

Ackworth Howard C of E School

Educating for 'life in all its fullness.'



**Computing Curriculum
Essential Knowledge**

Intent

The children at Ackworth Howard J&I School are digital natives – they are as adept at navigating a touch screen as they are at using a pencil and paper. Growing up in an increasingly digitized world, we understand the importance of giving our children exceptional learning opportunities in Computing.

Having recently invested heavily in tech across school, we are committed to developing an innovative curriculum which offers our children the chance to grow their understanding of digital technology, how to develop computational thinking, and how to stay safe online.

Our children are familiar with new tech, and use it across the curriculum to support their learning. Our facilities, integrated into all the classrooms, include interactive whiteboards and computers, laptops and iPads as well as other experimental tech.



Mind

To encourage growth in mind, we offer opportunities to develop leadership skills through our Digital Leaders programme, whereby children are trained to take on leadership roles and to support others in computing across the school. Creativity is encouraged throughout the curriculum, such as during our Christmas Hackathon or during cross-curricular work such as retelling the story of Boudicca's rebellion through Scratch.



Body

To encourage growth in body, we aim to equip our children with the knowledge and resilience to use digital technologies responsibly and safely, not only during Safer Internet Week, but throughout the year in response to current events and changing trends in our children's online activities.



Spirit

To encourage growth in spirit, we encourage our children to embrace change, particularly in response to new technologies. We aim to nurture responsible digital citizens, for whom 'society' is global, not just local.

What our children say about Computing...

How much do you enjoy your computing lessons at Ackworth Howard School?

★★★★★★★☆☆ (average rating 8.81/10)

How confident do you feel in your computing lessons at Ackworth Howard School?

★★★★★★☆☆☆ (average rating 7.58/10)

How much do you enjoy your science computing at Ackworth Howard School?

★★★★★★☆☆☆ (average rating 8.26/10)

Source: February 2020 Pupil Voice Survey (147 responses)

Essentials for Computing...

- All children to be discerning users of the internet and to have an understanding of when to use it.
- To be confident and creative users, open to new ideas of learning.
- To treat all equipment with respect.
- To use technology safely and respectfully: keeping personal information private, identify steps needed to remain safe and where to go for support.
- Children to start to use technology purposefully in a range of context ensuring that the end product is fit for purpose.
- To gather the knowledge and understanding to become an active participant in the digital world.

Early Years Computing

Area of Learning	Ackworth Howard's Knowledge Essentials	Activities
<p>Understanding the world involves guiding children to make sense of their physical world and their community through opportunities to explore, observe and find out about people, places, technology and the environment.</p>	<p><u>30-50 Months</u> Technology</p> <ul style="list-style-type: none"> • To know how to operate simple equipment. • To show an interest in technological toys with knobs or pulleys, or real objects. • To show skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images. • To know that information can be retrieved from computers. <p><u>40-60 Months</u> Technology</p> <ul style="list-style-type: none"> • To complete a simple program on a computer. • To interact with age-appropriate computer software. <p><u>Early Learning Goals</u> Technology</p> <ul style="list-style-type: none"> • To recognise that a range of technology is used in places such as homes and schools. • To select and use technology for particular purposes. 	<p>Continuous provision is flexible throughout the year:</p> <ul style="list-style-type: none"> • Interactive table • Bee Bots • Code-a-pillar • Walkie-talkies • Recording speech bubbles • Cameras • Torches • Light table • Headphones • CD Player • Laptops • iPads • Remote control cars • Metal detectors

Early Years Computing Vocabulary

Essential Vocabulary

<u>E-SAFETY</u>	<u>PROGRAMMING</u>	<u>MULTIMEDIA</u>	<u>TECHNOLOGY IN OUR LIVES</u>	<u>DATA HANDLING</u>
Choices Internet Website	Equipment Buttons Movement	Screen Mouse Images Keyboard Paint	Technology Share Create Internet	Collect Set of photos Count Organise
<p style="text-align: center;">Intended Learning Outcomes</p> <ul style="list-style-type: none"> • Respond to being given responsibility and independence with equipment. <ul style="list-style-type: none"> • Show initiative in using equipment. • Test out their experiences of using equipment at home or in other settings. <ul style="list-style-type: none"> • Role play things that they have seen adults do. • Apply things they know into a different context. • Begin to understand the processes involved in finding information from a computer, or how a piece of technology can help to complete a task. • Evidence of using prior knowledge of different devices, gaining confidence and ability as they gain exposure to equipment. 			<p style="text-align: center;">Key Vocabulary and Questions</p> <ul style="list-style-type: none"> • Language relating to equipment e.g. monitor, screen, tower, mouse, cursor etc. <ul style="list-style-type: none"> • Names of computer programmes and characters. • Developing directional language using remote control vehicles. • Language related to toys e.g. press, button, turn, sound, move etc. • Use language related to specific objects which the children are familiar with. <ul style="list-style-type: none"> • Listening centre – on, off, play, stop, pause, eject etc. Shall we send a text message? Shall I see if there are any emails? Should we photocopy this picture? Explain how you play / use it / work it. How do you make it...? Which program do you like? I wonder if you could have done it a different way? 	

