

DIGITAL COMPETENCE FRAMEWORK

Strand	Element	RfL routemap	A steps	B steps	C steps	Nursery	Reception	Year 1	Year 2	Year 3	Year 4
		Learners have achieved the following.	With increasing independence learners are able to:	With increasing independence learners are able to:	With increasing independence learners are able to:	With increasing independence learners are able to:	With increasing independence learners are able to:	With increasing independence learners are able to:	With increasing independence learners are able to:	Learners are able to:	Learners are able to:
Citizenship – Through these elements learners will engage with what it means to be a conscientious digital citizen who contributes positively to the digital world around them and who critically evaluates their place within this digital world. They will be prepared for and ready to encounter the positive and negative aspects of being a digital citizen and will develop strategies and tools to aid them as they become independent consumers and producers.											
1.1	Identity, image and reputation		identify an image of themselves, e.g. touch an image of their face on screen.	identify images of familiar people, e.g. look at photos of their class group.	identify their own work/that of others, e.g. show recognition that a piece of work is theirs when viewed on screen be aware that some devices require simple password/action to access them, e.g. swipe a device to activate it.	distinguish between someone they know and someone they have never met, e.g. this links to personal and social education (PSE)/well-being and would form part of 'Stranger Danger' education.	recognise that actions have consequences and identify simple rules to keep them safe (offline and online), e.g. classroom rules/charters should incorporate digital and non-digital rules recognise that data can be shared online, e.g. with adult support, find images of themselves and others for example on the school website/school social media page, etc.	understand that some websites ask for information that is private and personal, e.g. identify private and personal information and discuss how to handle requests for private information – not disclosing full name, address, date of birth, school.	understand that information put online leaves a digital footprint or trail, e.g. explain the meaning of digital footprint and encourage them to think critically about the information they leave online identify the steps that can be taken to keep personal data and hardware secure, e.g. understand usernames and passwords, why we have them and how they are kept safe.	be aware of simple rules for sharing images and data, e.g. understand that photographs cannot be taken of others or shared online without seeking permission first use strategies for creating and keeping strong, secure passwords, e.g. three to four random words joined together or using capitalisation and numbers.	understand how to protect themselves from online identity theft, e.g. security symbols such as a padlock, phishing, scam websites be aware that information put online leaves a digital footprint or trail, e.g. to aid identify theft identify risks and benefits of installing software, e.g. identify possible risks of installing free and paid for software, for instance free software could download viruses to the device/computer.
1.1a	Identity, image and reputation – classroom task ideas		1. Use slideshow with pictures or photographs on a tablet/device.	1. Recognise class members in a video of a sports day/Christmas show.	1. Photograph of their work shown on screen via casting. 2. Swipe/enter a simple 4-digit pin on a tablet/device.	Classroom task ideas are available on Hwb.	1. (Common Sense Media) Going places safely - Lesson 1	1. (Common Sense Media) Keep it private - Lesson 3	1. (Common Sense Media) Following the digital trail - Lesson 2	2. (Common Sense Media) Powerful passwords - Lesson 1	2. (Common Sense Media) Private and personal information - Lesson 2
1.2	Health and well-being	Expresses preference for items not presented by symbolic means [RfL 41]	indicate to show they want to use digital media, e.g. use a picture or symbol to request a specific digital device or media.	use a variety of digital media, including applications to create, e.g. use a camera to take a photograph.	select preferred items on digital media, including items to create, e.g. choose draw/paint icon on website or platform identify the preferred items of others, e.g. find icon for website another learner likes.	use digital devices and media with care, e.g. name a variety of digital devices and handle appropriately.	recognise that actions have consequences and identify simple rules to keep safe (offline and online), e.g. classroom rules/charters should incorporate digital and non-digital rules recognise that data can be shared online, e.g. with adult support, find images of themselves and others for example on the school website/school social media page.	use digital devices within a controlled environment, time and context, e.g. use for a given time limit and specified outcome.	begin to identify and explain the advantages and disadvantages of digital media and devices on their lives, e.g. on their physical and mental well-being..	acknowledge age restrictions and suitability of digital media and devices, e.g. locate and begin to understand PEGI ratings and age restriction guidelines identify physical and emotional effects of playing/watching inappropriate content/games.	identify the positive and negative influences of technology on the environment, e.g. consider the different ways free time is spent and begin to find a balance between active learning and digital activities explain the importance of balancing game and screen time with other parts of their lives.

