

Year Group	Computer Systems and Networks	Programming	Data and Information	Creating Media
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Year 1	<p>1.1: How do I use a school computer independently?</p> <ul style="list-style-type: none"> Identify a range of technology and different digital devices. Identify a computer and its main parts and explain what they are used for. Use a mouse in different ways Use a keyboard to type and edit text Understand how to use a computer responsibly 	<p>1.2a: What is an algorithm?</p> <ul style="list-style-type: none"> Understand that algorithms are made up of instructions and that the order of these instructions is important. Predict the outcome of a command on a device, match a command to an outcome and run a command on a device. Combine forwards and backwards commands to make a sequence. Combine four direction commands to make sequences including, left right and turns. Plan a simple program and debug a program on a floor robot and online software. Find more than one solution to a problem. <p>1.2b: What is a program?</p> <ul style="list-style-type: none"> Understand that computers are controlled by humans and that we program computers to make them do things by giving them instructions. Choose a command for a given purpose e.g. movement. Understand that a series of commands can be joined together. Identify the effect of changing a value by using number blocks. Explain that each sprite has its own instructions. Create an algorithm to run a program. 		<p>1.4a: How can I create a piece of writing on the computer?</p> <ul style="list-style-type: none"> Use a computer to write by opening a word processor and identifying keys on a keyboard. Add and remove text on a computer incuse letter, number, and space keys and backspace to remove text. Identify that the look of text can be changed on a computer through capital letters the use bold, italic, and underline. Make careful choices when changing text by changing the font. Explain why I used the tools that I chose and decide if changes have improved writing also use 'undo' to remove changes. <p>1.4b: How can I create a piece of art work using the computer?</p> <ul style="list-style-type: none"> Make marks, draw lines and use paint tools to draw a picture explaining which tools used. Make dots of colour on the page and change the colour and brush sizes. Use the shape tool and the line tools to recreate the work of an artist (Modrin). Make careful choices when painting a digital picture by choosing appropriate shapes, colour choices and recreating in the style of an artist.

				<ul style="list-style-type: none"> Independently use a computer to paint a picture. <p>1.4c: How can I use text and images together?</p> <ul style="list-style-type: none"> Understand that you can edit and change digital content (the appearance of text). Select basic options to change the appearance of digital content (making text bold, italics, underline, size, colour and style). Apply simple edits to digital content to achieve a particular effect (change the font of text for a reason) Insert appropriate images from a selection to accompany text. Save and use digital images found online to accompany text. Change the size of an image.
Year 2	<p>2.1: How do digital devices help us?</p> <ul style="list-style-type: none"> Recognise the uses and features of information technology in the world around us Understand how technology in the home, school and wider world is used and how it benefits us. Recognise and use a range of output devices, e.g. printer, speakers, monitor/screen Recognise that a range of devices contain computers e.g. washing machines, cars ect. Understand how to use technology safely Understand that all devices, programs, websites, apps and games are designed, manufactured and programmed by real people to fulfil specific tasks. 	<p>2.2: How do I improve my algorithm and debug it?</p> <ul style="list-style-type: none"> Understand that a sequence of commands has a start and can identify where the start is and how to run a program. Predict the outcome of a sequence of commands, match two sequences with the same outcome and can change the outcome of a sequence of commands by altering the program. Create a program using a given design by demonstrating an understanding of the actions of a sprite in an algorithm, deciding which blocks to use to meet the design and building the sequences of blocks needed. Edit and change a given design through backgrounds, characters and creating a new program. 	<p>2.3: How do I group and sort data on a computer (Pictograms and branching data bases)?</p> <ul style="list-style-type: none"> Use a computer program to present information in different ways. Create a pictogram using a computer program and draw conclusions from it. Create questions with yes/no answers. Create a branching database using a computer program and draw conclusions from it. Save and print work. 	<p>2.4a: How can I use a computer to create music?</p> <ul style="list-style-type: none"> Explain how music can make us feel Identify that there are patterns in music Create a rhythm pattern on the computer. Describe how music can be used in different way. Use a computer to experiment with pitch and duration. Show how music is made from a series of notes. Use a computer to create a musical pattern using three notes. Refine a musical pattern on a computer. Create music for a purpose Explain choices that have been made and save work.