Year 1

National Curriculum	Ackworth Howard's Knowledge Essentials	Activities
<p>Pupils should be taught to:</p> <p>Computer Science</p> <ul style="list-style-type: none">• 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	<p><u>Programming Toys</u></p> <ul style="list-style-type: none">• say what an algorithm is• say why it is important to be precise when writing an algorithm• check their work for mistakes (debug)• program a robot (Bee-Bot) using the arrow buttons• start their programming sequence again if they need to• check their work for mistakes to debug a program• plan and check an algorithm <p><u>Programming with Scratch</u></p> <ul style="list-style-type: none">• open the Scratch and start a new project• add new characters and backgrounds• use blocks for movement in different directions• create short sets of sequenced instructions• use different end blocks, including repeat forever• change the size of characters to grow or shrink• hide and show characters with an instruction block• program two or more characters with instructions at the same time	<p><u>Programming Toys</u></p> <ul style="list-style-type: none">• number instructions for how to build a tower from toy bricks in the correct order• try explain what will happen if the instructions are in a different, incorrect order.• draw arrows in a sequence which will direct a Bee-Bot to a toy of their choice on a grid. <p><u>Programming with Scratch Jr</u></p> <ul style="list-style-type: none">• Children are shown an image of the theatre background from Scratch. Their challenge is to use words, pictures or even Scratch blocks to plan what could happen on stage, deciding on characters and actions.

Year 1

National Curriculum	Ackworth Howard's Knowledge Essentials	Activities
<p>Information technology</p> <ul style="list-style-type: none"> use technology purposefully to create, organise, store, manipulate and retrieve digital content 	<p><u>Word Processing Skills</u></p> <ul style="list-style-type: none"> Type with two hands Use shift, space and enter correctly Use undo and redo Make text bold, italic or underline Save their work in their folder Edit text using backspace, delete and the arrow keys. Format the font Select single words. <p><u>Painting</u></p> <ul style="list-style-type: none"> Paint with different colours. Paint with different brushes. Create shapes. Save their paintings in their folder. Fill an area with a colour. Undo and redo. Add text. <p><u>Using and Applying</u></p> <ul style="list-style-type: none"> Turn on a computer and open an application type letters and symbols, including use of the shift key format text in different ways (bold, italic, underline) draw different shapes using paint software use a brush in a paint application and change the size and colour. click, double-click and drag objects save and open files make shapes [in Paint software] the size they desire position shapes correctly select and compare different brush types 	<p><u>Word Processing Skills</u></p> <ul style="list-style-type: none"> access Dance Mat Typing at home to explore a standard keyboard layout and increase their typing fluency. use a word processor to type about a family outing. use a word processor to type about a family member. <p><u>Painting</u></p> <ul style="list-style-type: none"> use a computer to paint a picture of a toy, using different colours and brushes. use a computer to paint a picture of a castle or other large building. (linked to geography / history unit) <p><u>Using and Applying</u></p> <ul style="list-style-type: none"> draw and colour a picture made just from shapes, which could also then be copied to make a computer version.

Year 1

National Curriculum	Ackworth Howard's Knowledge Essentials	Activities
<p>Digital literacy</p> <ul style="list-style-type: none">• 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	<p>Online Safety</p> <ul style="list-style-type: none">• type their name and the date on a piece of work they have created• choose the correct Safe Search filter when using a search engine• make links between the online and offline world• recall rules for Internet safety• recognise which personal information they should keep safe from strangers• help to construct an email.	<p>Online Safety</p> <ul style="list-style-type: none">• work with their parents/carers and any siblings to develop a family plan for online safety at home.• work with their parents/carers to send emails to their family or friends.

Year 1 Computing Vocabulary

Essential Vocabulary

<u>Programming Toys</u>	<u>Programming with Scratch</u>	<u>Word Processing Skills</u>	<u>Painting</u>	<u>Using and applying</u>	<u>Online safety</u>
Code	Blocks	Keyboard	Paint	<i>This unit, coming at the end of the academic year, incorporates all the vocabulary learnt in the previous topics.</i>	Online
Left	Character	Backspace	Brush		Key
Right	Background	Shift	Colour		Safe
Forward	Sprite	Type	Tools		Communicate
Backward	Sequence	Folder	Bucket		Meet
Pause	Move	Enter	Text		Email
Clear	Repeat	Symbols	Shape	Accept	
Go	Repeat forever	Save	Screen	Address	
Program	Invisible	Return	Mouse	Reliable	
Bee-bot	Shrink	Space bar	Type	Tell	
Turn	Sound	Arrow keys	Computer	Device	
Sequence	Wait	Delete	Draw	Keyboard	
Quarter	Show	Undo	Undo	Search engine	
half	Hide	Redo	Redo	Image	
Algorithm	Record	Select	Save	Text	
	Start	Key	Open	Save	
	Programs	Bold		Folder	
	Project	Italics		Name	
	predict	Underline		date	
		format		copyright	

