HORNCASTLE PRIMARY SCHOOL
Subject Progression – Computing

Purpose & Aims	A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with Mathematics, Science, and Design and Technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world. The National Curriculum for computing aims to ensure that all pupils: i) can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation; ii) can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems; iii) can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems and iv) are responsible, competent, confident and creative users of information and communication technology.		
Curriculum Drivers	**Community**	**Creative Thinking**	**Confident and Resilient Learners**
	• Know and understand how to use the internet and keep myself safe online. • Develop an understanding of how the internet has affected the wider world. • Know that the internet is a place for learning and is able to be used for the good of the community.	• Units of learning are organised around a theme that the children are then able to explore and discuss with their peers. Children are encouraged to be creative in their ideas around programming and media creation. • Make connections between data and information and how this can help in everyday problems or scenarios.	• Explain how to use a computer for programming. • Children will be able to create media confidently using a computer. • Children know what it is to be 'a computer scientist' and can talk about what they have learned using appropriate subject specific vocabulary.

EYFS	Learning about technology starts from birth because it's the way the world works today. Technology is an integral part of all young children's environment and world. They are surrounded by technology just as they are surrounded by language, print and numbers. In the home, technology includes remote controls for television, DVDs and sound systems, toys that have buttons and buzzers, mobile phones, washing machines, microwave ovens and other machines that require programming, and of course, computers and mobile devices such as iPads. Outside the home, children are also immersed in the technological world: they see automatic doors, cash machines, bar code scanners, digital tills and weighing machines, and security cameras. Technology is something children are going to grow up with, learn about and master, and use as a tool to increase their understanding in all areas of learning. Many activities in the early years revolve around children developing an understanding of their environment. Settings encourage children to explore, observe, solve problems, predict, discuss and consider. ICT resources can provide tools for using these skills as well as being examined in their own right, with computers not the only resources. ICT equipment added to role-play reflects the real world, builds on children's experiences and allows them opportunities to understand how, why, when and where different forms of technology are used in everyday life. Early experiences form a foundation upon which KS1 and KS2 can build and the current early learning goals have specific objectives relating to ICT. By the end of the Foundation Stage most children will: • Show an interest in ICT • Know how to operate simple equipment • Complete a simple program on the computer and / or perform simple functions on ICT equipment • Find out about and identify the uses of everyday technology and use information and communication toys to support their learning • Know and talk about the different factors that support their overall health and wellbeing. Know about sensible amounts of 'screen time'. • Develop their motor skills so that they can use a range of tools competently, safely and confidently. • Explain the reason for rules, know the right from wrong and try to behave accordingly • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. • Remember the rules without an adult needing to remind them. • Match their developing physical skills to tasks and activities in the setting. • Explore how things work. • Show resilience and perseverance in the face of a challenge. • Explore, use and refine a variety of artistic effects to express their ideas and feelings. • Be confident to try new activities and show independence, resilience and perseverance in the face of challenge.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Focus Areas	E-Safety Computing Systems and Networks - Technology Around Us Creating Media A - Digital Painting Programming A - Moving a Robot Data and Information - Grouping Data Creating Media B - Digital Writing Programming B - Programming Animations	E-Safety Computing Systems and Networks -IT Around Us Creating Media A -Digital Photography Programming A- Robot Algorithms Data and Information - Pictograms Creating Media B -Digital Music Programming B- Programming Quizzes	E-Safety Computing Systems and Networks - Connecting Computers Creating Media A - Stop-Frame Animation Programming A - Sequencing Sounds Data and Information - Branching Databases Creating Media B - Desktop Publishing Programming B -Events and Actions in Programs	E-Safety Computing Systems and Networks – The Internet Creating Media A – Audio Production Programming A – Repetition in Shapes Data and Information - Data Logging Creating Media B – Photo Editing Programming B - Repetition in Games	E-Safety Computing Systems and Networks – Systems and Searching Creating Media A – Video Production Programming A – Selection in Physical Computing Data and Information - Flat-File Databases Creating Media B – Introduction to Vector Graphics Programming B -Selection in Quizzes	E-Safety Computing Systems and Networks – Communication and Collaboration Creating Media A – Web Page Creation Programming A – Variable in Games Data and Information - Introduction to Spreadsheets Creating Media B – 3D Modelling Programming B - Sensing Movement

