

COMPUTING

Learning Ladder

Key

Learning Ladders

The Learning Ladders are split into Year 7, 8 and 9 on different pages, and are colour coded to indicate the expected progress the students should be making. As students progress through Key Stage 3, their attainment is assessed against the Learning Ladder.



Blue indicates a level below expectations for the year group.



Grey indicates the expected level for the year group.



Red indicates a level beyond that expected for the year group.



Computing: Year 7

7.1 Using Computers Safely			7.2 Programming in Scratch			7.3 Understanding Computers			
Theory	I can recognise different file types (e.g .doc, .ppt, .jpg)			I can identify use of a loop.	I can describe one example of using a loop in the code.	I can discuss use of loops and using conditions to control them.	I have given examples of computer hardware and software	I have described the difference between hardware and software	
	I can identify what makes a "strong" password			I can identify use of selection.	I can describe one example of using a selection in the code.	I can discuss use of selection and else statements to	I can name different input, output and storage devices	I have suggested input and output devices for a simple scenario	I have input and output devices for more complex scenarios
	I know the schools code of conduct (AUP)	I can identify how to minimise the danger of having your computer infected by a virus	I can describe what is acceptable and unacceptable behaviour when using online services	I can identify use of selection.	I can describe how variables have been used and changed	I can discuss why variables are used in an effective program.	I have drawn a block diagram showing CPU, input, output and storage devices	I have shown that I can distinguish between main memory and permanent storage devices	I have explained the difference between RAM and ROM and what ROM is used for
	I can list some dangers/drawbacks of social networking sites	I can identify guidelines for keeping your identity secure on the Internet	I can describe why information found on the internet might not be accurate		I can explain how some blocks are executed by an event happening (e.g. arrow button pressed)	I can discuss use of broadcasts in the program.		I have defined Hz, MHz and GHz and stated how these relate to the speed of the processor	I have named the three stages in the Fetch Execute Cycle
	I can identify possibly responses to cyber bullying	I can identify guidelines for keeping your identity secure on the Internet	I can describe the advantages and disadvantages of email as a method of communication				I have defined a Bit, Byte, Kb, Mb and Gb	I have converted integers to binary numbers and binary to integer	
	I know who to contact with e safety matters in school	I know who to contact with e safety matters in a range of situations					I can show how numbers and text can be represented in binary	I have explained how characters are encoded using the ASCII system	I have used an ASCII reference chart to convert a character into binary and its decimal equivalent
Skills	I can create, save, copy, move, rename, delete files and folders	I can set up folders and files with suitable names	I can set up and use sub folders with suitable names		I can use a loop that repeats continuously	I can use a loop that repeats whilst a condition is met			
	I can send and reply to emails (with attachments)	I can resize images before attaching to emails	I can set up and use sub folders with suitable names	I can write a sequence of instructions	I can use an IF statement to select whether to execute an instruction	I can use an IF statement with Else to decide which instruction to execute			
	I can use a search engine	I can use advanced features of a search engine		I can use a variable to store a value	I can change the value of a variable within the program	I can use variables in condition to control program flow			
	I can use a search engine	I can create a presentation that is suitable for purpose	I can create a presentation that shows good awareness of purpose and audience	I can create separate blocks of code to complete different tasks		I can use broadcasts to call a block of code to be executed.			
Testing	I can check I have met requirements	I can test functionality	I can independently fix problems associated with testing		I can able to identify errors in the program.	I can able to correct errors in the program.			
Evaluation			I can make improvements based on feedback		I can identify and explain why scripts selected are effective	I can identify and suggest improvements to improve game play.			