1. Citizenship	1.2a	Health and well-being – classroom task ideas	1. Give a picture or symbol to choose preferred DVD or video clip.		1. Use electronic keyboard to make sounds. 1. Use tablet/device to paint or draw/make marks.	1. On <i>Jit</i> select background for painting a picture or mark making. 2. Choose a friend's preferred song on a CD.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.
	1.3	Digital rights, licensing and ownership		respond differently to images of familiar people and other images, e.g. <i>gesture through facial expression or body language when watching images of themselves and friends, and images related to relevant curriculum content on screen.</i>	find a photograph/symbol/name for self and other familiar people, e.g. <i>find photographs on digital album.</i>	identify their name on their own work and that of others, e.g. <i>recognise their name on work around the classroom.</i>	add their name to digital work by using initial letter, e.g. <i>type the first initial of their name on keyboard</i>	add their name to digital work, e.g. <i>type first name on keyboard</i> find the name of the author on digital work.	add their name and the date to work they have created, e.g. <i>type their first name and surname and add a date to pieces of work.</i>	add their name and the date to work they have created and give reasons why this is important, e.g. <i>type their first name and surname, add a date to pieces of work and orally provide reasons for doing so.</i>	explain how giving credit is a sign of respect explain when and how it is acceptable to use the work of others.	understand that copying the work of others and presenting it as their own is called 'plagiarism', e.g. <i>begin to consider consequences of plagiarism</i> recognise watermarks and copyright symbols, e.g. <i>recognise watermarks on a variety of media, know the reasons for using watermarks and explore how watermarks can be added in different software.</i>
	1.3a	Digital rights, licensing and ownership – classroom task ideas		1. Use the camera tool on a tablet/device to take a photograph/video and display on large screen for rest of the class to see.	1. Use a prebuilt interactive presentation for learners to select name/photograph to activate a reward.	1. Onscreen, select own photo to add to their own work.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	1. (Common Sense Media) My creative work - Lesson 4	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	1. and 2. (Common Sense Media) Whose is it anyway? - Lesson 5
	1.4	Online behaviour and cyberbullying	Indicate to adult more/no more, e.g. <i>use sounds and gestures to request 'more/no more', push item away, turn head to reject, smiling [RfL 28]</i> Attract attention, e.g. <i>use body language/vocalisation or other method to gain attention [RfL 32]</i> Initiate social game, e.g. <i>give symbol to adult for foot spa/battery operated toy [RfL 33]</i>	give attention to moving/animated items online.	observe others online, e.g. <i>watch familiar people with interest on screen</i> attract and draw adult attention to something/someone online, e.g. <i>use sounds/gestures/show excitement to attract others' attention to items on screen</i> communicate simple likes/dislikes, e.g. <i>accept or reject a digital activity offered by an adult.</i>	interact with others online, e.g. <i>use video chat media</i> identify their own emotions on screen and indicate to an adult.	identify emotions of others on a range of digital software, e.g. <i>talk about feelings and begin to recognise emotions; consider how actions and words can affect others; realise that behaviour has consequences; identify when they are angry worried or frightened and know who to ask for help</i>	explain how people can connect with others online, e.g. <i>identify forms of communication (including digital)</i> use appropriate words and feelings, e.g. <i>discuss words and feelings that could upset people – link to offline personal and social education (PSE) and well-being work.</i>	simply explain that digital technology can be used to communicate and connect with others locally and globally, e.g. <i>text, image, photographs, video, newsletters, e-mail, web services</i>	use digital technology to communicate and connect with others locally and globally, e.g. <i>text, image, photographs, video, newsletters, e-mail, web services</i> interact appropriately with others, e.g. <i>follow the same rules when communicating face-to-face and online.</i>	explain the similarities and differences between offline and online communications, e.g. <i>follow the same rules when communicating face-to-face and online; discuss how online communication can be misinterpreted</i> compose clear and appropriate messages in online communities identify different forms of bullying, including cyberbullying, and suggest strategies for dealing with it, e.g. <i>screenshot, block, report.</i>	identify actions to report and prevent cyberbullying, e.g. <i>use strategies such as not replying, reporting and saving evidence</i> identify appropriate behaviour when participating or contributing to collaborative online projects for learning, e.g. <i>devise a set of rules.</i>

2. Interacting and collaborating	1.4a	Online behaviour and cyberbullying – classroom task ideas	2. Shouts or vocalises when favourite character appears on screen. 3. Hits the screen to make something happen which gains a specific response from an adult.	1. Request more by selecting an item. This may include pressing a switch or touching a screen to activate toy/music/video.	Classroom task ideas are available on Hwb.	1. Use video chat to see other learners/classes in the school. 2. Use a digital camera to capture different emotions of learners and use symbols/words to identify them correctly.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	2. (Common Sense Media) Screen out the mean - Lesson 3	1. (Common Sense Media) Show respect online - Lesson 4	2. (Common Sense Media) Rings of responsibility - Lesson 1
	Interacting and collaborating – Through these elements learners will look at methods of electronic communication and know which are the most effective. Learners will also store data and use collaboration techniques successfully.											

2. Interacting and collaborating	2.1	Communication	Communicates choice to attentive adult, e.g. <i>show through vocalisation or gestures preferred item from choice of two [RfL 37]</i> Expresses preference for items not present via symbolic means [RfL 41]	communicate own choices for a small selection of objects and interactions, e.g. <i>choose from phone/video chat by selecting appropriate device.</i>	communicate own choices in a variety of places for a selection of objects and interactions, e.g. <i>choose video/phone/picture to communicate by selecting appropriate device.</i>	use different forms of digital communication, e.g. <i>experience and participate in simple voice video or text communications.</i>	be aware that there are different forms of online communication, e.g. <i>e-mail, messaging, video call.</i>	talk about different forms of online communication, e.g. <i>e-mail, messaging, video call and their uses.</i>	contribute to a whole-class or group online communication in one or more languages, e.g. <i>e-mail or video call.</i>	send simple online communication in one or more language from a single user account, e.g. <i>e-mail (ensuring address is typed accurately) or video call.</i>	exchange simple online communication in one or more languages, e.g. <i>e-mail or video call</i> explain the advantages of communicating electronically, e.g. <i>time saving (especially covering large distances almost instantly), resource saving, cost effectiveness, able to have multiple users from different countries communicating simultaneously, content is easily shared/saved/stored/tagged.</i>	exchange online communication with other learners in one or more languages, making use of a growing range of available features, e.g. <i>send e-mails with attachments and change formatting (where device allows).</i>
	2.1a	Communication – classroom task ideas	1. Choose between bubble tube or wind machine. Or choose between an MP3 player and electronic keyboard to make music. Or choose between battery operated toys. 2. Give picture or symbol for wave machine in hydro-pool. Or give picture or symbol for preferred DVD.	1. Press icon symbol or switch to make a choice.	1. Use tablet/device to select from limited number of photos/symbols preferred activity, e.g. <i>music box/vibrating toys.</i> 1. Use interactive white board to select preferred action on a website, e.g. <i>a video clip or audio clip.</i> 1. Choose preferred toy from a selection of battery operated toys, e.g. <i>cars/robots.</i>	1. During video link between classrooms or schools, set up by a teacher, engage in simple conversation or interaction with another learner or adult.	1. Create a simple picture which they share digitally with another person or location [supported] by an adult. 1. Learner observes this process, views the picture in the new location and recognises it is the picture they created.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.
	2.2	Collaboration	Shared attention, e.g. <i>looks between adult and digital activity [RfL 40]</i>	turn taking with attentive adult, e.g. <i>activating music maker and switch attention to adult when it is the adults turn.</i>	engage in the same digital activity in parallel with a peer, e.g. <i>play a game with remote controlled cars demonstrating awareness of the results of the other person's input.</i>	complete shared digital activity and be aware of the effect of the input of others, e.g. <i>completing a jigsaw and noticing the other person has put a piece in the wrong place and moving it.</i>	Work together with a partner/partners on a piece of digital work	-Work together with a partner/partners on a piece of digital work	collaborate with a partner on a piece of digital work.	use an online collaborative platform to create or edit a file in one or more languages, e.g. <i>word processing, presenting tools, spreadsheets.</i>	use an online collaborative platform to create or edit a file in one or more languages, e.g. <i>word processing, presenting tools, spreadsheets.</i>	manage an online file, adding and responding to comments in one or more languages, e.g. <i>create, share and edit an online file engaging in reflective discussion with teacher and/or peers.</i>