Year 2

National Curriculum	Ackworth Howard's Knowledge Essentials	Activities
<p>Pupils should be taught to:</p> <p>Computer Science</p> <ul style="list-style-type: none">• 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	<p><u>Preparing for Turtle Logo</u></p> <ul style="list-style-type: none">• Walk forward a number of steps.• Turn accurately 90° (a quarter turn).• Walk squares and rectangles.• Give and follow instructions. <p><u>Programming Turtle Logo & Scratch</u></p> <ul style="list-style-type: none">• Draw lines of different lengths using the fd command.• Move blocks into the Scripts Area.• Snap blocks together to combine commands.• Turn the turtle using rt 90 and lt 90.• Draw squares and rectangles.• Create simple algorithms using a number of different blocks.• Use the repeat and green flag blocks to control algorithms.	<p><u>Preparing for Turtle Logo</u></p> <ul style="list-style-type: none">• Children practice writing algorithms for moving around their home Task 2 Preparing for Turtle Logo 2: Children practice writing algorithms for moving a small figure on an existing plan or a plan of their home. <p>• <u>Programming Turtle Logo & Scratch</u></p>

Year 2

National Curriculum	Ackworth Howard's Knowledge Essentials	Activities
<p>Information technology</p> <ul style="list-style-type: none"> use technology purposefully to create, organise, store, manipulate and retrieve digital content 	<p><u>Presentation Skills</u></p> <ul style="list-style-type: none"> Insert slides, add and type in a text box Create folders. Print files. Add images. Format text and text boxes <p><u>Computer Art</u></p> <ul style="list-style-type: none"> access an appropriate program for achieving a specific task; switch between program tools to produce different techniques; • alter the formatting of a tool to adjust the colour or size. recreate a piece of art using a computer program; • manipulate shapes and objects to recreate an art style. <p><u>Using and Applying</u></p> <ul style="list-style-type: none"> find and open software for creating computer art; • add text and images to a presentation; • retrieve/open a file from a saved location; • select a relevant backdrop and character within Scratch; • add a second character and position on the backdrop within Scratch. control the mouse to produce different effects (dots/lines); • use computer paint skills in a new context; • add new slides to a presentation with a main idea on each slide; • insert and reorder slides; • make a character move within Scratch 	<p><u>Presentation Skills</u></p> <ul style="list-style-type: none"> Children make a simple presentation about their family, including photographs. Task 2 Presentation Skills 2: Children make a simple presentation about an animal, including images found online. <p><u>Computer Art</u></p> <ul style="list-style-type: none"> Children take and manipulate the colours of a photograph (using a software programme such as Windows Photos or Preview) Copy Cat: Children recreate a familiar photo or piece of art at home or school, firstly by drawing it and secondly by recreating it using computer art. <p><u>Using and Applying</u></p> <ul style="list-style-type: none"> Children have the task of drawing their own cubism style picture on paper, based on learning from the classroom. This could later be recreated on the computer using lines and shapes, either at school or home. Castle Research: To accompany the Using and Applying theme of Castles, children are challenged to research a local or nationally famous castle. The work could be drawing or writing and used to help further lessons on presentations or coding where Castles is the context of the work

Year 2

National Curriculum	Ackworth Howard's Knowledge Essentials	Activities
<p>Digital literacy</p> <ul style="list-style-type: none"> 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 	<p>Online Safety</p> <ul style="list-style-type: none"> know what 'digital footprint' means know that people can use the information they put online know that a digital footprint contains information about a person identify keywords that will give good search results use a website to search for information begin to identify possible dangers online identify websites suitable for their age know when to ask an adult for advice about accessing a website know what to do if a website makes them uncomfortable talk about what people might want to know about a website give their opinion about a website say what they like and dislike about a website begin to consider who a website could be aimed at identify unkind online behaviour know what to do if they think someone is being unkind to them online know how to safely search for information online choose appropriate websites for their age. <p>Using the Internet</p> <ul style="list-style-type: none"> search using the words "for kids" follow a weblink locate their own blog understand how to blog safely and responsibly identify search results that will give some useful information know where to find the address of a link log in and post a blog or comments. 	<p>Online Safety</p> <p>Children record their own digital footprint over a week and think about how their online activity might influence the adverts they see on websites or in apps. Web Designers: Children design a homepage for a gardening website specifically for children, then explain how they would change the page to be more suitable for adults instead.</p> <p>Using the Internet</p> <p>Children are encouraged to use the skills they have learnt to search the web safely and effectively for words related to their topic. Blogging: Children may be given the opportunity to find blogs from other schools, on which they can post comments. Teachers can decide whether the children should post their comment or question.</p>