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
E-Safety **(Objectives in purple come from RSE curriculum)**	Identify what is personal information and discuss sharing personal information. Create class email showing what information is personal and allowed and what is not. Use VLE blogging/social media to see how information can be viewed by others. C/C RSE Open and close applications Create class rules including seeking help from adult if unsure. C/C RSE	Identify some risks presented by new technologies inside and outside school (e.g. online games, mobile phone texting and cyber-bullying). C/C RSE Discuss sensible people to talk to about risks – parents, teacher, "real" friend. Not "online" adult/friend. Identify SMART rules: Safe/Meeting/Accepting/Reliable/Tell. C/C RSE Create class rules Use email/blogging/social media on VLE to model how we respect other people's work/feelings/ opinions and that this communication can be recorded.	Identify SMART rules: Safe/Meeting/Accepting/Reliable/Tell. Create a poster/presentation to highlight SMART rules. Discuss what to do if content is inappropriate or upsetting (e.g. parent/teacher/trusted adult) know who to report to and talk to. C/C RSE Use VLE whistle blowing system to highlight inappropriate usage. Create class rules Identify what appropriate and inappropriate behaviour is and cyberbullying Seek help from an adult when they see something that is upsetting or worrying	Identify trusted adult Understand the Internet contains fact, fiction and opinion and begin to distinguish between them. C/C RSE Know that the aim of many sites is to sell something or gain personal information and can be linked to from other sites. C/C RSE Create class rules Create blog or forum on VLE to show impact of digital footprint Be aware that taking text or images from some sites may be stealing other people's work. Know when an email should not be opened or messages ignored. C/C RSE	Identify trusted adult Demonstrate safe practice when selecting images or content for uploading to an online space. Create class rules Understand the need for privacy settings on any social networking sites (and that those privacy settings may not be observed by online 'friends' who can use/ share/download your images /content). C/C RSE	Identify trusted adult Understand some malicious adults use the internet to make contact and "groom" young children. C/C RSE Create class rules Know how to report any suspicions (Think You Know REPORT ABUSE page). Discuss scenarios involving online risk

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SOURCES: 'KAPOW - HISTORY 'THE NATIONAL CURRICULUM IN ENGLAND: KEY STAGES 1 & 2' (CROWN COPYRIGHT 2013)