2.2a	Collaboration – classroom task ideas	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.
2.3	Storing and sharing				recognise digital work from a previous session.	save work by clicking an icon.	save work by clicking an icon and understand that the work can be retrieved.	Save work using a familiar word as a filename, e.g. child's name/key word and understanding that this work can be retrieved	save work using an appropriate file name, e.g. child's name and simple title	save files to a specific location using an appropriate file name, e.g. select a file name that would be searchable at a later date	be aware of different types of storage, e.g. local, network, online, removable
2.3a	Storing and sharing – classroom task ideas				Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.
<p>Producing – These elements cover the cyclical process of planning (including searching for and sourcing information), creating, evaluating and refining digital content. Although this process may apply to other areas of the framework, it is of particular importance when creating and producing digital content. It is however that producing digital content can be a very creative process and this creativity is not intended to be inhibited.</p> <p>Digital content includes the production of text, graphics, audio, video and any combination of these for a variety of purposes. As such, this will cover multiple activities across a range of different contexts.</p>											
3.1	Planning, sourcing and searching	Selects from two or more items, e.g. reach or look towards preferred item when two or more items are present (mobile device, music player, microphone, etc.) [RfL 36]	indicate a preference within a digital task, e.g. select preferred DVD or music from picture on screen.	show awareness of what is needed to complete a digital task, e.g. use given digital equipment to do a familiar task such as draw a picture/take a photograph	choose what is needed to complete a digital task from given options, e.g. select camera to take photo, keyboard to make music	respond to and ask some questions such as why, what, how and where in relation to the digital task, e.g. in response to questions decide what digital equipment to use	identify a success criterion in response to questions, e.g. success criteria may include ensuring the subject is in the middle of the image when taking a photograph	identify some success criteria in response to questions, e.g. choose appropriate colour and add title to video	plan how to complete a digital task in relation to identified success criteria	use identified success criteria as a plan for completion of digital task	develop own success criteria to plan a digital task
				use an icon on screen to access a specific application or website, e.g. select music CD or video DVD from on-screen icons, preferred website page, etc.	navigate through a series of icons/images to find the desired item (information/software/media), e.g. scroll through familiar website/software to find familiar activity.	navigate through a piece of software using internal menu to find desired item.	find information with a variety of sources, e.g. suggest technology as a source of information and explore familiar image/symbol-based websites or apps.	use text when searching for information/media (image, video, sound) and use an internet browser independently, e.g. open web browser and type in one keyword for a search.	use keywords to search for specific information to solve a problem, e.g. type keywords into a search engine and explain how their choice of website helps to solve the problem.	develop strategies for finding information using different keywords and techniques, e.g. follow a step-by-step set of instructions on how to search effectively for information relevant to a task and select an appropriate website from skimming through a small number of sources.	find relevant information using different keywords and search techniques
											select an appropriate website from search results and begin to consider if the content is reliable.

3. Producing	3.1a	Planning, sourcing and searching – classroom task ideas	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	2. Use <i>j2Launch</i> to search for appropriate websites. Add a new website to <i>j2Launch</i> dashboard using a URL. 2. Enter keywords into the <i>j2Launch</i> library search.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.
	3.2	Creating	Intentional exploration of the environment, <i>e.g. reaches across table to touch moving toy/musical toy [RfL 27]</i> Initiates actions to achieve desired result exerting autonomy in variety of contexts, <i>e.g. presses switch to turn on toy, activate music [RfL 43]</i>	interact with technology in order to produce an image, sound or video output show a preference for different multimedia components including image, sound and video.	intentionally create different text, image, sound or video outputs choose preferred multimedia component from a limited choice of image, sound and video.	create output for different purposes using different multimedia components including letters and symbols, image, sound, animation or video.	explore and use different multimedia components in order to capture and use text, image, sound, animation and video.	select appropriate software from a limited range to create multimedia components; create and explore the use of text, image, sound, animation and video.	select appropriate software to complete given tasks in order to use text, image, sound, animation and video.	create and edit multimedia components in order to develop text, image, sound, animation and video for a range of tasks .	create and edit multimedia components organise a range of text, image, sound, animation and video for selected purposes.	create and modify multimedia components using a range of software modify and present a range of text, image, sound, animation and video for selected purposes.
	3.2a	Creating – classroom task ideas		1. and 2. Images Select an image from a choice of two in order to view the image full screen. Audio Start music by activating an input device such as a touch screen.	1. and 2. Text Recognise that the letter selected on an input device such as a keyboard is the same that appears in output such as on screen. Images Select an image from a choice of four in order to view the image full screen. Audio Start and stop music.	1. Text Purposefully enter letters into a search engine using an input device such as a keyboard to bring up a preferred website/section. Audio Record audio which has relevance to the task. Adjust volume settings.	1. Text Type a word (or simple sentence) and change the font, font colour and font size of the whole text. Images Use stamps to add images to an appropriate background and use a Paintbrush and Fill tools to create a simple image. Audio Record audio to accompany a digital piece of work. Video Record and play back simple videos using a tablet/device or camera.	1. Text Type a word (or simple sentence) and change the font, font colour and font size of the whole text. Images Use a camera to capture images. Use these images in a piece of digital work. Audio Record audio to accompany a piece of digital work. Video Create a simple frame-by-frame animation by adding a series of stamps to a single background.	1. Text (Build sentences, using words from a word bank.) Use word banks. Insert and delete text. Images Use a camera to capture images. Use these images in a piece of digital work. Audio Record audio to accompany a piece of digital work. Video Record a simple frame-by-frame animation by adding a series of stamps to a single background.	1. Text Format individual words or sentences, by highlighting before formatting. Use Copy and Paste tools, using on-screen icons. Images Import a photograph as a background and enhance using simple graphic tools. Use a camera to capture a series of images. Audio Record audio to accompany a digital piece of work. Video Record a simple video, add a title and ensure steady shots.	1. Text Build simple paragraphs. Justify the text to the left, right and centre. Move text boxes to appropriate places on the screen. Use keyboard shortcuts to access tools such as Copy and Paste. Images Import an image, resize, crop and rotate as appropriate, to enhance a document. Audio Add sound clips at appropriate points in a presentation. Video Create a simple stop-frame animation and add a title.	1. and 2. Text Format text using Bold, Italic, Underline. Use bullet points to create a list. Images Import an image. Add an effect, frame and shadow, as appropriate, to enhance a document. Audio Add sound clips at appropriate points in a presentation. Video Create a simple stop-frame animation and add a title.

