purposes.	• Understand what algorithms are and how they are implemented on digital devices. • Predict the behaviour of simple programs.	• Use logical reasoning to predict the behaviour of simple programs. • Understand that programs execute by following precise and unambiguous instructions. • Create and debug simple programs.
Developing Skills and Techniques	**30-50 months:** • Shows an interest in technological toys with knobs or pulleys, or real objects such as cameras or mobile phones. • Knows that information can be retrieved from computers. • Shows skills in making toys work by pressing parts or lifting flaps to anticipate movements. • Knows how to operate simple equipment e.g. CD player and remote control. **40-60 months:** • Completes a simple programme on a computer. Uses ICT hardware to interact with age-	**Beginning:** • Physically follow and give each other simple instructions to move around. • Explore outcomes when buttons are pressed in sequence on a robot. **Within:** • Begin to identify an algorithm to achieve a specific purpose. • Execute a simple program on a floor robot to achieve an algorithm. • Begin to predict what will happen for a short sequence of instructions in a program. **Expected:** • Begin to use software to create movement and patterns on a screen.	**Beginning:** • Physically follow and give each other forward, backward and turn (right angle) instructions. • Articulate a simple algorithm to achieve a purpose. **Within:** • Plan and enter a sequence of instructions to achieve an algorithm, with a robot specifying distance and turn and following / drawing a trail. • Identify more or less efficient algorithms and explain why. • Predict what will happen and test results. • Explore outcomes when giving instructions in a simple Logo program. **Expected:** • Watch a Logo program execute and debug problems. • Talk about similarities and differences between floor robots and logo on screen.

	appropriate computer software. • Recognises some of the technologies used in familiar places such as homes and schools. • Selects technology for particular purposes. • Knows that information can be retrieved from books and computers.	• Use the word debug to correct any mistakes when programming a floor robot.	(Software could also be used to control a model).
Key People and 'real-life' links	Role play toys e.g. tills / cameras / kitchen / cleaning equipment; Remote controlled toys; Beebots; Technological equipment e.g. tablets / laptops, interactive whiteboards, CD players;	Computer programmers; Use of robots in the real world; Recipes; Instructions; Driving / Route planning; Robotic and remote controlled toys; Link to efficiency in curriculum e.g. maths;	
IMPACT:	Problem solving: Children can think about everyday algorithms, such as classroom rules or procedures, or arithmetic operations, and look for easier or faster ways to get things done. They can create programs for computers and look for other ways to do the same thing, deciding which way would be better. They can create Bee Bot programs using sequences of instructions, perhaps planning these first using whiteboards or Bee Bot instruction cards. The programs will become more complex as they progress. Programming: They can create a simple program on screen (e.g. using Purplemash / 2Simple2Go / Rapid Router) with a particular goal or purpose in mind (e.g. drawing a shape or moving a sprite from one place to another). The child can debug any errors in their own code. Logical Thinking: They can give logical explanations of what a program will do under given circumstances, including some attempt at explaining why it does what it does. The program could be one they themselves have written or it could be a computer game or a familiar piece of software.		

	EYFS	YEAR 1	YEAR 2
DIGITAL LITERACY:	Children select and use technology for particular purposes.	Evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems.	

IMPLEMENTATION	• Select and use technology for particular purposes.	• To use technology purposefully to create digital content.	• To use technology purposefully to create, organise, store, manipulate and retrieve digital content. • Use technology purposefully to create digital content, comparing the benefits of different programs.
Developing Skills and Techniques	**30-50 months:** • Shows an interest in technological toys with knobs or pulleys, or real objects such as cameras or mobile phones. • Knows that information can be retrieved from computers. • Shows skills in making toys work by pressing parts or lifting flaps to anticipate movements. • Knows how to operate simple equipment e.g. CD player and remote control. **40-60 months:** • Completes a simple programme on a computer. Uses ICT hardware to interact with age-appropriate computer software. • Recognises some of the technologies used in familiar	**Beginning:** • Use paint programs to create pictures • Use a video or stills camera to record an activity. **Within:** • Add text and images to a template document using an image and word bank. • Record their own voices and play back to an audience. • Create sounds and simple music phrases using ICT tools. **Expected:** • Use index fingers (left and right hand) on a keyboard to builds words and sentences. • Know when and how to use the space bar (thumbs) to make spaces between words. • Include a specified detail in their work to demonstrate they can meet the needs of an intended audience.	**Beginning:** • Use an increasing variety of tools and effects in paint programs and talk about their choices. • Create own documents adding text and images. **Within:** • Use templates to make electronic books / writing individually / in pairs. • Discuss how they have taken into account their intended audience. • Explore the effects of sound and music. • Use keyboard to enter text (index fingers left and right hand). • Know when and how to use the RETURN/ENTER key. • Use SHIFT and CAPS LOCK to enter capital letters. **Expected:** • Use delete and backspace buttons to correct text. • Create sentences, SAVE and edit them later.

