Oakmeadow CE Primary School
part of the Marches Academy Trust

Computing at Oakmeadow

KS1 Progression

Computer Science		
National Curriculum	Year 1	Year 2
Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.	To follow an instruction. Recognise that the order of instructions in an algorithm is important. Combine four direction commands to make sequences. Control a floor robot. Create algorithms for sprites.	Recognise the importance of giving clear instructions. Use an algorithm to program a sequence on a floor robot. Plan algorithms for different parts of a task. Identify that a program needs to be started.

National Curriculum	Year 1	Year 2
Create and debug simple programs.	Debug my program. Plan a simple program. Use commands to move a sprite. Use a **Start** block in a program. Explain that each sprite has its own instructions. Add programming blocks based on my algorithm. Test the programs I have created.	Create an algorithm to meet my goal. Test and debug each part of the program. Decide which blocks to use to meet the design. Build the sequences of blocks I need. Create a program based my own design. Compare my project to my design. Debug my program.

National Curriculum	Year 1	Year 2
Use logical reasoning to predict the behaviour of simple programs.	Explain what my program should do. Predict the outcome of a command on a device. Predict the outcome of a sequence involving forwards and backwards commands. Predict the outcome of a sequence involving up to four commands.	Explain what my algorithm should achieve. Predict the outcome of a sequence. Compare my prediction to the program outcome. Predict the outcome of a sequence of commands. Work out the actions of a sprite in an algorithm.

Information Technology

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National Curriculum	Year 1	Year 2
Recognise common uses of information technology beyond school.	Identify technology. Explain technology as something that helps us. Identify a computer and its main parts (screen, mouse, keyboard). Use a mouse in different ways. Use a keyboard to type on a computer. Save and open my work.	Recognise the uses and features of information technology. Identify that a computer is a part of IT. Identify the uses of information technology in the school. Talk about uses of information technology beyond school e.g. in a shop.

National Curriculum	Year 1	Year 2
Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	Label objects. Describe properties. Count and group objects.	Recognise that objects can be represented as pictures. Create a pictogram. Select objects by attribute. Explain that we can present information using a computer.

National Curriculum		Year 1	Year 2
Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals.	Text	Use letters, numbers, space and back key. Type capital letters. Use the arrow keys to move the cursor. Use bold, italic and underline. Change the font style, size and colour. Explain why I used the tools I chose.	Use cross-curricular opportunities to consolidate previous learning from Year 1.
	Images	Use the freehand, shape, fill and line tools. Change colour and brush styles. Make careful choices when painting a digital painting.	Use a digital device to take a photograph. Take photos landscape and portrait. Explore the effect of light on a photo. Recognise that images can be altered. Use tools to change an image.

	Multimedia		Create rhythm patterns on a computer. Experiment with pitch and duration. Create a musical pattern using three notes. Create music for a purpose. Review and refine content.

KS2 Progression

Computer Science				
National Curriculum	Year 3	Year 4	Year 5	Year 6
Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems.	Successfully modify a program. Create a sequence of commands using a block language to produce a given outcome. Use an event block to start a program. Debug errors to accomplish specific goals.	Plan a program using a block language which includes repetition. Debug errors in increasingly complex programs to accomplish specific goals. Evaluate the effectiveness of a program.	Plan a program which includes selection to produce a given outcome. Debug errors in increasingly complex programs to accomplish specific goals. Evaluate the effectiveness of a program and ways it could be improved.	Plan a program which includes variable to produce a given outcome. Test programs on an emulator. Use a range of approaches to debug errors in increasingly complex programs to accomplish specific goals.

Computing at Oakmeadow

Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.	Explain the order (sequence) of commands can affect the outcome (same commands, different order -> same or different outcome). Identify different sequences can achieve the same outcome.	Identify patterns (repetition) in a sequence. Understand repetition in programming is also called looping. Identify a loop in a program. Understand, identify and justify when to use 'infinite' or 'count - controlled' loops. Explain the importance in instruction order in a loop.	Define that conditional statements (selection) are used in computer programs. Program a microcontroller to control lights and a motor. Explain a loop can stop when a condition is met (number of times or event). Explain a that program flow can branch according to a condition. Use a condition in an if...then... statement to produce a given outcome.	Define 'variable' as something that is changeable. Explain that a variable has a name and a value. Identify a variable in an existing program. Use a variable in a conditional statement to control the flow of a program. Program a microcontroller with selection and variables.

