Curriculum - Computing

Knowledge, Skills & Vocabulary Progression

Courage   **Resilience**   **Honesty**   **Kindness**

Matthew 7:24 - "Therefore everyone who hears these words of mine and puts them into practice is like a wise man who built his house on the rock"

Knowledge and Skills Progression Computing

Information Technology

Strand	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Knowledge + Skills	**Computing Systems and Networks – Technology Around Us** **Autumn Term 1** ▪ To identify technology ▪ To identify a computer and its main parts ▪ To use a mouse in different ways ▪ To use a keyboard to type on a computer ▪ To use the keyboard to edit text ▪ To create rules for using technology responsibly **Data and Information – Grouping Data** **Spring Term 2** ▪ To label objects ▪ To identify that objects can be counted ▪ To describe objects in different ways ▪ To count objects with the same properties ▪ To compare groups of objects ▪ To answer questions about groups of objects	**Computing Systems and Networks – IT Around Us** **Autumn Term 1** ▪ To recognise the uses and features of information technology ▪ To identify information technology in the home ▪ To identify information technology beyond school ▪ To explain how information technology benefits us ▪ To show how to use information technology safely ▪ To recognise that choices are made when using information technology **Data and Information – Grouping Data** **Spring Term 2** ▪ To recognise that we can count and compare objects using tally charts ▪ To recognise that objects can be	**Computing Systems and Networks – Connecting Computers** **Autumn Term 1** ▪ To explain how digital devices function ▪ To identify input and output devices ▪ To recognise how digital devices can change the way we work ▪ To explain how a computer network can be used to share information ▪ To explore how digital devices can be connected ▪ To recognise the physical components of a network **Data and Information – Branching Databases** **Spring Term 2** ▪ To create questions with yes/no answers ▪ To create a branching database ▪ To explain why it is helpful for a database to be well structured ▪ To identify objects using a branching database	**Computing Systems and Networks – The Internet** **Autumn Term 1** ▪ To describe how networks physically connect to other networks ▪ To recognise how networked devices make up the internet ▪ To outline how websites can be shared via the World Wide Web ▪ To describe how content can be added and accessed on the World Wide Web ▪ To recognise how the content of the WWW is created by people ▪ To evaluate the consequences of unreliable content **Data and Information – Data Logging** **Spring Term 2** ▪ To explain that data gathered over time can be used to answer questions ▪ To use a digital device to collect data automatically	**Computing Systems and Networks – Systems and Searching** **Autumn Term 1** ▪ To explain that computers can be connected together to form systems ▪ To recognise the role of computer systems in our lives ▪ To recognise how information is transferred over the internet ▪ To explain how sharing information online lets people in different places work together ▪ To contribute to a shared project online To evaluate different ways of working together online **Data and Information – Flat-File Databases** **Spring Term 2** ▪ To use a form to record information ▪ To compare paper and computer-based databases ▪ To apply my knowledge of a database to ask and	**Computing Systems and Networks – Communication and Collaboration** **Autumn Term 1** ▪ To explain the importance of internet addresses ▪ To explain how data is transferred across the internet ▪ To explain how sharing information online can help people work together ▪ To evaluate different ways of working together online ▪ To recognise how we communicate using technology ▪ To evaluate different methods of online communication **Data and Information – Spreadsheets** **Spring Term 2** ▪ To create a data set in a spreadsheet ▪ To build a data set in a spreadsheet ▪ To explain that formulae should be used to produce calculated data

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		• represented as pictures • To create a pictogram • To select objects by attribute and make comparisons • To recognise that people can be described by attributes • To explain that we can present information using a computer	• To identify the object attributes needed to collect relevant data • To compare the information shown in a pictogram with a branching database	• To explain that a data logger collects 'data points' from sensors over time • To use data collected over a long duration to find information • To identify the data needed to answer questions • To use collected data to answer questions	• answer real-world questions • To explain that tools can be used to select data to answer questions • To apply my knowledge of a database to ask and answer real-world questions • To apply my knowledge of a database to ask and answer real-world questions	• To apply formulae to data • To create a spreadsheet to plan an event • To choose suitable ways to present data