3.3	Evaluating and improving			show pleasure/displeasure when viewing their own work.	comment on their own work in response to specific question(s) spontaneously make a change to their own work/self-correct own work.	describe in response to questions some of what has been done in the task, e.g. add comments using recording feature in software.	comment on work in relation to a single success criterion, e.g. add comments using recording feature in software.	comment on work in relation to the success criteria, e.g. add comments using recording feature in software.	identify what worked and what didn't, giving some of the reasons for their thoughts.	give an opinion about their own work and suggest improvements, e.g. spot mistakes and use editing tools to improve their work.	give an opinion about their own and others' work and suggest improvements independently and collaboratively, e.g. check through their work and correct their spelling/use a spellchecker; decide if the red line underneath words point to misspelt words; use suggested spellings where appropriate give reasons for choices made, e.g. discuss the benefits and limitations of a spellchecker especially with Welsh language documents.
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3.3a	Evaluating and improving – classroom task ideas			Classroom task ideas are available on Hwb.							
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Data and computational thinking – Computational thinking is a combination of scientific enquiry, problem solving and thinking skills. Before learners can use computers to solve problems they must first understand the problem and the methods of solving them.

Through these elements learners will understand the importance of data and information literacy; they will explore aspects of collection, representation and analysis. Learners will look at how data and information links into our digital world and will provide them with essential skills for the modern, dynamic workplace.

4.1	Problem solving and modelling	Early problem solving – tries new strategy when old one fails [RfL 42] Initiates actions to achieve desired result, e.g. attempts to gain adult attention to make a request [RfL 43]	use a range of appropriate cause and effect devices copy actions, demonstrating a start and finish remember learned responses over an extended period of time.	use a range of devices to create a desired effect show a growing awareness of sequences and patterns follow one-step instructions.	use a range of devices for different purposes copy simple patterns and sequences follow two-step instructions.	complete patterns and sequences follow a simple sequence of instructions create one-step instructions and identify the next step.	control devices by giving them instructions listen to and follow a sequence of instructions from others create verbal instructions attempt alternative approaches to solve a problem or achieve a goal.	follow a sequence of steps to solve a problem, e.g. predict and explain what actions are needed to make something happen breakdown a problem into separate parts to make it easier to understand create and record written instructions that others understand and can follow change instructions to achieve a different outcome.	explain to others how a designed solution works, e.g. explain a design for a simple playground game and test, correcting any issues that arise predict the outcome of simple sequences of instructions, e.g. predict what will happen if instructions are followed accurately create a simple solution that tests an idea, e.g. predict what would happen if it went wrong such as the sequence of waking up to go to school.	represent a solution symbolically, e.g. the order of waking up, through a diagram or flowchart, and find the variables in the solution detect and correct mistakes in sequences of instructions, e.g. identify mistakes in a solution that would cause it to fail (debug) identify repetitions or loops in a sequence, e.g. identify where to shorten a set of instructions by repeating steps, for instance when learning a new song.	demonstrate how part of a solution might need repetition represent a simple solution in a flowchart that contains a looping element, e.g. identify where a repeat or loop may work in a flowchart, for instance traffic lights, and select variables.
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4.1a