- Independently create a program using their own designs by choosing images, creating algorithms and building sequences.
- Evaluate a project and decide how it project can be improved
- Debug and improve sequences throughout the projects they create.

2.4b: How can I capture, edit and improve a photograph?

- Know what devices can be used to take photographs.
- Use a digital device to take a photograph.
- Explain the process of taking a good photograph and describe what makes a good photograph.
- Take photos in both landscape and portrait format choosing which is the most appropriate.
- Decide how photographs can be improved.
- Explore the effect that light has on a photo.
- Focus on an object.
- Use tools to change an image
- Recognise that images can be changed.
- Apply a range of photography skills to capture a photo.

2.4c: How can I present text and images to an audience?

- Select and insert text and images to present information on a topic.
- Apply more advanced edits to digital content to achieve a particular effect (word art, borders on pictures)
- Edit background colours and designs to achieve a particular effect.
- Evaluate multimedia show and edit their own content to improve it according to feedback.
- Present multimedia show to an audience.

Year 3	<p>3.1: How are digital devices connected?</p> <ul style="list-style-type: none"> • Explain how digital devices function • Identify input and output devices • Recognise how digital devices can change the way we work • Explain how a computer network can be used to share information • Explore how digital devices can be connected • Recognise the physical components of a network 	<p>3.2a: How can I program music using Scratch?</p> <ul style="list-style-type: none"> • Explore a new programming environment (Scratch) • identify the objects in a Scratch project (sprites, backdrops) and recognise that commands in Scratch are represented as blocks • Identify that each sprite is controlled by the commands I choose. • Explain that a program has a start and can be started in different ways. • Create a sequence of connected commands, explaining what a sequence is and that it needs to have an order. • Create a program to move a sprite in four directions. • Change the appearance of my project by adding in multiple sprites and deciding the actions for each of them. • Create a project from a task description or following a design and starting to be able to do this with increasing independence. <p>3.2b: How do I use repetition and loops to create shapes?</p> <ul style="list-style-type: none"> • Identify that accuracy in programming is important • Create a program in a text-based language (using Logo) • Write an algorithm to produce a given outcome • Explain what 'repeat' means • Identify patterns in a sequence, eg 'step 3 times' means the same as 'step, step, step' • Use a count-controlled loop to produce a given outcome • Modify a count-controlled loop to produce a given outcome 		<p>3.4a: What makes a great animation?</p> <ul style="list-style-type: none"> • Explain that animation is a sequence of drawings or photographs. • Relate animated movement with a sequence of images. • Predict what an animation will look like. • Explain why little changes are needed for each frame. • Plan and create an animation. • Identify the need to work consistently and carefully. • Use onion skinning to help make small changes between frames. • Review and improve an animation based on feedback. • Add other media to the animation (music and text). • Evaluate the impact of adding other media to an animation. <p>3.4b: How can I create a magazine cover using desktop publisher?</p> <ul style="list-style-type: none"> • Recognise how text and images convey information. • Identify the advantages and disadvantages of using text and images. • Recognise that text and layout can be edited. • Change font style, size, and colours for a given purpose. • Choose appropriate page settings. • Define the term 'page orientation' • Recognise placeholders and say why they are important. • Create a template for a particular purpose. • Add content to a desktop publishing publication.
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Year 4	<p>4.1: How is the World Wide Web created?</p> <ul style="list-style-type: none"> • Describe how networks physically connect to other networks. • Recognise how networked devices make up the internet. • Outline how websites can be shared via the World Wide Web. • Describe how content can be added and accessed on the World Wide Web. • Understand how to use a search engine to find specific information. 	<p>4.2: How do I use repetition and loops to create games?</p> <ul style="list-style-type: none"> • Develop the use of count-controlled loops in a different programming environment. • Predict the outcome of a snippet of code and modify a snippet of code to create a given outcome. • Explain that in programming there are infinite loops (forever) and count controlled (repeat) loops 	<p>4.3: How can I use a computer to organise data?</p> <ul style="list-style-type: none"> • Compare paper and computer-based databases. • Explain what a 'field' and a 'record' is in a database. • Use filters in a database to find out specific information. • Use a form to record information. • Explain that tools can be used to select data to answer questions. 	<p>4.4a: How can I create an excellent presentation?</p> <ul style="list-style-type: none"> • Collect, organise and present information effectively using a range of media. • Plan out digital content and present ideas by combining media independently (text and images). • Understand what makes digital content good or bad and edit it to improve it.