Computing: Year 7 continued

7.4 Spreadsheet Modelling			7.5 Graphics				
Theory	I can state examples of different types of computer model	I can state some realistic applications of a spreadsheet model	I can state some advantages of using a spreadsheet model in applications	Theory	Understand that bitmaps stored as pixels	Understand that vectors are stored as a set of instructions	Give realistic examples of when vectors and bitmaps might be used, giving reasons why
	I can state why charts are easier to read than tabular data	I can describe some circumstances where charts are more useful to represent data	I can explain why a particular type of chart is more useful than another				
			I can explain why it may not give accurate results				
Design	I can able to suggest where formulas might be needed	I can able to point out which cells need formulas and which cells need variables for a given model	I can able to suggest which formulas and functions would be most effective for given cells				
Skills	I can save a spreadsheet and locate again	I can use conditional IF functions	I can independently use absolute and relative cell referencing effectively	Skills	Create a simple vector logo	Use an image within your poster to convey a message effectively	Use advanced facilities (like cut and layer) of graphics packages to manipulate images to improve suitability of poster
	I can enter and format text/numbers to improve appearance	I can explore "what" if scenarios	I can use COUNT IF		Change contrast, saturation and brightness in an image	Use text/font styles consistently to improve suitability of poster	Take care and attention over the selection of all elements of the poster to ensure it shows a high level of suitability for audience and purpose
	I can enter characters, formulas and functions	I can use some form of data validation	I can independently complete a fully working model		Add text and an image	Use white space effectively	Use layers effectively within your poster
	I can create a simple chart using a wizard	I am able to select and customise a chart to improve its appearance				Movie poster shows awareness of purpose	Movie poster shows good understanding of purpose and audience
	I can develop a basic model with significant help	I can record a macro to perform a task					Create a sequel poster that follows a consistent theme
Testing		I can spot when there might be mistakes but cannot always fix them (partial debugging)	I can independently test and correct mistakes (debugging)				
Evaluation	I can present screen shots of the main parts of a spreadsheet model	I can present screen shots with short annotations to point out where key formulas and functions are used	I can present screen shots with descriptions that show a good understanding of how formulas, functions, validations are used effectively	Evaluation			Use feedback to make identified and make changes to poster

Computing: Year 8

8.1 Tell the Tale			8.2 Networks				
Theory	I have identified some good and bad features of example animations	I have looked at examples and described why some features are successful in making an animation suitable for intended audience and purpose	I have researched and compare various example animations and thought about how I can incorporate/adapt some of these features successfully in your own project	I understand that the Internet is a wide area network and the world wide web is part of the Internet			
				I have defined the meaning of the terms "domain name", http protocol			
				I can explain the basic principle of packet switching	I can explain what is meant by buffering and why it is used		
Design	My design work is basic but shows how I might make my animation	My design work includes some level of detail and shows how I will meet most task requirements	I have annotated my designs to explain how some of my ideas will be suitable for intended audience and purposes		I can explain the meaning and significance of bandwidth		
Skills	I have used the polygon lasso tool	I have created multiple states to create a frame by frame animation	I have used an increased number of states to create a smoother looking animation	Theory	I can give examples of LANs and WANs	I can identify some of the extra hardware components used in a LAN	
	I have copy and pasted from fireworks to PowerPoint	I have used a variety of tools creatively (free transform, shadow, glow etc)	I have used multiple layers effectively to create a more complex animation		I can state three different network topologies	I can state the advantages and disadvantages of different network topologies	
		I have exported an animation as a GIF from fireworks and imported it into PowerPoint	I have taken care and attention to increase suitability for purpose		I can describe what is meant by a client-server network and state some of its advantages	I can compare the uses of peer-to-peer networks and client-server networks	I can describe the concept of cloud computing and some of the benefits it brings to individuals and organisations
		My work meets most task requirements	My work meets all the task requirements		I can explain why some transmissions are encrypted, and use a simple algorithm to encrypt and decrypt a message		
	I have added custom animations via mouse click	I have set custom animation to run automatically	I have disabled right click and made both animations and transitions automatic with sensible timings			I can design a simple network layout	I can design a network layout for their school, using icons to represent server, hub, switch, router, Internet, workstation, printer
Testing	I have tested the buttons work	I have tested the buttons and proof read text to look for mistakes	I have tested and refined automatic timings so they are suitable for audience	Design			
Evaluation	I have identify something good and something that needs changing about your animation	I have described some successful features of my animation and made some realistic suggestions for improvement	I have critically evaluated the suitability of my finished animation using feedback from someone else. I have used this make significant improvements to my end product.				