Problem solving and modelling – classroom task ideas

<p>1. Adjusts gestures in front of movement sensing technology.</p> <p>1. Tries pressing other switches/buttons on music player to make music play.</p> <p>2. Presses switch at the correct time to achieve a desired result in a simple computer program.</p>	<p>1. Use a range of digital appliances in cookery sessions, e.g. <i>microwave/oven</i>.</p> <p>2. Start and stop playing an instrument along with a music track/musician playing.</p> <p>3. Activate a sound effect at the appropriate point in a familiar story read by an adult.</p>	<p>1. Press different buttons/icons on an interactive screen to activate desired effect.</p> <p>2. Repeatedly press screen to turn pages on an interactive story.</p> <p>3. Follow simple instructions to move in a gymnastic session, e.g. <i>jump, roll, star</i>.</p>	<p>1. Activate music/lights/aromas in a sensory room. Or use a blender, microwave or digital scales in a cookery session.</p> <p>2. Make a fruit kebab following a simple visual sequence.</p> <p>3. Follow simple instructions to switch on a bubble tube and change its colour.</p> <p>3. Follow simple instructions to play a video and increase the volume.</p> <p>3. (Barefoot) Musical sequences.</p> <p>Learners create sequences of colours to make music (simple algorithms).</p>	<p>1. Complete the final steps in a sequence of getting dressed or making toast.</p> <p>2. Follow picture or symbol sequence to make a simple snack.</p> <p>3. When following instructions to make a sandwich adjust spreading of the butter to cover the whole slice.</p> <p>4. Give single instruction to programmable toy, observe what has happened and then decide what instruction to give to move to the next given destination.</p> <p>4. (Barefoot) Creating patterns.</p> <p>Learners look for patterns, complete sequences and create their own patterns to develop their understanding of simple algorithms.</p>	<p>Control a floor robot, programmable toy, or a microwave when cooking.</p> <p>1. SEND Bee-Bot Basics activity.</p> <p>Learners learn to create short sequences of instructions to begin to control a floor robot.</p> <p>2. Follow verbal instructions from others to get to hidden treasure in a pirates game.</p> <p>2. Follow verbal instructions from others to recreate a constructed model.</p> <p>3. Create and record instructions for others to follow in a mini beast hunt.</p> <p>4. (Barefoot) River crossing activity.</p> <p>Learners solve the traditional problem of a farmer trying to get a chicken, a fox and corn across a river by acting it out. Developing their logical reasoning skills.</p>	<p>1. (Barefoot) Bee-Bot Tinkering; Exploring Using Bee-Bots.</p> <p>Learners tinker with Bee-Bots to find out what they do and how to program them. They will understand simple programming language.</p> <p>2. Given the challenge of painting a picture, what resources do they need? Can they gather the correct resources?</p> <p>2. When laying a table, what equipment do they need to lay a table for four people?</p> <p>2. (Barefoot) Getting Ready for School: Decomposition.</p> <p>Learners will decompose the act of getting ready for school into smaller steps, creating a sequence of instructions to complete the task.</p> <p>3. (Barefoot) Crazy Character Algorithm activity.</p> <p>Learners will create a set of instructions on how to draw a crazy character.</p> <p>4. Alter the instructions from a partner on a programmable device to reach a different place.</p>	<p>1. Explain the game and rules to others including win/lose conditions.</p> <p>1. (Barefoot) World map logic activity</p> <p>Learners use logical reasoning to explain their predictions before programming and testing their commands to see if they are correct.</p> <p>2. Predicting what will happen when a set of instructions on how to care for a plant is followed.</p> <p>2. (Barefoot) Spelling rules activity</p> <p>Learners explore graphemes for a particular phoneme (its spelling rules) using logical reasoning to predict the rules.</p> <p>3. Create instructions to make a sandwich. What would happen if the spread was on the outside of the bread?</p> <p>3. (Barefoot) Bee-Bot Basics: Programming using Bee-Bots</p> <p>Learners design and solve challenges using a programmable toy.</p>	<p>1. Make a flowchart for brushing teeth, preparing breakfast.</p> <p>1. (Barefoot) Sharing sweets activity</p> <p>Learners will work out a simple algorithm, a set of instructions on how to share objects, and compare the similarities and differences between them.</p> <p>2. Give a set of instructions in the wrong order, e.g. <i>watering a plant, melting chocolate or sequencing a story in the wrong order</i>.</p> <p>2. (Barefoot) Introduction to decomposition Unplugged; Tut, clap or jive</p> <p>An unplugged activity where learners create handclapping, hand tutting or hand jive sequences of movements. Learners will detect and correct a set of instructions.</p>	<p>1. Model a variety of simple scenarios involving the preparation of food/drinks that includes repetition, where instructions for making a sandwich for one person adapts to making sandwiches for four people.</p> <p>2. Could observe a set of traffic lights and note down the pattern of the lights and then different states (e.g. <i>red light on for 15 seconds</i>) using timer variable for seconds. This could then be modelled in a flow chart.</p> <p>2. (Barefoot) Ships and crystal flowers activity</p> <p>Learners learn about repetition (loops) by creating programs to draw patterns made of simple shapes (using scratch).</p>
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4.2	Data and information literacy	Intentional exploration of the environment, <i>e.g. tactile exploration of different environments [RfL 27]</i>	explore and match objects from a choice of two by copying an adult.	match identical objects or pictures independently understand that one item can be represented by another means, <i>e.g. familiar object to a photograph of that object.</i>	match non-identical objects or pictures identify items that do not belong to a set separate objects that share a specified attribute, <i>e.g. big/little, blue/green.</i>	gather data using objects recognise that there are different types of data, <i>e.g. sort and/or match objects/photographs/symbols</i> sort familiar objects using set criteria.	begin to interpret information/data by making direct comparisons, <i>e.g. explain why one group/set is different to another set</i> classify objects using one criterion create a simple pictogram using suitable software.	collate and group given data using simple words, <i>e.g. sort pictures/words</i> classify an object using more than one criterion, <i>e.g. labelling group/set</i> record data collected in a suitable format, <i>e.g. use tally charts, pictograms and block graphs in simple computing package.</i>	collect and organise data into groups, <i>e.g. gather data by voting or sorting and represent in pictures, objects or drawings</i> extract information from simple tables and graphs, <i>e.g. answer questions on table graph</i> record data collected in a variety of suitable formats, <i>e.g. lists, tables, block graphs and pictograms.</i>	Collect data, enter and analyse in given formats <i>e.g. table, charts, databases and spreadsheets</i>	Create data sets and extract information from them with tables, charts, spreadsheets and databases
4.2a	Data and information literacy – classroom task ideas	1. Outdoors – explore piles of leaves, sand, pebbles. 1. Indoors – explore touch or sound activated musical toys.	1. Match animals on a farm or pairs of socks or forks in a cutlery drawer.	1. Match foods in a supermarket to photographs on a shopping list. 1. Put small PE equipment away by matching, <i>e.g. ball to box with photographs of balls, hoop to box with photographs of hoops.</i> 2. Match cutlery to photograph placemat to set the table. Or use toy foods in a role-play kitchen or shop.	1. Find and put collection of cups all in the same cupboard. 2. Separate sets of objects, <i>e.g. pigs/not pigs lions/not lions when playing with toy farm/zoo.</i> 2. (Barefoot) Sorting objects activity Learners sort objects according to their features and develop their ability to spot patterns. 3. Find all the red cars/black dogs on a toy garage/farm set.	1. Learners go outdoors to collect different leaves to sort. 2. Sort picture cards of animals or toy animals. 3. Sort clothes into prelabelled sets of summer/winter.	1. Sorting vegetables and fruit into groups giving reasons for their groupings. 2. Outdoor education – on a nature walk collect items and select, <i>e.g. all the plants.</i> 2. (Barefoot) Pattern unplugged activity; Elephants, Cats and Cars Learners work on spotting patterns in sets of pictures and think of general statements to describe similarities and differences.	1. Sort given pictures (<i>e.g. insects</i>) and words into groups, using one or more criteria, giving reasons for their grouping.	1. and 2. Answer a simple enquiry: What type of pet is most/least popular in class? Use information collected in a tally chart to create a block graph. 3. Input data into a software package, such as <i>Jit</i> .	1. Database Search and sort a given and online database following a simple line of enquiry, <i>e.g. deciding which data needs collecting and giving reasons for sorting.</i> Spreadsheet Use a spreadsheet to store and interrogate information, <i>e.g. add information to a spreadsheet, discuss the information and begin to answer specific questions.</i> Create a graph using a spreadsheet.	1. Database Create a simple database, <i>e.g. identifying records, fields, etc., using prepared software.</i> Perform simple searches and extract information on branching databases, <i>e.g. simple search on branching database to answer questions and check statements.</i> Add and amend records in databases, <i>e.g. fields.</i> Spreadsheet Extract information from spreadsheet to answer specific questions. Add information to a given spreadsheet.