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Knowledge and Skills Progression Computing

Computer Science

Strand	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Knowledge + Skills	**Programming A – Moving a Robot** **Spring Term 1** ▪ To explain what a given command will do ▪ To act out a given word ▪ To combine forwards and backwards commands to make a sequence ▪ To combine four direction commands to make sequences ▪ To plan a simple program ▪ To find more than one solution to a problem **Programming B – Animations** **Summer Term 2** ▪ To choose a command for a given purpose ▪ To show that a series of commands can be joined together ▪ To identify the effect of changing a value ▪ To explain that each sprite has its own instructions ▪ To design the parts of a project ▪ To use my algorithm to create a program	**Programming A – Robot Algorithms** **Spring Term 1** ▪ To describe a series of instructions as a sequence ▪ To explain what happens when we change the order of instructions ▪ To use logical reasoning to predict the outcome of a program (series of commands) ▪ To explain that programming projects can have code and artwork ▪ To design an algorithm ▪ To create and debug a program that I have written **Programming B – Programming Quizzes** **Summer Term 2** ▪ To explain that a sequence of commands has a start ▪ To explain that a sequence of commands has an outcome ▪ To create a program using a given design	**Programming A – Sequencing Sounds** **Spring Term 1** ▪ To explore a new programming environment ▪ I can identify that each sprite is controlled by the commands I choose ▪ To explain that a program has a start ▪ To recognise that a sequence of commands can have an order ▪ To change the appearance of my project ▪ To create a project from a task description **Programming B – Events and Actions in Programming** **Summer Term 2** ▪ To explain how a sprite moves in an existing project ▪ To create a program to move a sprite in four directions ▪ To adapt a program to a new context ▪ To develop my program by adding features	**Programming A – Repetition in Shapes** **Spring Term 1** ▪ To identify that accuracy in programming is important ▪ To create a program in a text-based language ▪ To explain what 'repeat' means ▪ To modify a count-controlled loop to produce a given outcome ▪ To decompose a program into parts To create a program that uses count-controlled loops to produce a given outcome **Programming B – Repetition in Games** **Summer Term 2** ▪ To develop the use of count-controlled loops in a different programming environment ▪ To explain that in programming there are infinite loops and count controlled loops	**Programming A – Selection in Physical Computing** **Spring Term 1** ▪ To control a simple circuit connected to a computer ▪ To write a program that includes count-controlled loops ▪ To explain that a loop can stop when a condition is met, e.g. number of times ▪ To conclude that a loop can be used to repeatedly check whether a condition has been met ▪ To design a physical project which includes selection To create a controllable system which includes selection **Programming B – Selection in Quizzes** **Summer Term 2** ▪ To explain how selection is used in computer programs ▪ To relate that a conditional statement connects a condition to an outcome	**Programming A – Variables in Games** **Spring Term 1** ▪ To define a 'variable' as something that is changeable ▪ To explain why a variable is used in a program ▪ To choose how to improve a game by using variables ▪ To design a project that builds on a given example ▪ To use my design to create a project To evaluate my project **Programming B – Sensing Movement** **Summer Term 2** ▪ To create a program to run on a controllable device ▪ To explain that selection can control the flow of a program ▪ To update the variable with a user input ▪ To use a conditional statement to compare a variable to a value

		To change a given design / To create a program using my own design	To identify and fix bugs in a program / To design and create a maze based (given) challenge	To develop a design which includes two or more loops which run at the same time / To modify an infinite loop in a given program / To design a project that includes repetition / To create a project that includes repetition	To explain how selection directs the flow of a program / To design a program which uses selection / To create a program which uses selection / To evaluate my program	To design a project that uses inputs and outputs on a controllable device / To develop a program to use inputs and outputs on a controllable device

- To change a given design
- To create a program using my own design

- To identify and fix bugs in a program
  To design and create a maze based (given) challenge