Year 2 Computing Vocabulary

Essential Vocabulary

<u>Preparing for Turtle Logo</u>	<u>Programming Turtle Logo and Scratch</u>	<u>Presentation skills</u>	<u>Computer Art</u>	<u>Online safety</u>	<u>Using the internet</u>
Move Forward Half turn Quarter turn Turn Square Rectangle Instructions Right / left 90 Forward 4 Commands algorithm	Repeat Right (rt) Forward (fd) Left (lt) Sound Turn Instructions Clear screen (cs) Commands move Variable algorithm	Log off Search Shut down Folder Image Format Colour Black and white Photo Double sided Copy Windows Switch Monitor Insert Print Date System unit	Program Tool Fill Straight lines Primary colours Weight Manipulate Rotate Shade Harmonious Complementary Duplicate Copy and paste Selective Combination review Pointillism Cubism Impressionism Pop art	Digital Online Search Keyword Website Search engine Cyberbullying Information Personal Private Profile Account Bullying Report Phone Laptop Tablet App comment Digital footprint	Internet World wide web Search Search engine Results Google Bing Yaho Kidrex Browser Link Web page Back Reload Research Photo Camera Tablet Upload blog

Year 3

National Curriculum	Ackworth Howard's Knowledge Essentials	Activities
<p>Pupils should be taught to:</p> <p>Computer Science</p> <ul style="list-style-type: none">• design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts• use sequence, selection, and repetition in programs; work with variables and various forms of input and output• use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	<p><u>Programming Turtle Logo & Scratch</u></p> <ul style="list-style-type: none">• Create and debug algorithms to draw regular polygons using the repeat command/block (Turtle Logo and Scratch)• Draw shapes with spaces between using penup and pendown (Turtle Logo)• Change and alter the pen settings (Scratch)	<p>Programming Turtle Logo & Scratch</p> <ul style="list-style-type: none">• use Turtle logo to create different algorithms for different regular polygons and then use them to create a pattern.• use Scratch to create different algorithms for different regular polygons and then use them to create a pattern.

Year 3

National Curriculum	Ackworth Howard's Knowledge Essentials	Activities
<p>Information Technology</p> <ul style="list-style-type: none"> • use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content • 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, including collecting, analysing, evaluating and presenting data and information 	<p><u>Word Processing Skills</u></p> <ul style="list-style-type: none"> • Use undo and redo. • Make text bold, italic or underline. • Select text in different ways. • Change case. • Align text. • Select single words. • Cut, copy and paste text. • Format the font. • Insert images. • Copy a screenshot into another application. • Use a secure password. • Use keyboard shortcuts. <p><u>Presentation Skills</u></p> <ul style="list-style-type: none"> • Create a simple presentation • Create shapes • Create a hyperlink to another slide • Use slide transitions • Insert audio and video files (where possible) • Record audio onto a slide • Plan a branching story • Create simple slide templates • Copy and organise slides as required <p><u>Drawing and Desktop Publishing</u></p> <ul style="list-style-type: none"> • Draw objects. • Insert text boxes and images. • Order and group objects. • Move, resize and arrange text boxes and images effectively 	<p><u>Word Processing Skills</u></p> <ul style="list-style-type: none"> • learn various different techniques to create a secure password. • create a presentation using learnt computing skills to show how they can complete certain activities using representative screenshots. • type up a family favourite recipe using as many shortcuts as possible for reinforced learning. <p><u>Presentation skills</u></p> <ul style="list-style-type: none"> • Create a presentation about what they like doing at home, using features they have learnt in school • Create a branching story using a presentation application of a story they already know <p><u>Drawing and Desktop Publishing</u></p> <ul style="list-style-type: none"> • draw a picture of the view from their window on a drawing application. • use any desktop publishing application they have access to and make a leaflet or brochure about somewhere they have visited using text boxes and images.

Year 3

National Curriculum	Ackworth Howard's Knowledge Essentials	Activities
<p>Digital literacy</p> <ul style="list-style-type: none">• 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	<p><u>Internet Research and Communication</u></p> <ul style="list-style-type: none">• To know and understand how word order affects the results returned.• They will know how to bookmark or favourite a page and name different types of online communication.• Children will know what to do if they feel uncomfortable when communicating online.• They will be able to identify how they should behave online.• Identify which word order gives the better results when searching online and be able to support this with examples.• They will be able to share a webpage with others.• Children will be able to research the different types of online communication used by their peers.	<p><u>Internet Research and Communication</u></p> <ul style="list-style-type: none">• use the skills they have learnt in school to search the web safely and effectively for words related to their topic.• research how the adults in their family communicate online and compare it with children.

