



## SKILLS LADDER - COMPUTING

Unit	Puffin - Year 1/2		Swift Year 3/4		Eagle Year 5/6	
Using Technology	Continue to develop their familiarity with a computer and keyboards.	Work on developing their typing speed.	Continue to become familiar with a range of devices for example tablets, desktop computers, laptops, microphones, cameras etc and increasingly develop their independence and confidence in using these devices.		Continue to become familiar with a range of devices for example tablets, desktop computers, laptops, microphones, cameras etc and increasingly develop their independence and confidence in using these devices.	
	Continue to develop their skills using a mouse and/or trackpad to control a computer or laptop.		Be encouraged to increasingly make sensible choices about the technology they use to help them work and to justify their choices.	Continue to increase their typing speed and be encouraged to work at home at school to help with this.	Continue to increase their typing speed and be encouraged to work at home at school to help with this.	
	Begin to develop their typing speed, using a range of games.		Use different font sizes, colours and effects to communicate meaning for a given audience.	Be encouraged to increasingly make sensible choices about the technology they use to help them work and to justify their choices.		Be encouraged to increasingly make sensible choices about the technology they use to help them work and to justify their choices.
	Continue exposure to a range of technology including cameras, tablets, microphones.					
Using the Internet	Select appropriate buttons to navigate websites or stored information.	Recognise that not all information is useful, some information is more useful.	Develop key questions to search for specific information with purpose to answer a problem. e.g. to find out about different Roman Gods.	Know that they can use search engine tools for different types of media e.g. Google image search.	Discuss different strategies for finding relevant information e.g. using different words to find information on a given enquiry.	Understand the dynamics of different search engines and know there are different search engines which may focus on different media.
	Begin to understand that computers use icons, menus, hyperlinks to provide info. and instructions	Use webbed resources to find answers to questions.	Understand how a search engine works and begin to create and enter appropriate search strings.	Be aware that web sites are not always accurate and that information should be checked before it is used.	Use a range of keywords to find different sources of information and use a chosen search engine.	Talk about where web content might originate from by looking at web address, author, other linked pages.
	Access different types of information from different sources e.g. iPads, websites, tv, DVD etc.	Develop questions about specific topic and use information to answer those questions.	Save and retrieve accessed information through the use of favourites, history and save as.	Develop keywords and enter them into a chosen search engine, using more advanced search engine features.	Modify searches further to find relevant information for a report.	
		Begin to navigate within a website using hyperlinks and menu buttons to locate information .	Understand that some information found through searching is more relevant than others.	Present their findings using a word processing or multimedia / publishing package for a specific audience.	Select and combine information from a range of different sources and present their findings	Talk about validity and plausibility of information by checking other sources.
		Begin to manipulate information using copy and paste for a specific purpose.	Use the information purposefully to complete specific tasks e.g. copy, paste		Beware that web sites are not always accurate and that info. should be checked before it is used.	Recognise the impact of using incorrect information in their work.
		Enter given text into a search engine to find specific given web sites.	Talk about and describe the process of finding specific information.		Discuss issues of copyright and downloading materials. Find images which are creative common licensed and understand the importance of stating their sources.	Skim and select information checking for bias and different viewpoints.
		Understand that web sites have a specific address.				
		Locate links to web sites from favourites or saved hyperlinks.				
		Use basic information from the internet.				

Communicating and Collaborating Online	Contribute ideas to a class email and together respond to messages - this can be real life or fictitious characters.	Look at the different ways that messages can be sent, letters, telephone, email, text etc.	Begin to use on-line tools, and sites to collaborate together. e.g add ideas to a word bank, write a shared story.	Understand how emails work and send emails between people with the school domain, including finding the cc and bcc fields.	Continue to use email to email within the school domain and to email work completed.	Continue to collaborate on a project using a range of web tools to support their work.
		Continue to contribute ideas to a class or group email and together respond to messages.		Use email to email work completed in school.	Collaborate on a project using a range of web tools.	Respond to emails sent from the school domain using email account.
				Collaborate with peers on a project to produce a finished piece to support topic work.	Begin to collaborate with other children outside of school.	Talk about the different forms of electronic communication and web tools, discuss appropriateness of using different tools in different contexts and the advantages and disadvantages.
				Contribute / edit / refine contributions to a shared document and understand that all changes are visible.	Upload files to an online area.	
Creating & Publishing	Add text to photographs graphics, drawings and sound using a computer.	Word process work, changing the font, font size, colour and adding images and using text boxes, word art and cut, copy and paste ensuring they can save and load their work.	Continue to word process a range of work in other curriculum areas, using more advanced word processing features such as columns and borders.	Work tougher to create a website based on a topic, area of interest or event (e.g using google sites) which incorporates hyperlinks, images and embedded media / documents.	Use an alternative presentation tool to create a presentation linking to a topic, area or interest or event.	Continue to create websites based on topics, area or interest or events, increasing the complexity of these sites.
	Use simple authoring tools to create their own content and begin to add basic effects to sections of text, changing the font size and colour.	Create basic presentation changing the layout of slides and adding images and sound.	Work tougher to collaboratively produce a presentation.	Use ICT to create a finished product or set of linked products, making revisions to their work.	Continue to create websites based on topics, area of interest or events, increasing the complexity of these sites.	Continue to create presentations which link into a topic, area of interest or event choosing an appropriate tool or service.
			Understand the differences between a word processor and desktop publishing tools to create posters, leaflets and other documents which require specific formatting.		Continue to regularly use word processing and desktop publishing to present their work, combining formatted text with other media and making choices about programs and features to use and justifying these choices to others.	Create a web based application for a smart phone or tablet with consideration for the audience - containing information about a topic, trip the school or to support work in other areas of the curriculum.
					Continue to use ICT to create finished product or set of linked products, developing consistency in style across linked products.	Create a non-linear presentation.
						Continue to regularly use word processing and desktop publishing to present their work, combining formatted text with other media and making choices about programs and features to use and justifying these choices to others.