	places such as homes and schools. • Selects technology for particular purposes. • Knows that information can be retrieved from books and computers.		
Key people and 'real-life' links	Role play toys e.g. tills / cameras / kitchen / cleaning equipment; Remote controlled toys; Beebots; Technological equipment e.g. tablets / laptops, interactive whiteboards, CD players;	Artists; Writers (different genres); Animators; Film-makers; History of cameras / development of technologies; Uses of cameras; Link to editing work and making positive changes e.g. literacy;	
IMPACT	With a given purpose, children can use a range of digital technologies to retrieve, organise and store digital content. Technologies will typically include laptops, computers linked to IWBs and tablets with access to the internet, smartphones with network connections (at home), but may also include digital cameras, video cameras and audio recorders (or the equivalent apps on a tablet). Projects may include digital photography, searching for images online and creating image-based presentation slides, composing an email and creating simple charts. Editing is likely to take place on laptops or tablets. They will demonstrate creativity in this work and evidence that they have edited content. They should be able to explain how they have taken into account the needs of their intended audience.		

	EYFS	YEAR 1	YEAR 2
E-SAFETY:	Children become responsible, competent, confident and safe users of ICT.		

IMPLEMENTATION	• Recognise that a range of technology is used in places such as homes and schools.	• Understand where to go for help and support when he/she has concerns about content or contact on the internet or other online technologies. • Recognise common uses of technology in the home and school environment.	• Use technology safely and keep personal information private. • Recognise common uses of technology beyond the school.
Developing Skills and Techniques	**40-60 months:** • Recognises some of the technologies used in familiar places such as homes and schools. • Knows that computer technology can have dangers and need to be used safely. • Knows to tell an adult if they are worried about something.	**Beginning:** • Agree sensible e-safety rules for the classroom. • Talk about how adults can help us, including when we see something we don't like or something makes us feel uncomfortable. **Within:** • Use a selection of websites and begin to consider who can see the information online. • Know somewhere to go to find and play safe, appropriate games on the internet e.g. BBC website. • Be able to give positive responses and comments to peers about their work or ideas. **Expected:** • Be able to access Chromebooks and online resources mostly independently, using their passwords.	**Beginning:** • Agree sensible e-safety rules for the classroom and home. • Talk about how adults can help us, including when we see something we don't like or something makes us feel uncomfortable. **Within:** • Be able to access Chromebooks and online resources independently, using their passwords and logging off correctly. • Use a selection of websites and consider who can see the information online. • Play appropriate games on the internet, including games against peers. • Know where to go to find and play safe, appropriate games on the internet. • Recognise and create avatars as alter-egos which are different to the creator. • Discuss the importance of kindness in online behaviour. **Expected:**

		• Understand the importance of logging off and be able to do this independently or ask for support.	• Understand that digital information contains 'tags' that can give clues to user identity e.g. location tags on photographs.
Key people and 'real life' links	Smartie the Penguin character Role play toys e.g. tills / cameras / kitchen / cleaning equipment; Technological equipment e.g. tablets / laptops, interactive whiteboards, CD players;	Banking; Aspirational learning e.g. University students; Gaming / viewing at home; Connections with the rest of the world; PSHCE – Worries; RSE curriculum links;	
IMPACT	Children will know that they need to keep themselves safe when using digital technology. For example, they should know to use filtered SafeSearch or have the support of an adult when looking for images on the web. They should know to respect others' rights, including privacy and intellectual property when using computers, so should not look at someone else's work or copy it without permission and acknowledgement. They should understand their personal responsibility to keep the internet a safe space for all. They should know that emails can have files attached that could harm their computer. They should know that digital photos sometimes contain hidden data that can reveal where the photo was taken. They should observe age restrictions on computer games. Children should understand that personal information should be kept private: it should not be posted online to a public audience and should only be shared privately with those who they (or their parents) would trust. For example, they should recognise that photos they take in school should not normally be posted to the open web. They should know that photos taken with smartphones often contain hidden information about where the photo was taken. The child should know to close the laptop lid or turn the tablet over if they find content, such as inappropriate images, which might disturb them or other children; if someone they don't trust contacts them online; if someone makes inappropriate contact online. They should know to tell their teacher or their parents if this happens, and be aware that they could talk to another trusted adult or to ChildLine about this.		