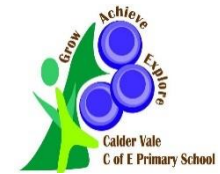




THE BOWLAND FEDERATION OF SCHOOLS

COMPUTING CURRICULUM NARRATIVE KS1



THE NATIONAL CURRICULUM

Purpose of study

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. Building on this knowledge and understanding, 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.

Aims

The national curriculum for computing aims to ensure that all pupils:

- ♣ can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- ♣ can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- ♣ can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- ♣ are responsible, competent, confident and creative users of information and communication technology.

Key Stage 1 Pupils should be taught to:

- ♣ understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- ♣ create and debug simple programs
- ♣ use logical reasoning to predict the behaviour of simple programs
- ♣ use technology purposefully to create, organise, store, manipulate and retrieve digital content
- ♣ recognise common uses of information technology beyond school
- ♣ use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.

TEN COMPUTING STRANDS

ALGORITHMS	COMPUTER NETWORKS	COMPUTER SYSTEMS	CREATING MEDIA	DATA AND INFORMATION
Be able to comprehend, design, create, and evaluate algorithms	Understand how networks can be used to retrieve and share information, and how they come with associated risks	Understand what a computer is, and how its constituent parts function together as a whole	Select and create a range of media including text, images, sounds, and video	Understand how data is stored, organised, and used to represent real-world artefacts and scenarios
DESIGN AND DEVELOPMENT	EFFECTIVE USE OF TOOLS	IMPACT OF TECHNOLOGY	PROGRAMMING	SAFETY AND SECURITY
Understand the activities involved in planning, creating, and evaluating computing artefacts	Use software tools to support computing work	Understand how individuals, systems, and society as a whole interact with computer systems	Create software to allow computers to solve problems	Understand risks when using technology, and how to protect individuals and systems

KEYSTAGE 1 TOPICS						
TITLE	COMPUTING SYSTEMS AND NETWORKS		CREATING MEDIA		PROGRAMMING A	
CONCEPT	<p>Technology around us - Recognising technology in school and using it responsibly</p> <p>Information technology around us - Identifying IT and how its responsible use improves our world in school and beyond.</p>		<p>Digital painting - Choosing appropriate tools in a program to create art, and making comparisons with working non-digitally.</p> <p>Digital photography - Capturing and changing digital photographs for different purposes.</p>		<p>Moving a robot - Writing short algorithms and programs for floor robots, and predicting program outcomes.</p> <p>Robot algorithms - Creating and debugging programs, and using logical reasoning to make predictions.</p>	
BIG IDEAS/KEY QUESTIONS/LEARNING FOCUS	<p>What is technology? How does technology help us? Identifying technology and computer parts. Mouse skills and keyboard skills. Opening, editing and saving within programs and files. Using technology and computers safely – Why do we have rules?</p> <p>What is information technology? Devices and their purposes. How is IT used around the world? What are the benefits of IT? Using IT appropriately and safely. Digital 5 a day (well-being).</p>		<p>Introduce learners to the freehand tools available for digital painting. Using the shape tool and the line tool. To make careful choices when painting a digital picture. Why have I chosen to use certain tools? Using freehand tools to recreate the work of an artist. Compare painting a picture on a computer and on paper.</p> <p>Using a digital device to take a photograph To make choices when taking a photograph – portrait or landscape? To describe what makes a good photograph and how they can be improved Using tools to change an image</p>		<p>Introduce learners to simple instructions. To explain, predict and run commands. Act out a given word by following instructions and giving directions. Combining 'forwards', 'backwards' and four direction commands to make a sequence. Can learners predict what will happen? Can learners plan a simple program? Can I debug my program?</p> <p>I can explain what happens when we change the order of instructions. Can learners use logical reasoning to predict the outcome of a program and evaluate the outcome? To explain that programming projects can have code and artwork. Can learners design an algorithm to create a program? To create and debug a program that I have written.</p>	
VOCABULARY	<p>High Frequency VOCABULARY</p> <p>Technology IT (Information Technology) Devices</p>	<p>Subject Specific VOCABULARY</p> <p>Computer Mouse Trackpad Keyboard Screen Double-click Typing</p>	<p>High Frequency VOCABULARY</p> <p>Pictures – Painting - Paintbrush Erase – Fill - Undo Feelings – Like – Prefer - Dislike</p> <p>Landscape - Portrait Light sources -Lighting – Flash Focus Editing Format</p>	<p>Subject Specific VOCABULARY</p> <p>Computers Paint Program TOOLS - Shape Tools - Line Tool - Fill Tool - Undo Tool - Brush Size - Brush Style</p> <p>Device Camera - Photograph Capture - Image Focus – Framing Compose - Filter</p>	<p>High Frequency VOCABULARY</p> <p>Instructions -Directions – Route – Plan - Sequence Forwards – Backwards – Left – Right – Turn Clear - Go</p> <p>Unambiguous - Prediction Artwork - Design</p>	<p>Subject VOCABULARY</p> <p>Program - Code Programming Floor Robot – Beebots – Bluebots Algorithms Commands - Run Debug Decomposition</p>