	<ul style="list-style-type: none"> • Recognise how the content of the WWW is created by people. • Evaluate the consequences of unreliable content 	<ul style="list-style-type: none"> • Choose when to use a count-controlled and an infinite loop • Recognise that some programming languages enable more than one process to be run at once • Develop a design which includes two or more loops which run at the same time • Modify an infinite loop in a given program by identifying which parts of a loop can be changed and explaining these. • Design and create a project that includes repetition (independently) • Refine and debug the algorithm in my design as I build my program 	<ul style="list-style-type: none"> • Understand that the questions you ask are important, when collecting data. • Know that there is a difference between data and information. 	<ul style="list-style-type: none"> • Apply edits to digital content (text and media) to achieve a particular effect. • Select and apply edit to multimedia show to enhance the audience's experience (animation and transition) • Understand that the digital content we make belongs to us and others need to ask permission to use it • Use a search engine safely to find appropriate information. • Understand not all sources on the internet are reliable and how we choose the most appropriate ones. • Evaluate existing and their own digital content, and edit it to improve it according to feedback. • Present multimedia show to an audience. <p>4.4b: How can I enhance digital art by using a range of tools?</p> <ul style="list-style-type: none"> • Collect, organise and present information effectively using a range of media. • Use a variety of software to combine media in order to present information. • Design and create digital content for a specific purpose. • Create a piece of art work using a computer program. • Take and edit photographs to create a piece of art work. • Use a range of tools to edit and enhance media for a particular effect. • Evaluate existing and their own digital content and edit their own content to improve it according to feedback.
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Year 5	<p>5.1: How do is information shared in the digital world?</p> <ul style="list-style-type: none"> • Explain that computers can be connected together to form systems • Recognise the role of computer systems in our lives • Recognise how information is transferred over the internet 	<p>5.2a: How do I use selection with a physical component?</p> <ul style="list-style-type: none"> • Control, build and program a simple circuit to connect a microcontroller to a computer. • Write a program that includes count-controlled loops. • Connect more than one output device to a microcontroller. • Design sequences for given output devices 	<p>5.3: How can spreadsheets help us organise data?</p> <ul style="list-style-type: none"> • Identify questions which can be answered using data • Explain what an item of data is • Apply an appropriate number format to a cell • Build a data set in a spreadsheet application • Explain that formula can be used to produce calculated data 	<p>5.4a: How can we use a navigation path to enhance a user's experience?</p> <ul style="list-style-type: none"> • Collect, organise and present information effectively using a range of media. • Plan out digital content and present ideas by combining media independently (text and images). • Understand what makes digital content good or bad and edit it to improve it.