Year 3

National Curriculum	Ackworth Howard's Knowledge Essentials	Activities
<p>Digital literacy</p> <ul style="list-style-type: none"> use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. 	<p><u>Online Safety</u></p> <ul style="list-style-type: none"> recognise cyberbullying identify a safe person to tell if they encounter cyberbullying know that cyberbullying can happen via a range of devices identify adverts online identify a targeted advert explore how companies use websites to promote products create a strong password explain why a strong password is important explain what privacy settings are discuss email as a form of communication identify an email that they should not open write an email with an address and subject know how to safely send an email know how to safely receive an email identify online communities they are a part of identify different forms of online communication discuss the positive and negative aspects of online communities discuss the differences between communication in real life and online discuss what they have learnt about online safety communicate their ideas with a group clearly and listen to others' contributions use what they know about online safety to plan a party using online methods 	<p><u>Online Safety</u></p> <ul style="list-style-type: none"> consider the various digital communication methods which could be used by a cyberbully and how they would deal with instances of cyberbullying. track the online communication in their household over the course of a week.

Year 3 Computing Vocabulary

Essential Vocabulary

<u>Programming Turtle Logo and Scratch</u>	<u>Word processing skills</u>	<u>Presentation skills</u>	<u>Drawing and desktop publishing</u>	<u>Internet Research and Communication</u>	<u>Online safety</u>
Pen up Pen down Variable Algorithm Right (rt) Forward (fd) Left (lt) Turn Calculation Instructions Clear screen (cs) Commands move	Keyboard Typing Save Folder Shift Caps lock Space bar Edit Backspace Delete Arrow keys Undo Redo Select Window Minimise Password Screenshot Snipping tool shortcut	Theme Transition Animation Slide Link File format Hyperlink Button Shape Action settings Audio Video Embed Evaluate Branching story Image Text Text box Title Colour	Text Text box Format Image Photo Photograph Wrap text Square Aspect ratio Objects Layout Background Outline Font Size colour	Webpage Social media Search Link Bing Google Yahoo	Online Internet Cyberbullying Email Password Device Digital Safety Technology Social media Website Advertisement Privacy settings Secure Digital citizen Digital footprint Community Inbox Forum comments

Year 4

National Curriculum	Ackworth Howard's Knowledge Essentials	Activities
<p>Pupils should be taught to:</p> <p>Computer Science</p> <ul style="list-style-type: none"> design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts use sequence, selection, and repetition in programs; work with variables and various forms of input and output use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs 	<p><u>Scratch: Questions and Quizes</u></p> <ul style="list-style-type: none"> Write a program which accomplishes a specific goal. Create a program that includes a logical sequence. Debug a program they have written Use repetition and selection. Work with variables and adjust these depending on the effect they wish to create. Understand and use the duplicate function. Demonstrate that they understand how to combine a range of different effects to create their own quiz. <p><u>Programming Turtle Logo</u></p> <ul style="list-style-type: none"> Write procedures using simple algorithms. Change the colour of the pen. Write text using the label command. Draw shapes using setpos or setxy. Fill shapes in different colours. Draw arcs of different sizes as required 	<p><u>Scratch: Questions and Quizes</u></p> <ul style="list-style-type: none"> create a poster about the dos and don'ts for creating a quiz using Scratch. experiment with different blocks to create an original effect for either the sprite or the backdrop. <p><u>Programming Turtle Logo</u></p> <ul style="list-style-type: none"> make patterns using filled shapes and labels. create an algorithm to create an abstract piece of art. se the setpos or setxy commands to draw squares and rectangles. create an algorithm to create a picture of a house.

Year 4

National Curriculum	Ackworth Howard's Knowledge Essentials	Activities
<p>Information Technology</p> <ul style="list-style-type: none"> • use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content • 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, including collecting, analysing, evaluating and presenting data and information 	<p>Word Processing</p> <ul style="list-style-type: none"> • select, edit and manipulate text in different ways • insert an image into a document • format an image • use formatting tools to improve the layout • use the spellcheck tool • insert a simple table • change the size of the page • use some of the main keyboard shortcuts • suggest ways to improve a layout • apply specific effects to an image • add a spelling to the spelling dictionary • add or delete rows or columns in a table • suggest ways to change a table • type at an appropriate speed • choose a relevant website to link a document to • create a hyperlink. <p>Animation</p> <ul style="list-style-type: none"> • Explain what is meant by animation • Create a series of linked frames that can be played as a short animation. • Control and adjust a time slider to locate a different point in a film clip. • Insert images to create a simple stop-motion animation short film clip. • Evaluate the good and bad points about some animation software. • Describe one or more traditional methods of animation. • Make slight changes to an image using onion skinning, understanding the term. • Use a time slider to find a specific point in a film clip to insert or edit an object. • Edit and refine images in a stop-motion animation short film clip. • Compare different animation software by analysing good and bad points. 	<p>Word Processing</p> <ul style="list-style-type: none"> • suggest some improvements to Farmer Hallows' dull poster. • create a simple recipe card for their parent/guardian's favourite dish. <p>Animation</p> <ul style="list-style-type: none"> • create their own storyboard animation plan linked to the underwater theme of the MovieSoup software • make the 'props' for an animation, either by model making (plasticine/clay or junk modelling) or drawing a backdrop scene with a movable character.

