Computing Curriculum End Points
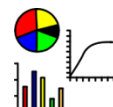
Charnock Hall Primary Academy
A L.E.A.D. Academy

Computing systems and Networks   Creating Media   Data and Information   Programming

	Autumn Term	Spring Term	Summer Term
EYFS	**Photography** I can talk about what photos show. I can take photos using a digital device. **Safety and Privacy** I know who can help me when I am feeling worried. I can choose activities in my free time that help me to be healthy. I can show that I understand how to be kind to others.	**Drawing Skills** I can select colours when painting on an iPad. I can draw pictures on the iPad. I can try the different tools that I can draw with on the iPad. I can use a touchscreen device purposefully. **Safety and Privacy** I can talk about how my body feels when I am not comfortable with something.	**Technology Around Us** I can talk about what technology is used at home. I can talk about what technology is used outdoors. I can talk about what technology is used in the world around me. **Safety and Privacy** I can explain how my work on the computer belongs to me and other people's work belongs to them. I can explain what it means for something to be private.
Year 1	**Computing Systems and Networks -Technology Around Us** I can explain that technology is something that can help us I can identify examples of technology I can explain how examples of technology help us I can recognise that a computer is an example of technology	**Programming A - Moving a Robot** I can recall words that can be enacted I can explain what a given command does I can match a command to an outcome I can run a command on a floor robot I can understand that a program is a set of commands that a computer can run I can choose a series of commands that can be run as a program	**Creating Media- Digital Writing** I can recognise that a keyboard is used to enter text into a computer I can use letter, number, and Space keys to enter text into a computer I can recognise that the Shift key changes the output of a key I can use punctuation and special characters

I can recognise that some technology can be used in different ways I can identify the main parts of a computer I can recognise that choices are made when using technology I can explain why rules are needed when using technology I can use a mouse in different ways I can use a keyboard to type I can use the keyboard I can edit text I can show how I can use technology safely **Creating Media - Digital Painting** I can recognise computers can be used to create art I can explain what different freehand tools do I can create a picture using freehand tools I can use shape and line tools when precision is needed I can use a range of paint colours I can use the fill tool to colour an enclosed area I can use the undo button to correct a mistake I can recognise a tool can be adjusted to suit my need I can combine a range of tools to create a piece of artwork I can decide when it's appropriate to use each tool I can consider impact of choices made I can compare painting using a computer with painting using brushes	I can build a sequence of commands in steps I can combine commands in a program I can run a program on a device **Data and Information – Grouping Data** I can collect simple data I can show that collected data can be counted I can describe the properties of an object I can choose an attribute to group objects by I can explain that objects can be grouped by similarities (attribute) I can describe a group of objects (based on commonality) I can recognise that information can be presented in different ways	I can recognise that the appearance of text can be changed I can select text and use the Backspace key to remove text I can change the appearance of text on a computer I can use Undo **Programming B – Programming Animations** I can list that commands can be used on a given device I can explain what a given command does I can choose a command for a given purpose I can understand that a program is a set of commands a computer can run I can choose a series of words that can be enacted as a program I can choose a series of commands that can be run as a program I can build a sequence of commands in steps I can combine commands in a program I can run a program on a device

Year 2	**Computing Systems and Networks - I.T Around Us**	**Programming A – Robot Algorithms**	**Creating Media – Digital Music**
	I can recognise different types of computers used in school	I can describe that a series of instructions is a sequence	I can identify that computers can be used to play sounds of different instruments
	I can identify that a computer is a part of information technology	I can recall that a series of instructions can be issued before they are enacted	I can identify that the same pattern can be represented in different ways
	I can describe some uses of computers	I can explain what happens when we change the order of instructions	I can experiment with musical patterns on a computer
	I can identify information technology in school and beyond school	I can choose a series of instructions that can be run as a program	I can experiment with different sounds on a computer
	I can talk about uses of information technology	I can recognise that you can predict the outcome of a program	I can use a computer to create a musical pattern
	I can explain how information technology benefits us	I can create a program	I can use a computer to compose a rhythm and a melody on a given theme
	I can show how to use information technology safely	I can run a program on a device	I can use a computer to play the same music in different ways (e.g. tempo)
		I can debug a program that I have written	I can evaluate a musical composition created on a computer
	Creating Media – Digital Photography	**Data and Information – Pictograms**	
	I can recognise that some digital devices can capture images using a camera	I can show I can enter data onto a computer	**Programming B – Programming Quizzes**
	I can capture a digital image	I can use a computer to view data in different formats	
	I can recognise that photographs can be saved and viewed later	I can use pictograms to answer single-attribute questions	I can describe a series of instructions as a 'sequence'
	I can take photographs in both landscape and portrait format	I can use a computer to answer comparison questions (graphs, tables)	I can recall that a series of instructions can be issued before they are enacted
	I can view photographs on a digital device	I can use a computer program to present information in different ways	I can explain what happens when we change the order of instructions
	I can identify how a photograph could be improved	I can explain that we can present information using a computer	I can choose a series of commands that can be run as a program
	I can use zoom to change the composition of a photograph	I can give simple examples of why some information should not be shared	I can test a prediction by running the sequence
	I can use simple editing tools to change the appearance of a photograph		I can create and debug a program that I have written
			I can create and debug a program that I have written