Digital Media	Use a computer to compose and record basic rhythms.		Use a computer to sequence short pieces of music including small selection of pre-recorded sounds.	Use a range of devices to create extended pieces of music using a wide range of pre-recorded samples.	Use a range of devices to create extended pieces of music using a wide range of pre-recorded samples.	Use a range of devices to create music samples and sequence these.
	Continue to take photographs for a range of different purposes.	Record video for a range of purposes.	Independently record video for a range of purposes, paying attention to the quality of the video capture.		Use a range of devices to create music samples and sequence these.	Independently choose and use an appropriate device to record sounds in order to create a sound file and use software to manipulate sounds using computer software - e.g. remove unwanted silences / trimming start and end, combine to make a podcast or similar broadcast.
	Begin to record video using iPad.	Use a computer to create basic images.	Take photographs for a specific reason or project and / or find appropriate images online.	Create simple stop motion animations.	Create and plan fit trailers incorporating a range of different scenes and effects.	Create stop motion animations and combine with video and audio effects.
	Begin to record sounds using a range of different tools.	Continue to take photographs for a range of different purposes, developing independence.	Create a video out of still images.	Use a range of tools to create more complex images using a computer (no layering).	Use image creation tools to create more complex images including using layers.	Apply more complex effects to photographs using a computer.
	Use a program to explore audio.	Independently record sounds using a range of different tools.	Use the computer to perform photo edits and create a range of digital creations using photos.	Edit videos using a range of basic video editing apps.	Understand the difference between an image and a vector drawing.	Compare and contrast different image creation and editing tools across a range of platforms.
		Use programs to explore images and drawing.	Use a program to explore audio.	Continue to take photographs for a specific reason or project and / or find appropriate images online.	Continue to choose to independently record video for a range of purposes.	
					Continue to take photographs for a specific reason or project and / or find appropriate images online.	
Using Data	Use ICT to sort objects into groups according to a given criteria or criteria which the child identifies themselves.	Use technology to create graphs and pictograms, adding labels and amending the charts as appropriate.	Continue to use technology to create graphs and charts.	Plan and create their own database, creating fields and applying simple data validation.	Continue to use, query and create their own databases as appropriate, linking into work across the curriculum.	
	Begin to use technology to create graphs and pictograms.	Begin to create their own branching database using ICT, identifying objects using yes or no questions.	Understand what a database is, and the basic structures of a database.	Use pre-made databases and those which they have created themselves to answer questions by constructing basic queries. Understand how to translate questions into queries to find information e.g. to find the most common etc. Use other software to present these findings as appropriate.	Talk about where web content might originate from by looking at web address, author, other linked pages.	Understand what a spreadsheet is and the basic features of a spreadsheet and how these may be used in real life applications.
			Create graphs from pre-made databases, and enter their own data into a database and generate graphs using these. Use other software to present these findings as appropriate.	Begin to use a spreadsheet to enter data and create graphs.	Begin to explore spreadsheets entering basic formulae.	Create a spreadsheet, enter basic formulae (simple calculations and SUM) and change data in a spreadsheet to model situations and answer ‘what if..?’ questions.