Computing Systems and Networks	Explain how these technology examples help us Explain technology as something that helps us Locate examples of technology in the classroom Name the main parts of a computer Switch on and log into a computer Use a mouse to click and drag Click and drag to make objects on a screen Use a mouse to create a picture Use a mouse to open a program Save my work to a file Say what a keyboard is for Type my name on a computer Delete letters Open my work from a file Use the arrow keys to move the cursor Discuss how we benefit from these rules Give examples of some of these rules Identify rules to keep us safe and healthy	Describe some uses of computers Identify examples of computers Identify that a computer is a part of IT Identify examples of IT Identify that some IT can be used in more than one way Sort school IT by what it's used for Find examples of information technology Sort IT by where it is found Talk about uses of information technology Demonstrate how IT devices work together Recognise common types of technology Say why we use IT List different uses of information technology Say how rules can help keep me safe C/C RSE Talk about different rules for using IT Explain the need to use IT in different ways Identify the choices that I make when using IT Use IT for different types of activities	Explain that digital devices accept inputs Explain that digital devices produce outputs Follow a process Classify input and output devices Describe a simple process Design a digital device Use digital devices for different activities Recognise similarities between using digital devices and non-digital tools Suggest differences between using digital devices and non-digital tools Discuss why we need a network switch Explain how messages are passed through multiple connections Recognise different connections Demonstrate how information can be passed between devices Explain the role of a switch, server, and wireless access point in a network Recognise that a computer network is made up of a number of devices Identify how devices in a network are connected together	Demonstrate how information is shared across the internet Describe the internet as a network of networks Discuss why a network needs protecting C/C RSE Describe networked devices and how they connect Explain that the internet is used to provide many services Recognise that the World Wide Web contains websites and web pages Describe how to access websites on the WWW Describe where websites are stored when uploaded to the WWW Explain the types of media that can be shared on the WWW C/C RSE Explain that internet services can be used to create content online Explain what media can be found on websites Recognise that I can add content to the WWW Explain that there are rules to protect content C/C RSE Explain that websites and their content are created by people Suggest who owns the content on websites	Describe that a computer system features inputs, processes, and outputs Explain that computer systems communicate with other devices Explain that systems are built using a number of parts Explain the benefits of a given computer system Identify tasks that are managed by computer systems Identify the human elements of a computer system Compare results from different search engines Make use of a web search to find specific information Refine my web search Explain why we need tools to find things online Recognise the role of web crawlers in creating an index Relate a search term to the search engine's index Explain that a search engine follows rules to rank results Give examples of criteria used by search engines to rank results Order a list by rank Describe some of the ways that search results can be influenced	Describe how computers use addresses to access websites Explain that internet devices have addresses Recognise that data is transferred using agreed methods Explain that all data transferred over the internet is in packets Explain that data is transferred over networks in packets Identify and explain the main parts of a data packet Explain that the internet allows different media to be shared Recognise how to access shared files stored online Send information over the internet in different ways Explain how the internet enables effective collaboration Identify different ways of working together online Recognise that working together on the internet can be public or private C/C RSE Choose methods of communication to suit particular purposes

	when we are using technology in and beyond the home		Identify networked devices around me Identify the benefits of computer networks	Explain that not everything on the World Wide Web is true C/C RSE Explain why I need to think carefully before I share or reshare content C/C RSE Explain why some information I find online may not be honest, accurate, or legal C/C RSE	Explain how search engines make money Recognise some of the limitations of search engines	Explain the different ways in which people communicate Identify that there are a variety of ways to communicate over the internet C/C RSE Compare different methods of communicating on the internet C/C RSE Decide when I should and should not share information online C/C RSE Explain that communication on the internet may not be private C/C RSE

Creating Media A	Draw lines on a screen and explain which tools I used Make marks on a screen and explain which tools I used Use the paint tools to draw a picture Make marks with the square and line tools Use the shape and line tools effectively Use the shape and line tools to recreate the work of an artist Choose appropriate shapes Create a picture in the style of an artist Make appropriate colour choices Choose appropriate paint tools and colours to recreate the work of an artist Say which tools were helpful and why Know that different paint tools do different jobs Change the colour and brush sizes Make dots of colour on the page	Explain what I did to capture a digital photo Recognise what devices can be used to take photographs Talk about how to take a photograph Explain the process of taking a good photograph Explain why a photo looks better in portrait or landscape format Take photos in both landscape and portrait format Discuss how to take a good photograph Identify what is wrong with a photograph Improve a photograph by retaking it Experiment with different light sources Explain why a picture may be unclear Explore the effect that light has on a photo Explain my choices Recognise that images can be changed Use a tool to achieve a desired effect	Create an effective flip book—style animation Draw a sequence of pictures Explain how an animation/flip book works Create an effective stop-frame animation Explain why little changes are needed for each frame Predict what an animation will look like Break down a story into settings, characters and events Create a storyboard Evaluate the quality of my animation Review a sequence of frames to check my work Use onion skinning to help me make small changes between frames Evaluate another learner's animation Explain ways to make my animation better Improve my animation based on feedback Add other media to my animation Evaluate my final film	Explain that the person who records the sound can say who is allowed to use it Identify the input and output devices used to record and play sound Use a computer to record audio Discuss what sounds can be added to a podcast Inspect the soundwave view to know where to trim my recording Re-record my voice to improve my recording explain how sounds can be combined to make a podcast more engaging Plan appropriate content for a podcast Save my project so the different parts remain editable Improve my voice recordings Record content following my plan Review the quality of my recordings Arrange multiple sounds to create the effect I want Explain the difference between saving a project	Compare features in different videos Explain that video is a visual media format Identify features of videos Experiment with different camera angles Identify and find features on a digital video recording device Make use of a microphone Capture video using a range of filming techniques Review how effective my video is Suggest filming techniques for a given purpose Create and save video content Decide which filming techniques I will use Outline the scenes of my video Explain how to improve a video by reshooting and editing Select the correct tools to make edits to my video Store, retrieve, and export my recording to a computer	Discuss the different types of media used on websites Explore a website Know that websites are written in HTML Draw a web page layout that suits my purpose Recognise the common features of a web page Suggest media to include on my page Describe what is meant by the term 'fair use' Find copyright-free images Say why I should use copyright-free images Add content to my own web page Evaluate what my web page looks like on different devices and suggest/make edits Preview what my web page looks like Describe why navigation paths are useful Explain what a navigation path is