DIGITAL COMPETENCE FRAMEWORK

Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Element
Learners are able to:	Learners are able to:	Learners are able to:	Learners are able to:	Learners are able to:	Learners are able to:	Learners are able to:	
<p>talk about the impact that the digital content created can have, e.g. think critically about the information shared online; be aware of appropriate and inappropriate text, photographs and videos and the impact of sharing these online</p> <p>explain why it is important to discuss their use of technology with an adult, e.g. discuss aspects of positive and negative reputation</p> <p>maintain secure passwords on a regular basis and refrain from using the same password more than once</p>	<p>explain what metadata of a photograph can include, e.g. date, time and location</p> <p>identify benefits and risks of mobile devices broadcasting the location of the user/device, e.g. apps accessing location</p> <p>identify secure sites by looking for privacy seals of approval, e.g. https, padlock icon</p> <p>identify the benefits and risks of giving personal information and device access to different software</p> <p>understand how and why people use their information and online presence to create a virtual image of them as a user.</p>	<p>explain how their digital usage is tracked, e.g. know basic data protection laws and how organisations are responsible for the security of collected data</p> <p>use strategies for guarding against identity theft and scams that try to access their private information online, e.g. safely manage browser history and cookies.</p>	<p>discuss the benefits and risks of presenting themselves in different ways online, e.g. professionally and personally.</p>	<p>understand that they have a digital footprint and that this information can be searched, copied and passed on, e.g. know how to check the security configurations of their devices and/or the software they use.</p>	<p>build a positive reputation in the context of their employment prospects, e.g. use social media responsibly</p> <p>understand the ways websites and companies collect data online and utilise it to personalise content for their users, e.g. personal data being shared</p> <p>recognise the risks and the uses of data/services on personal devices within the terms and conditions of a range of software and web services.</p>	<p>explain the ethical issues of corporate encryption, e.g. building in a bypass system</p> <p>identify and describe the data protection policies of a variety of organisations located in different countries, and how this affects the way that they work</p> <p>identify how organisations become data compliant when using multi-national products.</p>	<p>Identity, image and reputation</p>
<p>3. (Common Sense Media) Strong passwords - Lesson 1</p>	<p>3. (Common Sense Media) Privacy rules - Lesson 3</p>	<p>2. (Common Sense Media) Scams and schemes - Lesson 3</p>	<p>1. (Common Sense Media) Which me should I be? - Lesson 4</p>	<p>1. (Common Sense Media) Trillion dollar footprint - Lesson 1</p>	<p>1. (Common Sense Media) College bound - Lesson 5</p> <p>1. Create CVs and use recruitment tools.</p> <p>2. (Common Sense Media) What's the big deal about internet privacy? - Lesson 3</p>	<p>2. and 3. (Common Sense Media) Does it matter who has your data? - Lesson 2</p> <p>Create CVs and use recruitment tools.</p> <p>Evaluate the risks and benefits of using online tools to aid employment prospects and the need to be mindful of personal data submitted.</p> <p>[Explore how websites and companies collect data online and use it to personalise content for their users. Consider companies' motives in doing so.]</p>	<p>Identity, image and reputation – Exemplification of tasks</p>
<p>Understand the advantages, disadvantages, permissions and purposes of altering an image digitally and the reasons why</p>	<p>understand the importance of balancing game and screen time with other parts of their lives, e.g. explore the reasons why they may be tempted to spend more time playing games or find it difficult to stop playing and the effect this has on their health.</p>	<p>reflect on the role of digital media in their lives and their media habits, e.g. explore how the media can play a powerful role in shaping our ideas about stereotypes.</p>	<p>demonstrate healthy online behaviours (physical and psychological) and identify unacceptable behaviour, e.g. in relation to cyberstalking, harassment, abuse of trust and radicalisation.</p>	<p>identify stereotypes and their impact in a range of media forms, e.g. critically reflect upon stereotypes in mass media, social media and gaming.</p>	<p>think critically about the different purposes and contexts of digital image editing, e.g. explore the benefits and negative points of photograph manipulation; evaluate digitally edited images in terms of context and purpose</p> <p>take reasonable steps to avoid health problems (physical and psychological), caused by the use of technology</p> <p>understand the legal responsibilities for disposal of technology and the environmental impact of doing so.</p>	<p>think critically about the different purposes and contexts of digital image editing</p> <p>take reasonable steps to avoid health problems caused by the use of technology and suggest strategies to prevent or reduce the problems (physical and psychological)</p> <p>explain how to access support from professionals and organisations</p> <p>understand the legal responsibilities for disposal of technology and the environmental impact of doing so.</p>	<p>Health and well-being</p>

Link to be made live later in the Autumn term.