National Curriculum	Year 3	Year 4	Year 5	Year 6
Solve problems by decomposing them into smaller parts.	Work with others to decompose a problem into smaller steps in planning a project.	Independently decompose a problem into smaller steps in planning a project.	Plan a solution to a problem using decomposition.	Solve problems using decomposition, tackling each part separately.

National Curriculum	Year 3	Year 4	Year 5	Year 6

Computing at Oakmeadow

Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration.	Explain how digital devices function (input, output, process). Identify input and output devices. Explain how a computer network can be used to share information. Recognise the physical components of a network (switch, sever, wireless access point).	Describe how networks physically connect to other networks. Describe the internet as a network or networks. Describe how the worldwide is part of the internet. Describe how content can be added and accessed on the World Wide Web. Recognise how the content of the WWW is created and shared by people.	Explain that computers can be connected to form systems. Describe a computer system. Recognise the role of computer systems in our lives. Recognise how information is transferred over the internet using packets. 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.	Describe different ways people communicate online. Choose a method of communication to suit a particular purpose.

National Curriculum	Year 3	Year 4	Year 5	Year 6
Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	Search for information in a single site. Understand that search engines select pages according to keywords found in the content.	Use a standard search engine to find information. Understand that search engines rank pages according to relevance.	Use filters to make more effective use of a standard search engine. Understand that search engines use a cached copy of the crawled web to select and rank results	Use of a range of search engines appropriate to finding information that is required. Understand that search engines rank pages based on the number and quality of inbound links.

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Information Technology				
National Curriculum	Year 3	Year 4	Year 5	Year 6
Collecting, analysing, evaluating and presenting data and information.	Identify object attributes needed to collect relevant data. Create a branching database. Identify objects using a branching database. Compare branching database structures and comment on their effectiveness. Compare information shown in a pictogram with a branching database. Explain that data can be used to answer questions.	Collect data using a digital device. Recognise that a sensor can be used as an input device for data collection. Use a larger data set to find information. Use a computer program to sort data by one attribute. Export information and present data in a table and a graph. Interpret data that has been collected and draw conclusions.	Explain 'fields' and 'records'. Navigate a flat-file database. Apply knowledge of a database to ask and answer real world questions. Design a structure for a flat-file database. Choose tools to select and analyse data to answer questions. Use 'AND' and 'OR' to refine data selection. Select an appropriate graph to visually compare data.	Identify questions that can be answered using data. Create a spreadsheet for a purpose. Apply a formula that can be used to produce calculated data. Recognise data can be calculated using different operations. Evaluate results in comparison to the question asked. Choose suitable ways to present data such as a graph.

National Curriculum	Year 3	Year 4	Year 5	Year 6

Computing at Oakmeadow

Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals.	Text	Identify the advantages and disadvantages of using text and images. Change font style, size and colour for a given purpose. Consider how different layouts can suit different purposes. Define the term 'page orientation'. Type with increased confidence and speed using age-appropriate punctuation. Recognise a document can be formatted with placeholders. Identify the use of desktop publishing in the real world.	Use cross-curricular opportunities to consolidate previous learning from Year 1 – Year 3.	Use cross-curricular opportunities to consolidate previous learning from Year 1 – Year 3.	Recognise components of a webpage layout. Create a webpage including text, images, hyperlinks and embedded content. Understand the need for a navigation path.
	Images	Change orientation of images.	Use a computer to (further) manipulate images. Change the composition of an image. Recognise images can be changed for different purposes. Describe positive and negative effects that retouching can have on an image. Use the most appropriate tool for a particular purpose.	Recognise vector drawings are made using shapes. Add, remove, modify, and combine objects to create graphical drawing on a computer. Change the order of layers in a vector drawing. Group objects to create a single object. Edit and refine work.	Create 3D graphical objects on a computer. Rotate and re-position a 3D space. Modify multiple 3D objects. Combine 3D objects to create desired effect. Apply blank 3D objects as placeholders to create holes.

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	Multimedia	Understand how animation works. Plan an animation. Use onion skinning to create small changes between frames. Review and improve an animation. Add and evaluate the impact of adding other media to an animation.	Press/tap buttons to start and stop recordings. Recognise recorded audio is stored as a file. Edit and alter recorded audio. Layer sounds. Save/export an audio file. Consider the results of editing choices made.	Identify the features of a good video. Plan a video production using a story board. Use a computer to make a video. Make edits to a video to improve the outcome. Consider the impact of changes made on the quality of the video.	Use cross -curricular opportunities to consolidate previous learning from Year 1 - Year 5.