	Use dots of colour to create a picture in the style of an artist on my own Explain that pictures can be made in lots of different ways Say whether I prefer painting using a computer or using paper Spot the differences between painting on a computer and on paper	Apply a range of photography skills to capture a photo Identify which photos are real and which have been changed C/C RSE Recognise which photos have been changed	Explain why I added other media to my animation	and exporting an audio file Open my project to continue working on it Choose appropriate edits to improve my podcast Listen to an audio recording to identify its strengths Suggest improvements to an audio recording	Evaluate my video and share my opinions Make edits to my video and improve the final outcome Recognise that my choices when making a video will impact on the quality of the final outcome	Make multiple web pages and link them using hyperlinks can create hyperlinks to link to other people's work Evaluate the user experience of a website Explain the implication of linking to content owned by others

Programming A	Match a command to an outcome Predict the outcome of a command on a device Run a command on a device Follow an instruction Give directions Recall words that can be acted out Compare forwards and backwards movements Predict the outcome of a sequence involving forwards and backwards commands Start a sequence from the same place Compare left and right turns Experiment with turn and move commands to move a robot Predict the outcome of a sequence involving up to four commands Choose the order of commands in a sequence Debug my program	Choose a series of words that can be enacted as a sequence Follow instructions given by someone else Give clear instructions Show the difference in outcomes between two sequences that consist of the same commands Use an algorithm to program a sequence on a floor robot Use the same instructions to create different algorithms Compare my prediction to the program outcome Follow a sequence Predict the outcome of a sequence Explain the choices I made for my mat design Identify different routes around my mat Test my mat to make sure that it is usable Create an algorithm to meet my goal Explain what my algorithm should achieve Use my algorithm to create a program	Explain that objects in Scratch have attributes (linked to) Identify the objects in a Scratch project (sprites, backdrops) Recognise that commands in Scratch are represented as blocks Choose a word which describes an on-screen action for my plan Create a program following a design Identify that each sprite is controlled by the commands I choose Create a sequence of connected commands Explain that the objects in my project will respond exactly to the code Start a program in different ways Combine sound commands Explain what a sequence is Order notes into a sequence Build a sequence of commands Decide the actions for each sprite in a program	Create a code snippet for a given purpose Explain the effect of changing a value of a command Program a computer by typing commands Test my algorithm in a text-based language Use a template to create a design for my program Write an algorithm to produce a given outcome Identify everyday tasks that include repetition as part of a sequence, eg brushing teeth, dance moves Identify patterns in a sequence Use a count-controlled loop to produce a given outcome Choose which values to change in a loop Identify the effect of changing the number of times a task is repeated Predict the outcome of a program containing a count-controlled loop Explain that a computer can repeatedly call a procedure	Create a simple circuit and connect it to a microcontroller Explain what an infinite loop does Program a microcontroller to make an LED switch on Connect more than one output component to a microcontroller Design sequences that use count-controlled loops Use a count-controlled loop to control outputs Design a conditional loop Explain that a condition is either true or false Program a microcontroller to respond to an input Explain that a condition being met can start an action Identify a condition and an action in my project Use selection (an 'if…then…' statement) to direct the flow of a program Create a detailed drawing of my project Describe what my project will do	Explain that the way a variable changes can be defined Identify examples of information that is variable Identify that variables can hold numbers or letters Explain that a variable has a name and a value Identify a program variable as a placeholder in memory for a single value Recognise that the value of a variable can be changed Decide where in a program to change a variable Make use of an event in a program to set a variable Recognise that the value of a variable can be used by a program Choose the artwork for my project Create algorithms for my project Explain my design choices