TITLE	DATA AND INFORMATION		CREATING MEDIA		PROGRAMMING B	
CONCEPT	<p>Grouping data - Exploring object labels, then using them to sort and group objects by properties.</p> <p>Pictograms - Collecting data in tally charts and using attributes to organise and present data on a computer.</p>		<p>Digital writing - Using a computer to create and format text, before comparing to writing non-digitally.</p> <p>Digital music - Using a computer as a tool to explore rhythms and melodies, before creating a musical composition.</p>		<p>Programming animations - Designing and programming the movement of a character on screen to tell stories.</p> <p>Programming quizzes - Designing algorithms and programs that use events to trigger sequences of code to make interactive quiz.</p>	
BIG IDEAS/KEY QUESTIONS/LEARNING FOCUS	<p>To describe objects using labels and match objects into groups.</p> <p>To count a group of objects.</p> <p>To describe objects in different ways (properties). Group objects in more than one way by their properties.</p> <p>To compare groups of objects and answer questions about groups of objects.</p> <p>To count and compare objects using tally charts</p> <p>Can I enter data onto a computer and view it in different format (pictograms)?</p> <p>Collect and organise data in a tally chart and create a pictogram</p> <p>Can I explain what the pictogram shows?</p> <p>Answer 'more than'/'less than' and 'most/least' questions about an attribute</p> <p>Use a computer program to present information in different ways</p> <p>Can learners give simple examples of why information should not be shared?</p>		<p>Can I use a computer to write?</p> <p>Can I add and remove text on a computer?</p> <p>To use letter, number, space and the backspace.</p> <p>To identify the toolbar and use bold, italic, and underline.</p> <p>Can I select text and change the font?</p> <p>To explain and compare tools I have used and differences between writing on a computer and on a piece of paper.</p> <p>To say how music can make us feel and my likes and dislikes.</p> <p>To identify that there are patterns in music and create a rhythm pattern.</p> <p>Can I experiment with sound using a computer, connecting images with sounds and changing pitch?</p> <p>To use a computer to create a musical pattern.</p> <p>To create music to represent an animal.</p> <p>To review and refine our computer work.</p>		<p>Can I choose a command to move a sprite?</p> <p>To show that a series of commands can be joined together (more than one block, use a Start block and run the program).</p> <p>To identify the effect of changing a value (blocks that have numbers).</p> <p>To explain that each sprite has its own instructions.</p> <p>Can I design the parts of a project – artwork, sprites, programming blocks, crating algorithms?</p> <p>To explain that a sequence of commands has a start.</p> <p>Can I predict, match and change the outcome of a sequence of commands?</p> <p>To create a program using a given design.</p> <p>To change a given design (background and characters).</p> <p>Can I create my own design?</p> <p>Can I compare, improve and debug my design?</p>	
VOCABULARY	<p>High Frequency VOCABULARY</p> <p>Group – Object -Property Label – Colour – Size - Shape</p> <p>More – Less – Most – Least – Fewest - The Same – Total</p> <p>Tally Chart – Pictogram Block Diagram Compare - Explain - Conclusion Attribute</p>	<p>Subject Specific VOCABULARY</p> <p>Value – Data Set Search Image</p>	<p>High Frequency VOCABULARY</p> <p>Letters – Numbers Compare Writing</p> <p>Music – Instrument Quiet - Loud Pattern, - Rhythm – Pulse – Pitch – Tempo – Rhythm - Notes Planets – Mars – Venus – Neptune War - Peace Feelings - Emotions</p>	<p>Subject Specific VOCABULARY</p> <p>Word Processor – Keyboard – Keys Typing – Space – Backspace - Text Cursor Capital Letters – Toolbar Bold – Italic - Underline - Font Mouse - Select Undo – Redo - Format</p> <p>Open - Edit - Create</p>	<p>High Frequency VOCABULARY</p> <p>Command - Instructions Design – Effect – Change - Value – Compare Predict - Background</p> <p>Evaluate - Sequence – Outcome – Actions - Features</p>	<p>Subject Specific VOCABULARY</p> <p>ScratchJr - Bee-Bot Sprite Programming - Programming Area Block -Joining Start Block – Run – Program Delete – Reset – Algorithm</p> <p>Project - Modify Debug</p>

