



# Gotham Primary Computing Progression Planning

## Overview

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn						
Using computing and technology to enhance the curriculum	<b>Computing systems and networks –</b> Technology around us  <b>Creating media –</b> Digital painting	<b>Computing systems and networks – IT</b> around us  <b>Creating media –</b> Digital photography	<b>Computing systems and networks –</b> Connecting computers  <b>Creating media –</b> Animation	<b>Computing systems and networks –</b> The Internet  <b>Creating media –</b> Audio editing	<b>Computing systems and networks –</b> Sharing information  <b>Creating media –</b> Video editing	<b>Computing systems and networks –</b> Communication  <b>Creating media –</b> Web page creation
Spring						
Using computing and technology to enhance the curriculum	<b>Programming A –</b> Moving a robot  <b>Data and information –</b> Grouping data	<b>Programming A –</b> Robot algorithms  <b>Data and information –</b> Pictograms	<b>Programming A –</b> Sequence in music  <b>Data and information –</b> Branching databases	<b>Programming A –</b> Repetition in shapes  <b>Data and information –</b> Data logging	<b>Programming A –</b> Selection in physical computing  <b>Data and information –</b> Flat-file databases	<b>Programming A –</b> Variables in games  <b>Data and information –</b> Spreadsheets
Summer						
Using computing and technology to enhance the curriculum	<b>Creating media –</b> Digital writing  <b>Programming B –</b> Introduction to animation	<b>Creating media –</b> Making music  <b>Programming B –</b> An introduction to quizzes	<b>Creating media –</b> Desktop publishing  <b>Programming B –</b> Events and actions	<b>Creating media –</b> Photo editing  <b>Programming B –</b> Repetition in games	<b>Creating media –</b> Vector drawing  <b>Programming B –</b> Selection in quizzes	<b>Creating media –</b> 3D Modelling  <b>Programming B –</b> Sensing

# Computing Systems and Networks Progression

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Declarative Knowledge ('knowing that')	<p>Know that there are different digital devices.</p> <p>Know that information can be accessed through digital devices.</p>	<p>Know examples of technology and how they help us</p> <p>Know that choices are made when using technology</p> <p>Know the main parts of a computer</p> <p>Know and explain rules for using technology safely</p>	<p>Know the uses and features of information technology</p> <p>Know information technology in school, at home and beyond</p> <p>Know the benefits of information technology</p> <p>Know that choices are made when using information technology</p>	<p>Know how digital devices function</p> <p>Know input and output devices</p> <p>Know how digital devices can change the way we work</p> <p>Know how a computer network can be used to share information</p> <p>Know the physical components of a network</p> <p>Know how text and images convey information</p> <p>Know that text and layout can be edited</p> <p>Know how different layouts can suit different purposes</p> <p>Know the benefits of desktop publishing</p>	<p>Know how networks physically connect to other networks</p> <p>Know how networked devices make up the internet</p> <p>Know how websites can be shared via the world Wide Web</p> <p>Know how content can be added and accessed on the World Wide Web</p> <p>Know how the content of the WWW is created by people</p>	<p>Know that computers can be connected together to form systems</p> <p>Know the role of computer systems in our lives</p> <p>Know how information is shared over the internet</p> <p>Know how sharing information online lets people in different places work together</p>	<p>Know how to use a search engine</p> <p>Know how search engines select results</p> <p>Know how search results are ranked</p> <p>Know why the order of results is important, and to whom</p> <p>Know how we communicate using technology</p>
Procedural Knowledge ('knowing how')	<p>Explore different digital devices</p>	<p>To use a mouse in different ways</p> <p>To use a keyboard to type and edit text</p>	<p>To show how to use information technology safely</p>	<p>To explore how digital devices can be connected</p> <p>To choose appropriate page settings</p> <p>To add content to a desktop publishing application</p>	<p>To evaluate the consequences of unreliable content</p>	<p>To contribute to a shared project online</p> <p>To evaluate different ways of working together online</p>	<p>To evaluate different methods of online communication</p>