	Explain what my program should do Identify several possible solutions Plan two programs Use two different programs to get to the same place	Plan algorithms for different parts of a task Put together the different parts of my program Test and debug each part of the program	Make design choices for my artwork Identify and name the objects I will need for a project Implement my algorithm as code Relate a task description to a design	Identify 'chunks' of actions in the real world Use a procedure in a program Design a program that includes count-controlled loops Develop my program by debugging it Make use of my design to write a program	Identify a real-world example of a condition starting an action Test and debug my project Use selection to produce an intended outcome Write an algorithm that describes what my model will do	Choose a name that identifies the role of a variable Create the artwork for my project Test the code that I have written Identify ways that my game could be improved Share my game with others Use variables to extend my game

Data and Information	Describe objects using labels Identify the label for a group of objects Match objects to groups Count a group of objects Count objects Group objects Describe an object Describe a property of an object Find objects with similar properties Count how many objects share a property Group objects in more than one way Group similar objects Choose how to group objects Describe groups of objects Record how many objects are in a group Compare groups of objects Decide how to group objects to answer a question	Compare totals in a tally chart Record data in a tally chart Represent a tally count as a total Enter data onto a computer Use a computer to view data in a different format Use pictograms to answer simple questions about objects Explain what the pictogram shows Organise data in a tally chart Use a tally chart to create a pictogram Answer 'more than'/'less than' and 'most/least' questions about an attribute Create a pictogram to arrange objects by an attribute Tally objects using a common attribute Choose a suitable attribute to compare people Collect the data I need Create a pictogram and draw conclusions from it	Create two groups of objects separated by one attribute Investigate questions with yes/no answers Make up a yes/no question about a collection of objects Arrange objects into a tree structure Create a group of objects within an existing group Select an attribute to separate objects into groups Group objects using my own yes/no questions Select objects to arrange in a branching database Test my branching database to see if it works Compare two branching database structures Create yes/no questions using given attributes Explain that questions need to be ordered carefully to split objects into similarly sized groups Create a physical version of a branching database	Choose a data set to answer a given question Identify data that can be gathered over time Suggest questions that can be answered using a given data set Explain what data can be collected using sensors Identify that data from sensors can be recorded Use data from a sensor to answer a given question Identify the intervals used to collect data Recognise that a data logger collects data at given points Talk about the data that I have captured Explain that there are different ways to view data Sort data to find information View data at different levels of detail Plan how to collect data using a data logger Propose a question that can be answered using logged data Use a data logger to collect data	Create a database using cards Explain how information can be recorded Order, sort, and group my data cards Choose which field to sort data by to answer a given question Explain what a field and a record is in a database Navigate a flat-file database to compare different views of information Combine grouping and sorting to answer specific questions Explain that data can be grouped using chosen values Group information using a database Choose multiple criteria to answer a given question Choose which field and value are required to answer a given question Outline how 'AND' and 'OR' can be used to refine data selection	Collect data Enter data into a spreadsheet Suggest how to structure my data Apply an appropriate format to a cell Choose an appropriate format for a cell Explain what an item of data is Construct a formula in a spreadsheet Explain which data types can be used in calculations Identify that changing inputs changes outputs Apply a formula to multiple cells by duplicating it Calculate data using different operations Create a formula which includes a range of cells Apply a formula to calculate the data I need to answer questions Explain why data should be organised Use a spreadsheet to answer questions