Computing: Year 8 continued

8.3 Programming in Alice			8.4 HTML and Web Design				
Theory		I understand that methods are used to perform different tasks	I can discuss the use of methods to break down the program.	Theory	I know and understand how to use some HTML tags.	I can explain the difference between how HTML and CSS are used in creating a web page.	I understand how DIV tags separate areas of a web page and how their appearance is controlled by CSS
	I can describe one example of using a loop in the code.	I can discuss use of loops and using conditions to control them.					
	I can describe one example of using a selection in the code.	I can discuss use of selection and else statements to					
	I can describe how variables have been used and changed	I can discuss why variables are used in an effective program.		Design	I can use a design to create a template for a web page using HTML	I can use the template to design a multi-page website with a consistent look and feel to each page	I can add enhancements or additional features to the original basic design
Skills	I can use a sequence of instructions to animate a character	I can use do-together to perform several actions at once.		Skills	I have edited basic HTML to change the content of a web page	I have written basic HTML to create a web page of my own	I have added DIV tags in order to separate areas of a web page
	I can use built-in methods to control an object.	I can create methods to break down the program in small chunks of code.	I can effectively call methods to execute different parts of the program in sequence.		I can change basic CSS to alter the appearance of a web page	I have used basic CSS to control the appearance of my own web page	I have used CSS to control the appearance of DIV sections of HTML
	I can use a loop that repeats continuously	I can use a loop that repeats whilst a condition is met			I have specified a width for my web page and images	I have changed the width setting to percentages in order to make the page responsive	I have added a footer DIV section to a web page (Expert)
	I can use an IF statement to select whether to execute an instruction	I can use an IF statement with Else to decide which instruction to execute				I have used the example web form to submit data to a simulated database	I have added a web form to my own web page
	I can change the value of a variable within the program	I can use variables in condition to control program flow					
Testing	I am able to identify errors in the program.	I am able to correct errors in the program.	I am able to explain how errors were corrected.	Testing	I have created more than one web page	I have created links to my other web pages and tested that they work	I have added links to external web pages and tested them
Evaluation	I can identify and explain why scripts selected are effective	I can identify and suggest improvements to improve the program.		Evaluation	I can show evidence that I have constructed a basic webpage	I can show evidence that I have constructed an interactive website	I can show evidence that I have constructed a good-looking, well-formatted website that is suitable for its intended audience