Year 4

National Curriculum	Ackworth Howard's Knowledge Essentials	Activities
<p>Digital literacy</p> <ul style="list-style-type: none">• 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• use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	<p>Online Safety</p> <ul style="list-style-type: none">• define cyberbullying• know how to respond to a hurtful message or comment online• access a trusted search engine• understand that different search terms give different results• know what plagiarism is• identify which information to keep private online• explain what digital citizenship is• tell someone else at least one way to stay safe online• identify comments or messages that may be hurtful to others• edit their own messages and comments to make sure they are kind• understand that search results are ranked• choose an appropriate number of words for a search term• explain how to use other people's work respectfully• explain why it may be dangerous to share private information• explain how to be a good digital citizen• tell someone else more than one way to stay safe online	<p>Online Safety</p> <ul style="list-style-type: none">• Keep a log of all their online activity over a week, then identify any activities that they needed to apply their knowledge of online safety to• interview an adult at home and teach them about the online safety they have covered in this unit.

Year 4 Computing Vocabulary

Essential Vocabulary

Scratch: Questions and Quizzes

Algorithm
 Costume
 Quiz
 Effects
 Sprite
 Scratch library sounds
 Scratch library costumes
 Scratch library backdrops
 Sound
 Backdrop
 Variable
 Blocks
 question

Programming Turtle Logo

Pen up
 Pen down
 Variable
 Algorithm
 Turn
 Right (rt)
 Forward (fd)
 Left (lt)
 Calculation
 Instructions
 Clear screen (cs)
 Commands
 move

Word Processing

Hyperlink
 Insert
 Toolbar
 Text
 Format
 Edit
 Font type
 Font colour
 Font size
 Align
 Paste
 Copy
 Bullet
 Text box
 Wrap
 Save
 Spellcheck
 Review
 Highlight
 cursor

Animation

Frame rate
 Play
 Stop
 Record
 Onion skinning
 Thaumatrope
 Zoetrope
 Flip book
 Animation
 Zoopraxiscope
 Stereoscope
 Loop
 Still image
 Analyse
 Evaluate
 Stop motion

Online Safety

Online
 Safety
 Cyberbullying
 Message
 Search
 Search engine
 Search results
 Plagiarism
 Citation
 Social media
 Profile
 Account
 Private
 Public
 Digital citizen
 Responsibility
 Community
 Personal information
 Share
 permission

Year 5

National Curriculum	Ackworth Howard's Knowledge Essentials	Activities
<p>Pupils should be taught to:</p> <p>Computer Science</p> <ul style="list-style-type: none"> design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts use sequence, selection, and repetition in programs; work with variables and various forms of input and output use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs 	<p><u>Scratch – Developing Games</u></p> <ul style="list-style-type: none"> move and edit blocks as part of an algorithm. program an algorithm as a sequence of game instructions with actions and consequences. <p><u>Controlling Devices</u></p> <ul style="list-style-type: none"> Follow written instructions to draw a simple flowchart Insert symbols into a flowchart Add inputs into a flowchart. Identify conventional symbols, understanding the process of each stage. Create a program to control a simple sequence. Modify symbols in a flowchart for effect. Create flowcharts for multiple inputs and outputs. Use decisions and subroutines. Program inputs and outputs 	<p><u>Scratch – Developing Games</u></p> <ul style="list-style-type: none"> design a new maze for the first game, an additional level or additional features. Algorithms can be written on paper or designed on the Scratch create a new game of their own, based on those practised in lessons. Existing games could be researched and compared first <p><u>Controlling Devices</u></p> <ul style="list-style-type: none"> create instructions for any task of their choice and use conventional symbols to draw a corresponding flowchart. research ideal growing conditions for a greenhouse. Write instructions for the control of an automated greenhouse to adapt its conditions based on inputs of temperature and light, by changing outputs such as a heater and sprinkler. Pen and paper are used to draw a corresponding flowchart.