	Record and share what I have found	Give simple examples of why information should not be shared Share what I have found out using a computer Use a computer program to present information in different ways	Create questions that will enable objects to be uniquely identified Independently create questions to use in a branching database Create a branching database that reflects my plan Suggest real-world uses for branching databases Work with a partner to test my identification tool	Draw conclusions from the data that I have collected Explain the benefits of using a data logger Interpret data that has been collected using a data logger	Explain the benefits of using a computer to create charts Refine a chart by selecting a particular filter Select an appropriate chart to visually compare data Ask questions that will need more than one field to answer Present my findings to a group Refine a search in a real-world context	Produce a chart Suggest when to use a table or chart Use a chart to show the answer to questions

Creating Media B	Identify and find keys on a keyboard Open a word processor Recognise keys on a keyboard Enter text into a computer Use backspace to remove text Use letter, number, and space keys Explain what the keys that I have learnt about already do Identify the toolbar and use bold, italic, and underline Type capital letters Change the font Select all of the text by clicking and dragging Select a word by double-clicking Decide if my changes have improved my writing Say what tool I used to change the text Use 'undo' to remove changes	Describe music using adjectives Identify simple differences in pieces of music Say what I do and don't like about a piece of music Create a rhythm pattern Explain that music is created and played by humans Play an instrument following a rhythm pattern Connect images with sounds Relate an idea to a piece of music Use a computer to experiment with pitch n explain how my music can be played in different ways Identify that music is a sequence of notes Refine my musical pattern on a computer Add a sequence of notes to my rhythm Create a rhythm which represents an animal I've chosen Create my animal's rhythm on a computer	Explain the difference between text and images Identify the advantages and disadvantages of using text and images Recognise that text and images can communicate messages clearly Change font style, size, and colours for a given purpose Edit text Explain that text can be changed to communicate more clearly Create a template for a particular purpose Define the term 'page orientation' Recognise placeholders and say why they are important Choose the best locations for my content Make changes to content after I've added it Paste text and images to create a magazine cover Choose a suitable layout for a given purpose Identify different layouts Match a layout to a purpose	Explain why I might crop an image Improve an image by rotating it Use photo editing software to crop an image Experiment with different colour effects Explain that different colour effects make you think and feel different things Explain why I chose certain colour effects Add to the composition of an image by cloning Identify how a photo edit can be improved Remove parts of an image using cloning experiment with tools to select and copy part of an image Explain why photos might be edited Use a range of tools to copy between images Choose suitable images for my project Create a project that is a combination of other images	Discuss how vector drawings are different from paper-based drawings Experiment with the shape and line tools Recognise that vector drawings are made using shapes Explain that each element added to a vector drawing is an object Identify the shapes used to make a vector drawing Move, resize, and rotate objects I have duplicated Explain how alignment grids and resize handles can be used to improve consistency Modify objects to create a new image Use the zoom tool to help me add detail to my drawings Change the order of layers in a vector drawing Identify that each added object creates a new layer in the drawing Use layering to create an image	Add 3D shapes to a project Move 3D shapes relative to one another View 3D shapes from different perspectives Lift/lower 3D objects Recolour a 3D object Resize an object in three dimensions Duplicate 3D objects Group 3D objects Rotate objects in three dimensions Accurately size 3D objects Combine a number of 3D objects Show that placeholders can create holes in 3D objects Analyse a 3D model Choose objects to use in a 3D model Combine objects in a design Construct a 3D model based on a design Explain how my 3D model could be improved Modify my 3D model to improve it