	<ul style="list-style-type: none"> • Explain how sharing information online lets people in different places work together • Contribute to a shared project online • Evaluate different ways of working together online 	<ul style="list-style-type: none"> • Explain that a loop can stop when a condition is met, e.g. number of times • Program a microcontroller to respond to an input. • Conclude that a loop can be used to repeatedly check whether a condition has been met. • Use selection (an if... then... statement) to direct the flow of a program. • Design a physical project which includes selection. • Create a controllable system which includes selection by: Writing an algorithm to control lights and a motor, using selection to produce an intended outcome, testing and debugging my project <p>5.2b: How do I create a program that makes choices dependent on conditions?</p> <ul style="list-style-type: none"> • Explain how selection is used in computer programs. • Identify and modify a condition in a program. • Relate that a conditional statement connects a condition to an outcome. • Use selection in an infinite loop to check a condition. • Identify the condition and outcomes in and, if...then... else statement. • Explain how selection directs the flow of a program. • Design a program which uses selection and identify the outcome of user input in an algorithm. • Create a program which uses selection and test it out. • Share the program with others and gain feedback. 	<ul style="list-style-type: none"> • Construct a formula in a spreadsheet • Apply formulas to data, including duplicating • Create a spreadsheet to answer questions and explain why the data is organised that way • Produce a graph to present data 	<ul style="list-style-type: none"> • Apply edits to digital content to achieve a particular effect. • Create a navigation path using hyperlinks and explain why navigation paths are useful. • Create hyperlinks to other people's work and recognise the implication of this. • Use a search engine safely to find appropriate information including copyright-free images and explain why they should be used. • Demonstrate an understanding that not all sources on the internet are reliable and how we choose the most appropriate ones. • Evaluate existing and their own digital content, and edit it to improve it according to feedback. • Present multimedia show to an audience. <p>5.4b: How can I use Computer Aided Design (CAD) to create 3D models?</p> <ul style="list-style-type: none"> • Use a computer to create and manipulate three-dimensional (3D) digital objects. • Compare working digitally with 2D and 3D graphics. • Plan a 3D model and choose which 3D objects are needed. • Construct a digital 3D model of a physical object. • Resize a 3D object and rotate a 3D object. • Position 3D objects in relation to each other. • Create digital 3D objects of an appropriate size. • Select and duplicate multiple 3D objects.
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Year 6	<p>6.1: How is the internet used to communicate and share information?</p> <ul style="list-style-type: none"> Identify how to use a search engine Describe how search engines select results Explain how search results are ranked Recognise why the order of results is important, and to whom Recognise how we communicate using technology Evaluate different methods of online communication 	<p>6.2a: How do I create variables in a game?</p> <ul style="list-style-type: none"> Define a 'variable' as something that is changeable Explain why a variable is used in a program Identify a program variable as a placeholder in memory for a single value Explain that a variable has a name and a value Recognise that the value of a variable can be changed Choose how to improve a game by using variables Design a project that builds on a given example Use my design to create a project identifying the role of a variable and testing the code I have written Evaluate my project by identifying ways that my game could be improved and extended by using more variables. <p>6.2b: How do I program a Micro Bit to be a step counter?</p> <ul style="list-style-type: none"> Create a program to run on a controllable device. Apply my knowledge of programming to a new environment Test my program on an emulator. 		<p>6.4a: How do I create a website?</p> <ul style="list-style-type: none"> Review an existing website and consider its structure, understanding websites are written in HTML Recognise the common features of a web page Plan the features of a web page Draw a web page layout that suits a purpose Consider the ownership and use of images (copyright) Find copyright-free images and explain why they should be used Add content to a web page Preview what a web page looks like before publishing Evaluate what my web page looks like on different devices and suggest/make edits to improve. Explain what a navigation path is describing why navigation paths are useful Make multiple web pages and link them using hyperlinks Recognise the implications of linking to content owned by other people Create hyperlinks to link to other people's work <p>6.4b: How can I recreate the work of a famous artist using digital technology?</p>

- Transfer my program to a controllable device.
- Explain that selection can control the flow of a program.
- Update a variable with a user input
- Use a condition to change a variable.
- Experiment with different physical inputs.
- Use an conditional statement to compare a variable to a value
- Use an operand (e.g. <=>) in an if... then... statement.
- Design an algorithm for a project that uses inputs and outputs on a controllable device, including variables.
- Develop a program to use inputs and outputs on a controllable device.
- Test my program against my design and use a range of approaches to find and fix bugs.

- Explore the artist David Hockney and his iPad art.
- Select and use software on a tablet to design and create artistic content.
- Explore a range of art apps identifying positives and negative of the apps.
- Experiment with tools and brushes available.
- Create a piece of iPad art in the style of David Hockney.
- Evaluate and improve art work from feedback.
- Publish art work on an internet forum showing an understanding of staying safe online.

6.4c: What makes a brilliant film?

- Recognise video as moving pictures, which can include audio
- Plan a video project using a storyboard
- Identify digital devices that can record video
- Locate and identify the working features of a digital device that can record video
- Capture video using a digital device
- Demonstrate the safe use and handling of devices
- Recognise the features of an effective video
- Explain why lighting and angle are important in creating an effective video
- Identify that video can be improved through reshooting and editing
- Store, retrieve, and export my recording to a computer

				<ul style="list-style-type: none">• Select the correct tools to make edits to my video• Make edits to the video and improve the final outcome• Evaluate the video and share opinions
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