Year 5

National Curriculum	Ackworth Howard's Knowledge Essentials	Activities
<p>Information Technology</p> <ul style="list-style-type: none"> use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content 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, including collecting, analysing, evaluating and presenting data and information 	<p><u>Internet Research and Webpage Design</u></p> <ul style="list-style-type: none"> Comment on the features and layout of a webpage. Create a new webpage with a chosen layout and format text in the webpage. Independently search for images that can be used in documents. Insert and format an image in a webpage. Independently create a hyperlink Learn how to share a webpage so it can be viewed by anyone. Use the advanced features of Google's web search <p><u>3D Modelling</u></p> <ul style="list-style-type: none"> Draw 2D shapes or lines. Draw simple 3D models Manipulate 2D shapes into 3D shapes. Import 3D models from the 3D warehouse. Use a range of SketchUp tools including: shape, push, pull, orbit, pan, zoom, erase and fill. Draw and manipulate 3D models independently. Use inference points to draw lines and shapes. Use a wide range of SketchUp tools and concepts including: the dimensions toolbar and guides, tape measure, zoom extents and the 3D warehouse. <p><u>Radio Station</u></p> <ul style="list-style-type: none"> Record and play their own sounds in recording software Import an existing sound file into recording software to play Choose appropriate software for sound recording Plan and record a radio advert Listen to and improve on their own recordings by re-recording Locate and download existing sound files to be imported into recording software Combine two or more tracks to make a new, original recording Plan and record appropriate audio content for a podcast Evaluate what features makes good quality audio content 	<p><u>Internet Research and Webpage Design</u></p> <ul style="list-style-type: none"> create their own webpage about a topic using Google Sites. <p><u>3D Modelling</u></p> <ul style="list-style-type: none"> use SketchUp to create a Garden Shed. They must include a window and a door as well as making the shed look as though it is made from wood. use SketchUp to create a Garden Table. They must include a square or round top, 3 or 4 legs as well as making the table look as though it is made from either wood or metal. <p><u>Radio Station</u></p> <ul style="list-style-type: none"> research existing radio stations to investigate what is broadcast and what they enjoy listening to. plan ideas for their own new podcast to be recorded about an event, hobby or interesting topic of their choice. think of interview questions for a friend or family member

Year 5

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<p>Digital literacy</p> <ul style="list-style-type: none">• 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• use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	<p>Online Safety</p> <ul style="list-style-type: none">• identify a spam email• explain what to do with spam email• understand why they should cite a source• explain the rules for creating a strong password• create a strong password using a set of rules• know that not everything they see online is true• explain how to stay safe online• identify unsafe online behaviour• identify a dangerous spam email• create multiple strong passwords for use across different platforms• spot citations online• alter a photograph.	<p>Online Safety</p> <ul style="list-style-type: none">• look at the features of emails and compare a spam email to a genuine email.• use quiz cards to test people outside of school on their online safety knowledge

Year 5 Computing Vocabulary

Essential Vocabulary

<u>Scratch: Developing Games</u>	<u>Controlling devices</u>	<u>Internet Research and webpage design</u>	<u>3D modelling</u>	<u>Radio Station</u>	<u>Online Safety</u>
Repeat	Delay	Internet	2D shape	Play	Spam
Score	Output	World wide web	3D shape	Stop	Email
Variable	Start	Search	Rectangle	Record	Link
Block	Stop	Search engine	Move	Skip	Attachment
Level	Flowchart	Google	Push	Digital content	Junk
Costume	Decision	Browser	Pull	Mute	Inbox
Sprite	Loop	Tab	eraser	Podcast	Research
Commentary	Symbol	Window	Zoom	Output	Password
Backdrop	Input	Layout	Zoom extents	Input	Secure
Code	Mimic	Text	Group	Sound	Photo
Debug	subroutine	Font	Dimension	Download	Social media
Events		Colour	Measurement	Jingle	Personal information
Scripts		Image	Component	Audio	Digital citizen
algorithm		Video	Rotate	Voiceover	Filter
		Animation	Offset	Edit	Source
		Website	Pan	Waveform	Edit
		Hyperlink	Orbit	gain	Plagiarism
		Share	inference		Bibliography
					Cite
					citation