	Explain the differences between typing and writing Make changes to text on a computer Say why I prefer typing or writing	Explain how I changed my work Listen to music and describe how it makes me feel Review my work	Compare work made on desktop publishing to work created by hand Identify the uses of desktop publishing in the real world Say why desktop publishing might be helpful	Describe the image I want to create Combine text and my image to complete the project Review images against a given criteria Use feedback to guide making changes	Copy part of a drawing by duplicating several objects Recognise when I need to group and ungroup objects Reuse a group of objects to further develop my vector drawing Compare vector drawings to freehand paint drawings Create a vector drawing for a specific purpose Reflect on the skills I have used and why I have used them	

Programming B	Compare different programming tools Find which commands to move a sprite Use commands to move a sprite and run my program Use a Start block in a program Use more than one block by joining them together Change the value Find blocks that have numbers Say what happens when I change a value Add blocks to each of my sprites Delete a sprite Show that a project can include more than one sprite Choose appropriate artwork for my project Create an algorithm for each sprite Decide how each sprite will move	Identify that a program needs to be started Identify the start of a sequence Show how to run my program Change the outcome of a sequence of commands Match two sequences with the same outcome Predict the outcome of a sequence of commands Build the sequences of blocks I need Decide which blocks to use to meet the design Work out the actions of a sprite in an algorithm Choose backgrounds for the design Choose characters for the design Create a program based on the new design Build sequences of blocks to match my design Choose the images for my own design Create an algorithm Compare my project to my design Debug my program	Choose which keys to use for actions and explain my choices Explain the relationship between an event and an action Identify a way to improve a program Choose a character for my project Choose a suitable size for a character in a maze Program movement choose blocks to set up my program Consider the real world when making design choices Use a programming extension Build more sequences of commands to make my design work Choose suitable keys to turn on additional features Identify additional features (from a given set of blocks) Match a piece of code to an outcome Modify a program using a design	List an everyday task as a set of instructions including repetition Modify a snippet of code to create a given outcome Predict the outcome of a snippet of code Choose when to use a count-controlled and an infinite loop Modify loops to produce a given outcome Recognise that some programming languages enable more than one process to be run at once Choose which action will be repeated for each object Evaluate the effectiveness of the repeated sequences used in my program Explain what the outcome of the repeated action should be Explain the effect of my changes Identify which parts of a loop can be changed Re-use existing code snippets on new sprites Develop my own design explaining what my project will do	Identify conditions in a program Modify a condition in a program Recall how conditions are used in selection Create a program with different outcomes using selection Identify the condition and outcomes in an 'if… then… else…' statement Use selection in an infinite loop to check a condition Design the flow of a program which contains 'if… then… else…' Explain that program flow can branch according to a condition Show that a condition can direct program flow in one of two ways Identify the outcome of user input in an algorithm Outline a given task Use a design format to outline my project Implement my algorithm to create the first section of my program Share my program with others Test my program	Apply my knowledge of programming to a new environment Test my program on an emulator Transfer my program to a controllable device Determine the flow of a program using selection Identify examples of conditions in the real world Use a variable in an if, then, else statement to select the flow of a program Experiment with different physical inputs Explain that checking a variable doesn't change its value Use a condition to change a variable Explain the importance of the order of conditions in else, if statements Modify a program to achieve a different outcome Use an operand (e.g. qG=) in an if, then statement

	Add programming blocks based on my algorithm Test the programs I have created Use sprites that match my design	Can improve my project by adding features	Test a program against a given design evaluate my project Implement my design Make design choices and justify them	Evaluate the use of repetition in a project Select key parts of a given project to use in my own design Build a program that follows my design Evaluate the steps I followed when building my project Refine the algorithm in my design	extend my program further Identify the setup code I need in my program Identify ways the program could be improved	Decide what variables to include in a project Design the algorithm for my project Design the program flow for my project Create a program based on my design Test my program against my design Use a range of approaches to find and fix bugs