- To develop a design which includes two or more loops which run at the same time
- To modify an infinite loop in a given program
- To design a project that includes repetition
  To create a project that includes repetition

- To explain how selection directs the flow of a program
- To design a program which uses selection
- To create a program which uses selection
  To evaluate my program

- To design a project that uses inputs and outputs on a controllable device
- To develop a program to use inputs and outputs on a controllable device

Knowledge and Skills Progression Computing

Digital Literacy

Strand	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Knowledge + Skills	**Creating Media – Digital Painting** **Autumn Term 2** ▪ To describe what different freehand tools do ▪ To use the shape tool and line tool ▪ To make careful choices when painting a digital picture ▪ To explain why I used the tools I did ▪ To use a computer on my own to paint a picture **Creating Media – Digital Writing** **Summer Term 1** ▪ To use a computer to write ▪ To add and remove text on a computer ▪ To identify that the look of text can be changed on a computer ▪ To make careful choices when changing text ▪ To explain why I used the tools that I chose ▪ To compare writing on a computer with writing on paper	**Creating Media – Digital Photography** **Autumn Term 2** ▪ To know what devices can be used to take photographs ▪ To use a digital device to take a photograph ▪ To describe what makes a good photograph ▪ To decide how photographs can be improved ▪ To use tools to change an image ▪ To recognise that images can be changed **Creating Media – Digital Music** **Summer Term 1** ▪ To say how music can make us feel (not a computing related progression step) ▪ To identify that there are patterns in music ▪ To describe how music can be used in different ways ▪ To show how music is made from a series of notes ▪ To create music for a purpose	**Creating Media – Stop-Frame Animation** **Autumn Term 2** ▪ To explain that animation is a sequence of drawings or photographs ▪ To relate animated movement with a sequence of images ▪ To plan an animation ▪ To identify the need to work consistently and carefully ▪ To review and improve an animation To evaluate the impact of adding other media to an animation **Creating Media – Desktop Publishing** **Summer Term 1** ▪ To recognise how text and images convey information ▪ To recognise that text and layout can be edited ▪ To choose appropriate page settings ▪ To add content to a desktop publishing publication	**Creating Media – Audio Production** **Autumn Term 2** ▪ To identify that sound can be digitally recorded ▪ To use a digital device to record sound ▪ To explain that a digital recording is stored as a file ▪ To explain that audio can be changed through editing ▪ To show that different types of audio can be combined and played together To evaluate editing choices made **Creating Media – Photo Editing** **Summer Term 1** ▪ To explain that digital images can be changed ▪ To change the composition of an image ▪ To describe how images can be changed for different uses ▪ To make good choices when	**Creating Media – Video Production** **Autumn Term 2** ▪ To recognise video as moving pictures, which can include audio ▪ To identify digital devices that can record video ▪ To capture video using a digital device ▪ To recognise the features of an effective video ▪ To identify that video can be improved through reshooting and editing ▪ To consider the impact of the choices made when making and sharing a video **Creating Media – Introduction to Vector Graphics** **Summer Term 1** ▪ To identify that drawing tools can be used to produce different outcomes ▪ To create a vector drawing by combining shapes	**Creating Media – Webpage Creation** **Autumn Term 2** ▪ To review an existing website and consider its structure ▪ To plan the features of a web page ▪ To consider the ownership and use of images (copyright) ▪ To recognise the need to preview pages ▪ To outline the need for a navigation path ▪ To recognise the implications of linking to content owned by other people **Creating Media – 3D Modelling** **Summer Term 1** ▪ To recognise that you can work in 3D on a computer ▪ To identify that digital 3d objects can be modified ▪ To recognise that objects can be combined in a 3d model ▪ To create a 3d model for a given purpose

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			To review and refine our computer work	To consider how different layouts can suit different purposes To consider the benefits of desktop publishing	selecting different tools To recognise that not all images are real To evaluate how changes can improve an image	To use tools to achieve a desired effect To recognise that vector drawings consist of layers To group objects to make them easier to work with To evaluate my vector drawing	To plan my own 3d model

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