Year 3	**Computing Systems and Networks – Connecting Computers**	**Programming A – Sequencing Sounds**	**Creating Media – Desktop Publishing**
	I can describe what an input is I can identify input and output devices I can explain that a computer accepts and input and processes it to produce and output I can identify how changing the input can affect the output I can recognise that computers can be connected to each other I can explain how a computer network can be used to share information I can explain the role of a switch, server and wireless access point in a network I can identify network devices around me	I can explain that programs start because of an input I can build a sequence of commands I can identify that the sequence of a program is a process I can combine commands in a program I can order commands in a program I can create a sequence of commands to produce a given outcome	I can recognise how text and images can be used together to convey information I can show that page orientation can be changed I can recognise that DTP pages can be structured with placeholders I can add text to a placeholder I can organise text and image placeholders in a page layout I can add and remove images to and from placeholders I can edit text in a placeholder I can move resize and rotate images I can choose fonts and apply effects to text I can review a document
		Data and information – Branching Databases	
	Creating Media – Stop Frame Animation	I can investigate questions with yes/no answers I can create questions with yes/no answers I can choose questions that will divide objects into evenly sized subgroups	**Programming B – Events and actions in programs**
	I can explain that animation is a sequence of drawings or photographs I can relate animated movement with a sequence of images I can plan an animation I can use onion skinning to help me make small changes between frames I can review and improve an animation I can evaluate the impact of adding other media to an animation	I can explain that a branching database is an identification tool I can identify an object using a branching database I can retrieve information from different levels of the branching database I can relate two levels of a branching database using AND I can suggest real-world applications for branching databases	I can explain that programs start because of an input I can identify that a program includes sequences of commands I can build a sequence of commands I can combine commands in a program I can order commands in a program I can create a sequence of commands to produce a given outcome

| Year 4 | **Computing systems and networks – The Internet**

I can describe how networks connect to other networks
I can recognise that the World Wide Web is part of the internet
I can explain that the global interconnection of networks is the internet
I can describe how to access the World Wide Web
I can explain how the content of the World Wide Web is created, owned, and shared by people
I can explain that the World Wide Web comprises of websites and web pages
I can evaluate the reliability of content and the consequences of unreliable content

Creating Media – Audio Production

I can identify that an input device is needed to record sound and that output devices are needed to play audio
I can record sound using a computer
I can recognise that recorded audio can be stored on a computer
I can play recorded audio
I can import audio into a project
I can recognise that sound can be represented visually as a waveform
I can delete a section of audio
I can recognise that audio can be layered so that multiple sounds can be played at the same time
I can consider the results of editing choices made | **Programming A – Repetition in shapes**

I can list an everyday task as a set of instructions including repetition
I can identify patterns in a sequence
I can identify a loop within a program
I can explain that in programming there are indefinite loops and count-controlled loops
I can use an indefinite loop to produce a given outcome
I can use a count-controlled loop to produce a given outcome
I can plan a program that includes appropriate loops to produce a given outcome
I can create two or more sequences that run at the same time

Data and information – Data logging

I can identify data that can be logged over time
I can recognise that a sensor can be used as an input device
I can use a digital device to collect data automatically
I can use a set of logged data to find information
I can use a computer program to sort data
I can export data in different formats | **Creating media – Photo editing**

I can recognise that digital images can be manipulated and changed for different purposes
I can use an application to change the whole of a digital image
I can use an application to change part of a digital image
I can use an application to add to the composition of a digital image
I can change the composition of a digital image by rotating, flipping and cropping.
I can adjust colours of a digital image
I can apply filters to a digital image
I can use clone, copy, and paste to change the composition of a digital image
I can add text to a digital image

Programming B – Repetition in games

I can list an everyday task as a set of instructions including repetition
I can explain that we can use a loop command in a program to repeat instructions
I can explain that in programming there are indefinite loops and count-controlled loops
I can use an indefinite loop to produce a given outcome
I can identify patterns in a sequence, eg 'step 3 times' means the same as 'step, step, step'
I can use a count-controlled loop to produce a given outcome |