Computing: Year 9

9.1 Introduction to Python			9.2 Flash			9.3 Databases					
Theory	I understand what a syntax error is	I can explain the difference between syntax errors, run-time errors and logic errors	Theory	I understand the difference between a .fla and .swf	I understand the pros and cons of different file types	I can explain why a detailed plan is an important part of the process	Theory	I can give examples of databases used by organisations accessible to the public via the Internet	I understand that a database table is made up of fields of different data types		
				I know some of the key words (Tween, frames, layers etc)	I understand the difference between CGI and stop frame	I can identify where I may have seen CGI and stop frame in the real world			I can state the purpose of the primary key		
									I understand the purpose of validation	I can describe the different validation rules	
Design		I can write algorithms in pseudo code	Design	My sketches are rough but realistic	My design includes more detail (a time line, types of animation, effects)	My design includes a high level of detail (Frames per second, total length)	Design	I have identified suitable fields and data types for a given scenario	I am able to identify suitable validation rules for a suitable scenario		
				My design includes basic annotations to show what I want to happen	I have identified the types of assets I want to include (types of images, sounds, colours)	I have described how my ideas are suitable for audience and purpose					
				My design shows the key points of my animation most of which is realistic	I can describe in detail the techniques I want to use						
				I can verbally describe my ideas							
Skills	I have run a simple Python program using the input and print functions		Skills	I have drawn shapes	I have used more than one layer	I have used action script	Skills	I can create a database table that is made up of fields of different data types	I can add a look up validation	I can add a validation rule eg a range check	
	I have used variables in a program	I have written a program involving input, calculation and output		I am able to use different data types <i>string, integer, float</i> in my programs	I have manipulated shapes	I have used motion/shape tweens		I have used and organised system of named layers (5 or more)	I can create a basic input form to input data	I can add features to an input form to make it more user-friendly	
		I have used selection statements <i>if, else</i> and <i>elif</i> in a program			I have imported graphics	I have used sound		I have created independently animated objects	I can filter the database	I can make simple queries	I can query the database using more than one criterion to find answers to user queries
		I have used a <i>while</i> loop in a program		I have used an <i>if</i> statement within a while loop	I have used the paint brush tool				I can create a basic report with suitable headings	I can fully customise my reports	
				I have debugged my program to correct logic errors.	I have used frame by frame animation techniques					I can create a front-end application menu with buttons linking to a form and a report	
Testing		I have corrected syntax errors.	Testing	I have tested my movie using the preview feature	I have created a list of criteria to determine the suitability of my final animation	I have sought the opinion of others and acted upon feedback to refine my animation further					
				I have debugged my program to correct logic errors.	I have suggested some good features about my animation, and ways I could improve	I have made realistic suggestions for improvement for audience and purpose		I have specifically and realistically described how my animation is suitable for audience needs. I have given good reasons for my suggested improvements			

Computing: Year 9 continued

9.4 Computer Crime			9.5 Robotics			
Theory	I can name the major Acts concerning computer use	I can briefly describe the content of the major Acts concerning computer use	Theory	I understand the difference between remote control and automation	I understand some reasons why reliability and consistency might affect the programs I write	I understand a variety of methods I can use to increase the reliability of the programs I write
	I can describe briefly some of the dangers of putting personal data on social networking sites	I can describe briefly ways of protecting online identity and how to report concerns		I understand how sensors can be used to add control to a program	I understand a variety of sensors can be used to increase the reliability of the robots actions	
	I can list some of the Health and Safety hazards associated with computer use			I understand a variety of ways I can control the robot	I understand a variety of pros and cons to approaching a problem from different angles	
Skills			Design	I can discuss the steps I need to take in order to approach a problem	I can discuss a rough plan with others in order to start to approach a problem, looking at pros and cons	I can use pseudo code to help me solve a problem
	I can identify some of the signs of fraudulent emails and respond appropriately	I can recognise fraudulent emails and protect themselves effectively from unwittingly giving personal information (e.g. account numbers and passwords) or otherwise being defrauded	I can respond effectively and appropriately to emails	I am able to use script blocks to make the robot go forward, backwards and make turns	I am able to edit script blocks to change power and direction of the motors	I am able to use port view to accurately measure distance
	I can adhere to Copyright Law when using written text, downloading music etc.		I can describe the effects on individuals and companies of illegally downloading copyright material, e.g. music, images and movies	I am able to use a script block to be able to get the robot to pick up objects or put them down	I am able to edit script blocks to make different styles of turns (wide or short circle turns)	I am able to use the colour sensor to follow a variety of line colours and stop when needed
	I can find out what data is held about them by companies such as Google	I can protect their online identity using Privacy settings and by not uploading personal details		I am able to use seconds in order to determine how long a script/instruction runs for	I am able to use rotations and degrees in order to determine how long a task runs for	I can use loops and if statements
	I can use computers sensibly and safely with regard to physical hazards such as backache, eyestrain, RSI etc.				I am able to follow a red line	
			Testing	I can test and find problems with a solution with teacher help	I can independently test and refine solutions to complete challenges to a good level	I can independently test and refine solutions further to make them more reliable and consistent
			Evaluation	I can discuss what worked well and what needed improving about a solution with prompting from a teacher	I can discuss and identify what worked well and what needs improving with your peers	I can discuss and identify ways to improve your solution to make it realistically more reliable and consistent in its results