Programming and control including algorithms	Explore a range of control toys and devices.		Further develop their understanding of computational thinking.	Continue to develop understanding of how a computer and technology works, focusing on computational thinking.	Begin to plan more complex sequences of instructions for on-screen and floor turtles, test and amend these instructions.	Understand that software relies on codes to run and that a range of different coding languages exist.	Continue to explore different ways in which computer software can be planned.		
	Begin to develop computational thinking by following instructions to move around a course and crating a series of instructions to move their peers around a course.		Continue to explore floor turtles, combining sequences of instructions to follow a pattern or create a shape.	Begin to plan more complex sequences of instructions for on-screen and floor turtles test and amend the instructions.	Use computer game design software to plan, design and make their own multi-level game, controllable by external inputs, changing parameters and responses.	Continue to develop an understanding of how technology works, with a focus on developing computational thinking.			
	Explore outcomes when individual buttons are pressed on robots, such as floor turtles and combine the tougher to draw simple shapes or follow a route.	Explore an on-screen turtle navigate it around a course or grid and / or draw shapes by inputting a sequence of instructions.	Use software to make basic puzzles and quizzes, changing parameters (e.g. time allowed, points, number of pieces etc) to customise the puzzle or quiz.	Explore different ways in which computer software can be planned.		Use a range of visual based programming software to plan and design basic software controlling movement and responses of different elements on screen.			
		Begin to understand that the on-screen turtle can be directed through the use of text.					Use a range of assisted programming software (e.g. Scratch) to plan, design and create basic software (e.g. a simple game) which interact with external controllers (e.g keyboard). Using the software control the movement and responses of different elements on screen.	Use a range of visual programming software to plan and design more complex software (e.g. a multi-level game)	
		Use visual programming based software to plan, design and create basic non-game software which uses logic, algorithms and calculations. e.g. use Scratch to create a maths quiz.							Control on-screen icon using text based controls, including responding to sensors and repeating written algorithms.
									Begin to explore text-based programming languages and create basic scripts.
	Modelling and simulation	Understand that computers and technology can be used to represent and model situations.	Enter information into a basic computer simulation and explore the effects of changing the variables in simulations and discuss the benefits of using these simulations.	Continue to explore simulations as appropriate and as link with other curriculum areas and discuss the benefits of using these simulations.	Begin to use software to represent 3D objects or items.	Use software to create models of 3D objects, landscapes or items.			
Use an art package to drag and drop software to create a representation of a real of fantasy situation.		Discuss their use of simulations and compare with reality.	Use simulations to make and test predictions.	Continue to explore simulations as appropriate and as link with other curriculum areas.	Explore a range of increasingly complex simulations, exploring the effect of changing variables and recording the results.	Use a range of more complex simulations, exploring the link to real life and the impact of changing variables. Link the work exploring simulations to creating their own basic simulations in excel.			
Explore a simulation to support a given topic and talk about what happens and why.									



e-safety Awareness	Children begin to identify characteristics of people who are worthy of their trust.	Develop awareness of relevant e-safety issues and understand that personal information is unique to them.	Children develop awareness of online protocols, in order to stay safe on the web.	Understand and abide by the schools acceptable use policy.	Children understand the potential risks of providing personal information in an increasing range of online technologies both within and outside school.	Evaluate their use of technology including the use of email , social networking, online gaming and mobile phones and consider how they present themselves online.
	Children know what is meant by personal information and develop awareness of why it is special.	Identify characteristics of people who are worthy of their trust.		Children are aware of the need to develop a set of online portals in order to stay safe online.		
				Children develop awareness of relevant e-safety issues.		
e-safety Online Research	Children understand that that can find a range of information on the internet.	Children use the internet purposefully to answer specific questions.	Children develop strategies for staying safe when using the internet.	Children safely use the internet for research and follow line of enquiry.	Children develop their online set of protocols in order to keep safe online.	Children confidently and competently use the internet as a tool for research and critically evaluate websites for their use.
	Children are able to navigate age-appropriate websites.	Children know that not everything that encounter on the internet is true.	Children to use the internet to undertake independent and appropriate research and attempt to distinguish between fact and fiction.	Children understand the function of a search engine and the importance of using correct search criteria.	Children recognise inaccuracy and bias on the web and evaluate websites for their validity.	Children know that not all information they find on the internet is accurate or unbiased and develop strategies for identifying the origin of a website.
						Children use the internet as a resource to support their work, and begin to understand plagiarism.
Communication and Collaboration	Children know what to do if they find something inappropriate online.	Children know the difference between communicating via email and online in a discussions forum.	Children begin to use range of online communication tools, such as forums, email and polls in order to formulate, develop and exchange ideas.	Children use a range of communication tools to collaborate and exchange information with others e.g. email, blog, forums.	Children use online tools to exchange information and collaborate with others within and beyond their school and begin to evaluate their effectiveness.	Children select appropriate tools to collaborate and communicate confidently and safely with others within and beyond their school.
		Children are aware of the different forms of online communication (email, forums, instant messaging and social networking sites) and find out about their associated risks.				