Year 6

National Curriculum	Ackworth Howard's Knowledge Essentials	Activities
<p>Pupils should be taught to:</p> <p>Computer Science</p> <ul style="list-style-type: none"> design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts use sequence, selection, and repetition in programs; work with variables and various forms of input and output use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs 	<p><u>Scratch: Animated Stories</u></p> <ul style="list-style-type: none"> Select appropriate characters to match a scene. Animate characters with movement and speech in a story scene. Use broadcast and receive blocks correctly in code. Use show and hide blocks correctly in code. Create a sequence of story scenes with added audio. Structure and sequence the animation of characters in each scene. Use the repeat command to create animation effect. Make a character visible or invisible at the correct times. <p><u>Kodu Programming</u></p> <ul style="list-style-type: none"> Open Kodu and navigate the programming environment using keyboard or mouse. Add objects to a world and program them using When and Do instructions. Plan and design the features of an original virtual environment. Program a character to move around a track. Create a path for a character to follow. Follow instructions given in the Kodu programming environment. Describe the actions of a sequence of Kodu commands. Use tools to change the size of the ground and raise or lower the landscape. Decompose code into smaller parts and explain it in their own words. Create a race track with an end goal for a game. Program a character to follow a path. 	<p><u>Scratch: Animated Stories</u></p> <ul style="list-style-type: none"> Children are given a number of small scripts to interpret. They should try to describe in words the effect of each script to show understanding of the blocks in Scratch. create their own animated story. This will test their ability to apply the coding skills learnt in a new context. This task is best suited to follow on from one of the last two lessons. <p><u>Kodu Programming</u></p> <ul style="list-style-type: none"> Children are set the challenge of creating a football game using Kodu. Children are challenged to write a beginner's guide to Kodu, aimed at the year group below them, i.e. a slightly younger audience than themselves.

Year 6

National Curriculum	Ackworth Howard's Knowledge Essentials	Activities
<p>Information Technology</p> <ul style="list-style-type: none"> • use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content • 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, including collecting, analysing, evaluating and presenting data and information 	<p><u>Spreadsheets</u></p> <ul style="list-style-type: none"> • Enter text and numbers into a spreadsheet. • Identify and refer to cells by row and column. • Begin to enter formulae with the SUM function • Be able to enter formulae into cells. • Edit data and discuss the effect on results. • Use further functions including AVERAGE, MIN and MAX. • Create graphs. • Design their own spreadsheet for a specific purpose <p><u>Film-Making</u></p> <ul style="list-style-type: none"> • plan and write a script using appropriate software • search for relevant information using appropriate websites • use a digital video camera (or similar device) to record • plan suitable questions to ask an interviewee • import video files into video editing software. • plan additional elements for film-making such as locations and props • evaluate whether information is reliable or not • speak clearly into the camera when being recorded • frame an appropriate filming shot when interviewing • arrange video files to form a complete film 	<p><u>Spreadsheets</u></p> <ul style="list-style-type: none"> • Children create their own spreadsheet for a sports league table of their own. • Speedway Scores: This task is designed for children to use existing information in a spreadsheet. Children must insert the correct formulas required to complete the information and reorder data, then answer questions. <p><u>Film-Making</u></p> <ul style="list-style-type: none"> • Children are given the task of practising some interviewing at home and recording or capturing in some way. This could involve video recording, audio recording, photographing or just planning written questions and making notes of answers. • Children are asked to list some of the roles and think about what responsibilities they may have and which role they would be best at..

Year 6

National Curriculum	Ackworth Howard's Knowledge Essentials	Activities
<p>Digital literacy</p> <ul style="list-style-type: none"> • 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 • use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. 	<p>Online Safety</p> <ul style="list-style-type: none"> • say what bullying and cyberbullying are • say how people should deal with cyberbullying • understand why I should ask an adult if I am unsure • identify warning signs that a website might not be secure • identify personal information • explain what to do if I am asked or told something online which makes me uncomfortable • explain some of the dangers of revealing personal information to an online friend • choose an appropriate action online to stay safe • identify a situation I should be careful in online • understand how a stereotype can be harmful. • look in the address bar of a website so check for security • identify the lock symbol in an address bar • explain why someone might have an online friendship • explain what the SMART acronym means • explain what a stereotype is • compare gender stereotypes. 	<p>Online Safety</p> <ul style="list-style-type: none"> • children will be asked to identify if certain online usernames are safe to use and if not, why not. • Children will be asked to imagine what could happen if they do not think about online safety when online, and the safer alternatives to certain behaviour.

Year 6 Computing Vocabulary

Essential Vocabulary

Scratch: Animated stories

Animate
Visible
Invisible
Project
Show
Hide
Receive
Broadcast
User
Repeat
Audio
Debug
Record
Iteration

Kodu programming

World
Smooth
Flatten
Raise
Kodu
Start
Finish
Program
Environment
Acceleration
Bump
Obstacle
Object
Track
Path
Node
Character
Tool palette

Spreadsheets

Spreadsheet
Cell
Row
Column
Formula
Calculate
Format
Average
Percent
Edit
Insert
Ascending
Descending
Sort
Graph
Budget
Total
cumulative

Film-making

Documentary
Film
Production
Pre-production
Post-production
Improvise
Interview
Location
Prop
Copyright
Source
Shot
Angle
Close-up
Frame
Zoom
Import
Convert
Upload
screening

Online safety

Cyberbullying
Reporting
Anonymous
Victim
Security
Secure
Private
Personal
Policy
Https
Domain
Media
Attachments
Site
Browser
Gender
Stereotype
Message
Instant messaging