# Creating Media Knowledge Progression

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Declarative Knowledge ('knowing that')	Know that marks can be made on screen using a Paint or drawing program.	<p>Know what different freehand tools do and explain choices when using them.</p> <p>Know differences between computer and paper paintings</p> <p>Know that the look of text can be changed on a computer</p> <p>Know differences between writing on computers and paper</p> <p>Know why tools were used</p>	<p>Know that devices can be used to take photographs</p> <p>Know what make a good photograph</p> <p>Know that photographs can be changed</p> <p>Know how music makes us feel</p> <p>Know there are patterns in music</p> <p>Know that music can be used in different ways</p> <p>Know that music is made from a series of notes</p>	<p>Know that animation is a sequence of drawings or photographs</p> <p>Know that animated movement is a sequence of images</p> <p>Know that you need to work consistently and carefully</p>	<p>Know that sound can be digitally recorded</p> <p>Know that a digital recording is stored as a file</p> <p>Know that audio can be changed through editing</p> <p>Know digital images can be changed</p> <p>Know how images can be changed for different uses</p> <p>Know that not all images are real</p>	<p>Know video as moving pictures, which can include audio</p> <p>Know digital devices that can record video</p> <p>Know the features of an effective video</p> <p>Know that video can be improved through reshooting and editing</p> <p>Know that drawing tools can be used to produce different outcomes</p> <p>Know that vector drawings consist of layers</p>	<p>Know the meaning of copyright in relation to the ownership and use of images</p> <p>Know and understand the need to preview pages</p> <p>Know the implications of linking to content owned by other people</p> <p>Know that physical objects can be broken down into a collection of 3D shapes</p>
Procedural Knowledge ('knowing how')	To make marks on a paint or drawing program	<p>To use the shape tool and the line tools</p> <p>To use a computer to paint a picture</p> <p>To use a computer to write, add and remove text</p>	<p>To use a digital device to take a photograph</p> <p>To know how a photograph can be improved</p> <p>To use tools to change a photograph</p> <p>To create music for a purpose</p> <p>To review and refine our computer work/music</p>	<p>To plan an animation</p> <p>To review and improve an animation</p> <p>To evaluate the impact of adding other media to an animation</p>	<p>To use a digital device to record sound</p> <p>To show that different types of audio can be combined and played together</p> <p>To evaluate editing choices made</p> <p>To change the composition of an image</p> <p>To make good choices when selecting different tools</p> <p>To evaluate how changes can improve an image</p>	<p>To capture video using a digital device</p> <p>To consider the impact of the choices made when making and sharing a video</p> <p>To create a vector drawing by combining shapes</p> <p>To use tools to achieve a desired effect</p> <p>To group objects to make them easier to work with</p> <p>To evaluate my vector drawing</p>	<p>To review an existing website and consider its structure</p> <p>To plan the features of a web page</p> <p>To outline the need for a navigation path</p> <p>To use a computer to create and manipulate 3D digital objects</p> <p>To compare working digitally with 2D and 3D graphics</p> <p>To construct a digital 3D model of a physical object</p> <p>To design a digital model by combining 3D shapes</p> <p>To develop and improve a digital 3D model</p>