			I can plan a program that includes appropriate loops to produce a given outcome I can recognise tools that enable more than one process to be run at the same time (concurrency) I can create two or more sequences that run at the same time
Year 5	**Computing systems and networks - Systems and searching** I can explain that computers can be connected together to form IT systems I can identify that data can be transferred between IT systems I can recognise inputs, processes, and outputs in large IT systems I can relate that search engines are examples of large IT systems I can describe the input and output of a search engine I can demonstrate that different search terms produce different results I can explain the role of web crawlers in creating an index I can explain how ranking is determined by rules, and that different search engines use different rules I can explain why the order of results is important and to whom I can evaluate the results of search terms	**Programming A – Selection in physical computing** I can explain that a condition can only be true or false I can compare a count-controlled loop with a condition-controlled loop I can create a condition-controlled loop I can use a condition in an 'if...then...' statement to start an action I can use selection to switch the program flow in one of two ways I can explain that a loop can be used to repeatedly check whether a condition has been met I can use a condition in an 'if...then...else...' statement to produce given outcomes **Data and information – Flat-file databases** I can explain that a computer program can be used to organise data I can choose different ways to view data I can outline how ordering data allows us to answer some questions I can ask questions that need more than one attribute to answer	**Creating media – Introduction to vector graphics** I can identify that a vector drawing comprises separate objects I can add an object to a vector drawing I can select one object or choices made multiple objects I can move objects between the layers of a drawing I can duplicate objects using copy and paste I can modify and reposition objects I can recognise that vector images can be scaled without impact on quality I can recognise that objects can be modified in groups I can create a vector drawing for a given purpose **Programming B – Selection in quizzes** I can explain that a condition can only be true or false I can choose a condition to use in a program I can relate that a count-controlled loop contains a condition I can compare a count controlled loop with a condition-controlled loop I can create a condition-controlled loop

		Creating media - Video production	I can choose which attribute and value to search by to answer a given question (operands)	I can use a condition in an 'if... then…' statement to start an action
		I can explain the features of video as a visual media format I can use different camera angles I can use pan, tilt and zoom I can combine filming techniques for a given purpose I can identify that videos can be edited on a recording device or on a computer and can be improved through and reshooting or editing I can choose to reshoot a scene or improve later through editing I can use split, trim and crop to edit a video I can recognise projects need to be exported to be shared	I can choose which attribute to sort data by to answer a given question I can choose multiple criteria to search data to answer a given question (AND and OR) I can select an appropriate graph to visually compare data I can choose suitable ways to present information to other people	I can use selection to switch program flow I can explain that a loop can be used to repeatedly check whether a condition has been met I can use 'if... then... else…' to switch program flow in one of two ways
Year 6		**Computing systems and networks - Communication and collaboration**	**Programming A – Variables in games**	**Creating media – 3D Modelling**
		I can recognise that data is transferred across networks using agreed protocols (methods) I can explain that data is transferred in packets I can outline methods of communicating and collaborating using the internet I can choose methods of internet communication and collaboration for given purposes I can evaluate different methods of online communication and collaboration I can decide what you should and should not share online	I can define a 'variable' as something that is changeable I can define a program variable as a placeholder in memory for a single value I can identify a variable in an existing program I can experiment with the value of an existing variable I can identify that variables can hold numbers (integers) or letters (strings) I can decide where in a program to set a variable I can use a variable in a conditional statement to control the flow of a program I can use the same variable in more than one location in a program	I can explain that 3D models can be created on a computer I can position 3D shapes relative to one another I can use digital tools to modify 3D objects I can combine objects to create a 3D digital artefact I can use digital tools to accurately size 3D objects I can recognise that artefacts can be broken down into a collection of 3D objects I can construct a 3D model which reflects a real world object

Creating media – Web page creation	Data and information - Introduction to Spreadsheets	Programming B - Sensing movement
I can review an existing website (navigation bars, header) I can recognise components of a web page layout I can create a new blank web page I can add text to a web page and to set the style of text on a web page I can embed media in a web page I can recognise the need for a navigation path I can add web pages to a website I can insert hyperlinks between pages I can insert hyperlinks to another site	I can identify questions that can be answered using spreadsheet data I can calculate data using a formula for each operation I can recognise cells can be linked I can use functions to create new data I can use existing cells within a formula I can recognise that a cell's value automatically updates when the value in a linked cell is changed I can choose suitable ways to present spreadsheet data	I can identify examples of information that is variable, e.g. a football score during a match I can explain that a variable can be used in a program, e.g. 'score' I can identify a variable in an existing program I can experiment with the value of an existing variable I can choose a name that identifies the role of a variable to make it more usable (to humans) I can decide where in a program to set a variable I can update a variable with a user input I can use an event in a program to update a variable I can use a variable in a conditional statement to control the flow of a program I can use the same variable in more than one location in a program