# Programming Knowledge Progression

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Declarative Knowledge ('knowing that')</b>	<p>Know that a Beebot can move if the correct buttons are pressed.</p> <p>Know the outcome of pressing certain buttons on a beebot.</p>	<p>Know what a given command will do</p> <p>Know more than one solution to a problem</p> <p>Know that a series of commands can be joined</p> <p>Know the effect of changing a value</p> <p>Know that each sprite has its own instructions</p>	<p>Know that a series of instructions is a sequence</p> <p>Know what happens when you change the order of instructions</p> <p>Know the outcome of a program (series of commands) through logical reasoning</p> <p>Know that programming code can have code and artwork</p> <p>Know that a sequence of commands has a start and an outcome</p> <p>Know how to improve a program</p>	<p>Know that each sprite is controlled by the commands chosen</p> <p>Know that a program has a start</p> <p>Know that a sequence of commands can have an order</p> <p>Know how a sprite moves in an existing project</p>	<p>Know that accuracy in programming is important</p> <p>Know what 'repeat' means</p> <p>Know that in programming there are infinite loops and count-controlled loops</p>	<p>Know that a loop can stop when a condition is met, e.g. number of times</p> <p>Know that a loop can be used to repeatedly check whether a condition has been met</p> <p>Know how selection is used in computer programs</p> <p>Know that a conditional statement connects a condition to an outcome</p> <p>Know how selection directs the flow of a program</p>	<p>Know a 'variable' as something that is changeable</p> <p>Know why a variable is used in a program</p> <p>Know that selection can control the flow of a program</p>
<b>Procedural Knowledge ('knowing how')</b>	<p>To use a beebot and make it move</p> <p>To explore how the beebot moves when you press different buttons</p>	<p>To act out a given word</p> <p>To combine four direction commands to make a sequence</p> <p>To plan a simple program</p> <p>To design the parts of a project</p> <p>To use an algorithm to create a program</p>	<p>To design an algorithm</p> <p>To create and debug a programme that they have written</p> <p>To create a program using a given design</p> <p>To change a given design</p> <p>To create a program using own design</p>	<p>To explore a new programming environment (Scratch)</p> <p>To change the appearance of a project</p> <p>To create a project from a task description</p> <p>To create a program to move a sprite in four directions</p> <p>To adapt a program to a new context</p> <p>To develop a program by adding new features</p> <p>To identify and fix bugs in a program</p> <p>To design and make a maze-based challenge</p>	<p>To create a program in a text-based language</p> <p>To modify a count-controlled loop to produce a given outcome</p> <p>To decompose a program into parts</p> <p>To create a program that uses count-controlled loops to produce a given outcome</p> <p>To develop the use of count-controlled loops in a different programming environment</p> <p>To develop a design which includes two or more loops that run at the same time</p> <p>To modify an infinite loop in a given program</p> <p>To design a project that includes repetition</p> <p>To create a project that includes repetition</p>	<p>To control a simple circuit connected to a computer</p> <p>To write a program that includes count-controlled loops</p> <p>To design a physical project that includes selection</p> <p>To create a controllable system that includes selection</p> <p>To design a program which uses selection</p> <p>To create a program which uses selection</p> <p>To evaluate a program</p>	<p>To choose how to improve a game by using variables</p> <p>To design a project that builds on a given example</p> <p>To use own design to create a project</p> <p>To evaluate own project</p> <p>To create a program to run on a controllable device</p> <p>To update a variable with a user input</p> <p>To use a conditional statement to compare a variable to a value</p> <p>To design a project that uses inputs and outputs on a controllable device</p> <p>To develop a program to use inputs and outputs on a controllable device</p>

## Data and Information Knowledge Progression

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Declarative Knowledge ('knowing that')	Know the names of objects	<p>Know that objects can be counted</p> <p>Know properties of objects</p>	<p>Know that we can count and compare objects using tally charts</p> <p>Know that objects can be represented as pictures</p> <p>Know that people can be described by attributes</p> <p>Know that we can present information using a computer</p>	<p>Know object attributes needed to collect relevant data</p> <p>Know the object attributes needed to collect relevant data</p> <p>Know the objects in a branching database</p> <p>Know why it is helpful for a database to be well structured</p>	<p>Know that data gathered over time can be used to answer questions</p> <p>Know that a data logger collects 'data points' from sensors over time</p> <p>Know the data needed to answer questions</p>	<p>Know how grouping and then sorting data allows us to answer questions</p> <p>Know that tools can be used to select specific data</p> <p>Know that computer programs can be used to compare data visually</p>	<p>Know questions which can be answered using data</p> <p>Know that objects can be described using data</p> <p>Know that formula can be used to produce calculated data</p>
Procedural Knowledge ('knowing how')	<p>To count collections of objects</p> <p>To describe objects</p>	<p>To label objects</p> <p>To compare groups of objects</p> <p>To answer questions about groups of objects</p>	<p>To create a pictogram</p> <p>To select objects by attribute and make comparisons</p>	<p>To create questions with yes/no answers</p> <p>To create a branching database</p> <p>To compare the information shown in a pictogram with the branching database</p>	<p>To use a digital device to collect data automatically</p> <p>To use data collected over a long duration to find information</p> <p>To use collected data to answer questions</p>	<p>To use a form to record information</p> <p>To compare paper and computer-based databases</p> <p>To apply knowledge of a database to ask and answer real-world questions</p>	<p>To apply formulas to data, including duplicating</p> <p>To create a spreadsheet to plan an event</p> <p>To choose suitable ways to present data</p>