Classroom task ideas are available on Hwb.	1. (Cybersmart) Managing screen time <i>Activities that raise awareness of balancing screen time with other parts of their lives.</i>	1. (Common Sense Media) Digital life - Lesson 1	Classroom task ideas are available on Hwb.	1. (Common Sense Media) Reality of digital drama - Lesson 3	1. (Common Sense Media) Retouching reality - Lesson 4	Classroom task ideas are available on Hwb.	Health and well-being – Exemplification of tasks
cite all sources when researching and explain the importance of this, e.g. <i>create simple lists for the referencing of digital and offline sources; discuss rights and permissions associated with this</i>	cite all sources when researching and explain the importance of this, e.g. <i>create simple lists for the referencing of digital and offline sources; discuss rights and permissions associated with this</i>	understand copyright, licensing, fair use, and the rights they have as creators, e.g. <i>consider different ways people license their copyrighted work</i>	understand copyright, licensing, fair use, and the rights they have as creators explain basic copyright laws, e.g. <i>explore the ethical and legal ramifications of piracy and plagiarism and know that they are irresponsible and disrespectful</i>	explain the legal and ethical dimensions of respecting creative work, e.g. <i>explore the ethical and legal ramifications of piracy and plagiarism and know that they are irresponsible and disrespectful; apply understanding of the rules to different scenarios.</i>	identify the key points required for creative work to be considered fair use and comply with data protection laws, e.g. <i>explore the legal and ethical considerations involved in using the creative work of others; understand individuals' rights and responsibilities as creators and consumers of content; think critically and make ethical decisions about the use of creative works in relation to fair use; reference using formal citation conventions, such as Harvard and Oxford.</i>	understand and reflect on the differences between taking inspiration from the creative work of others and appropriating that work without permission, e.g. <i>appreciate the key concepts of inspiration, appropriation, copyright, and fair use and examine how they apply to creative work; understand the legal and ethical debates that surround using other people's creative work; consider the points of view of the original creator, potential audiences, and the broader community when using materials belonging to others.</i>	Digital rights, licensing and ownership
understand that photographs can be edited digitally and the rights and permissions associated with this.	understand that photographs can be edited digitally and discuss rights and permissions associated with this.	explain basic copyright laws, e.g. <i>learn that copyright is a legal system that protects their rights to creative work.</i>	act responsibly as creators and users of creative work, e.g. <i>explore decisions that creators make when exercising their creative rights and responsibilities, giving consideration to ethical, real-life issues.</i>				
1. (Common Sense Media) How to cite a site - Lesson 4	1. (Common Sense Media) How to cite a site - Lesson 4	1. and 2. (Common Sense Media) A creator's right - Lesson 5	Classroom task ideas are available on Hwb.	1. (Common Sense Media) Rework, reuse, remix -Lesson 5 1. (Common Sense Media) Copyrights and wrongs - Lesson 3	1. (Common Sense Media) Copyrights and wrongs - Lesson 3	1. (Common Sense Media) Rights, remixes and respect - Lesson 1	Digital rights, licensing and ownership – Exemplification of tasks
demonstrate appropriate online behaviour and apply a range of strategies to protect self and others from possible online dangers, bullying and inappropriate behaviour, e.g. <i>turn off comments on digital media, block users; know how to deal with and report inappropriate content and misuse.</i>	demonstrate appropriate online behaviour and apply a range of strategies to protect self and others from possible online dangers, bullying and inappropriate behaviour, e.g. <i>turn off comments on digital media, block users; identify the risks and legal consequences of sending intimate images and content/sexting; recognise language that could be deemed to be offensive (including racist, sexist, homophobic, transphobic) in online activities.</i>	refine strategies to protect self and others from possible online dangers, e.g. <i>when communicating online show an active ability to deal with inappropriate behaviour/misuse while actively minimising risks</i> <u>filter the communication</u> received, e.g. <i>sorting out e-mails, deciding whom to follow on social media, etc.; responsibly use digital tools to interact with others using more advanced features</i>	identify high-risk situations and active strategies to avoid them, e.g. <i>critically evaluate behaviour to limit exposure to high-risk situations</i> define and identify advanced forms of cyberbullying, how to avoid it and the consequences of such actions	adapt online behaviour and interactions for different audiences, considering global cultural values, e.g. <i>critically evaluate behaviour and interactions taking into account global cultural values; consider how behaviour is perceived by others.</i>	apply appropriate strategies to protect rights, identity, privacy and emotional safety of themselves and others in online communities, e.g. <i>continuously evaluate online behaviour, taking into consideration the consequences of actions; take action to minimise risk to safety and security; consider global and cultural perspectives and adapt behaviour accordingly.</i>	apply appropriate strategies to protect rights, identity, privacy and emotional safety of themselves and others in online communities, e.g. <i>continuously evaluate online behaviour, taking into consideration the consequences of actions; take action to minimise risk to safety and security; consider global and cultural perspectives and adapt behaviour accordingly.</i>	Online behaviour and cyberbullying
		demonstrate a basic knowledge of the legal aspects linked to online behaviour, e.g. <i>cyberbullying, harassment, false statements and publishing inappropriate content/images without consent.</i>					

Link to be made live later in the Autumn term.

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Classroom task ideas are available on Hwb.	1. (Common Sense Media) Super digital citizen and What's cyberbullying? - Lessons 2 and 4	1. (Common Sense Media) Crossing the line - Lesson 4 2. (Common Sense Media) Stand up to cyberbullying - Lesson 4	3. (Common Sense Media) Which me should I be? - Lesson 4	Classroom task ideas are available on Hwb.	1. (Common Sense Media) Private today, public tomorrow - Lesson 1 1. (Common Sense Media) What's the big deal about internet privacy? - Lesson 3	1. (Common Sense Media) Private today, public tomorrow - Lesson 1 1. (Common Sense Media) College bound - Lesson 3	Online behaviour and cyberbullying – Exemplification of tasks
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Link to be made live later in the Autumn term.



exchange online communication in one or more languages, making use of a growing range of available features, e.g. <i>when e-mailing, use search function, manage contacts</i>	exchange online communication in one or more languages, making use of a growing range of available features, e.g. <i>manage folders within e-mail including using reporting features to filter spam and make use of webcams to facilitate video calls</i>	Manage and use a growing range of online communication accounts and the features offered within each e.g. e-mails accounts, messaging accounts, etc	select and use different online communication tools for specific purposes with higher levels of competence, e.g. <i>set up and manage an address book and organise contacts on appropriate mailing lists; independently carry out a video call for a specific purpose including screen sharing where appropriate.</i>	select and use different online communication tools for specific purposes with higher levels of competence, e.g. <i>set up relevant mail merge using word processing and spreadsheet software; use advanced features of e-mail provider (signature, auto-reply, read receipt, widgets).</i>	make use of available online communication services for specific purposes, justifying selections made based on their appropriateness for delivery of information.	reflect on choices of online communication solution and comment on how this could be improved to meet aims of tasks.	Communication
show an understanding of the advantages and disadvantages of different forms of communication and when it is appropriate to use each, e.g. <i>explain when video conferencing may be more appropriate than e-mail, and visa versa; explain the pros and cons of using instant messaging in social contexts; talk about purpose and audience.</i>	show an understanding of the advantages and disadvantages of different forms of communication and when it is appropriate to use each, e.g. <i>explain when video conferencing may be more appropriate than e-mail, and visa versa; explain the pros and cons of using instant messaging in social contexts; talk about purpose and audience.</i>						
Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Communication – Exemplification of tasks
work with others to create an online collaborative project for a specific purpose in one or more languages, sharing and appropriately setting permissions for other group members, e.g. <i>editing, commenting, viewing.</i>	work with others to create an online collaborative project for a specific purpose in one or more languages, sharing and appropriately setting permissions for other group members, e.g. <i>editing, commenting, viewing.</i>	take account of chronological changes made to a file and choose appropriate restore points if needed.	independently select and use online collaboration tools to create a project with others in one or more languages.	independently select and use a range of online collaboration tools to create a project with others in one or more languages, e.g. <i>make use of online technology to share and present ideas to others.</i>	reflect on choices of collaboration solutions and comment on how this could be improved to meet aims of tasks.	reflect on choices of collaboration solutions and comment on how this could be improved to meet aims of tasks.	Collaboration

Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Collaboration–Exemplification of tasks
back up files to a second or third storage device, e.g. removable storage device, network drive (locally or on-line)	create and share hyperlinks to local, network and online files	track the changes of a document/view the revision history and restore a previous version where appropriate	use appropriate advanced file-management techniques, e.g. tagging, compression.	be aware of simple encryption and the purpose of encryption, e.g. to send sensitive data more securely	use online services to share appropriate content with a global audience, e.g. uploading content to public websites to share with specific audiences.	use online services to share appropriate content with a global audience, e.g. uploading content to public websites to share with specific audiences.	Storing and sharing
search for a specific file	password-protect a file.	take account of file size and type, and understand that storage drives may have a limited storage space.	use relevant hyperlinks and account for the appropriate file management technique, e.g. some file storage systems will utilise dynamic hyperlinks so that if a file location is changed, the link remains intact, whereas changing file location in other systems could result in a broken hyperlink.				
upload files from a local drive to online storage.							
Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Storing and sharing – Exemplification of tasks

also essential to recognise

create a written plan using a template provided	plan work independently before beginning the 'creative work' (digital task)	select and use effective planning techniques	select and use a variety of effective planning techniques	select and use a variety of effective planning techniques	effectively plan with increasing complexity	effectively plan with increasing complexity	Planning, sourcing and searching
adjust keywords and search techniques to find relevant information; begin to reference sources used in their work; consider if the content is reliable, e.g. find information using accurate terms, use a range of sources to check validity and understand the impact of incorrect information.	extend strategies for finding information; store previous searches and results for future use, e.g. reference through hyperlinks and bookmark a website.	search for necessary information and assess the quality of the information found; assess sources of information to determine if they are reliable and reference valid sources e.g. search a range of sources and critically evaluate search findings.	search a variety of sources using relevant search techniques with increased complexity; organise previous searches and information for improved functionality and reference using appropriate methods, e.g. begin to categorise and group searches to make information handling more efficient; ensure that information sources are current, reliable and valid.	evaluate the reliability of sources of information, justify opinions and reasons for choices and reference using appropriate methods, use a range of complex searches independently, e.g. and/or/+/-/not.	search efficiently for information and evaluate the reliability of sources of information, justifying opinions and reasons for choices; reference work using appropriate methods.	consider the benefits and limitations of digital tools and information sources and of the results they produce and use these results to inform future judgements about the quality of their work search efficiently for information and evaluate the reliability of sources of information, justifying opinions and reasons for choices; reference work using appropriate methods.	

Classroom task ideas are available on Hwb.	2. Bookmarking relevant websites in <i>j2Launch</i> . www.j2e.com/ysgol-teilo-sant/RobW/3.1+Referencing+year+6.mov/	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	Classroom task ideas are available on Hwb.	1. and 2. For the Welsh Baccalaureate Enterprise and Employability Challenge, plan a professional multimedia presentation to be viewed by a panel, using a range of multimedia components.	1, 2 and 3. Plan the Welsh Baccalaureate Individual Project.	Planning, sourcing and searching – Exemplification of tasks
combine a range of multimedia components to produce an appropriate outcome create, collect and combine a range of text, image, sound, animation and video for selected purposes.	use a range of software to produce and refine multimedia components select and combine a range of text, image, sound, animation and video to produce an outcome for a selected purpose; use software tools to enhance the outcomes for specific audiences.	use many features of a range of software to produce and refine multimedia components use software tools to create and enhance text, image, sound, animation and video components; combine the components to produce appropriate outcomes for a range of audiences and purposes.	use many features of a range of software to produce and refine multimedia components in one or more languages use software tools to create and enhance text, image, sound, animation and video components; combine the components to produce appropriate outcomes for a range of audiences and purposes explore and develop formal text document structures for given purposes.	select and use a variety of appropriate software, tools and techniques to create, modify and combine multimedia components use software tools to create, enhance and combine text, images, sound and video and animation for a range of audiences and purposes develop a range of formal text document structures for different audiences and purposes.	use a variety of software, tools and techniques to create a professional individual or collaborative project outcome incorporating a range of multimedia components create formal text documents for a professional audience, incorporating the use of collaborative review tools into activities use appropriate indexing and referencing tools to enhance documents.	use a variety of software, tools and techniques to create a professional individual or collaborative project outcome incorporating a range of multimedia components create formal text documents for a professional audience, incorporating the use of collaborative review tools into activities use appropriate indexing and referencing tools to enhance documents.	Creating
1. and 2. Text Manipulate text boxes by changing background colours, adding frames. Images Add more than one image to a document. Overlap the images and display the required part of each image by reordering the layer on which they sit. Audio Remove original sound from a video and overlay a new narration. Video Combine more than one clip using extreme close up, extreme long shot and point of view shots.	1. and 2. Text Use superscript and subscript characters. Use both landscape and portrait page orientation, where appropriate; use spellcheckers. Images Resize an image, using a fixed and non-fixed aspect ratio. Audio Record a multitrack audio clip. Video Combine clips, appropriate effects, transitions and titles, including reverse angle shot.	1. and 2. Text Create, format and edit tables. Format page layouts, headers and footers, paragraphs. Images Enhance images, e.g. crop, filters, borders. Audio Enhance multitrack audio, e.g. fade in/out, echo, pitch, etc. Animation Flip Book/stop motion animation, e.g. layering.	1., 2. and 3. Animation Keyframe animation, e.g. <i>tweening (motion and shape)</i> .	1., 2. and 3. Text Mail merge. Animation Animation, e.g. control, frame rate, 3D.	1., 2. and 3. Text Table of contents and referencing sources.	Classroom task ideas are available on Hwb.	Creating – Exemplification of tasks

explain reasons for layout and content of own work, e.g. <i>evaluate the presentation for audience and appropriateness</i>	explain reasons for layout and content of own work, e.g. <i>evaluate the presentation for audience and appropriateness</i>	evaluate own and others' work and justify content for audience, e.g. <i>comment on others' work in relation to layout and content</i>	justify the reasons for choices and explain the advantages and disadvantages of the different outputs, e.g. <i>produce a basic evaluation report including justification for layout and content</i>	justify the reasons for choices and explain the advantages and disadvantages of the different outputs	justify reasoning to critical audiences in terms of layout and content, e.g. <i>produce a detailed evaluation report including justification for layout and content</i>	justify reasoning to critical audiences in terms of layout and content	Evaluating and improving
comment on reasons for layout	ensure output is appropriate for specific purpose	respond to feedback.	suggest and make improvements depending on feedback and self-evaluation.	suggest and make improvements depending on feedback and self-evaluation that are relevant for audience and purpose.	refer appropriately to sources of information used	refer appropriately to sources of information used	
invite feedback/responses from others	comment on reasons for layout and content				make detailed and specific changes based upon feedback and self-evaluation, as relevant.	make detailed and specific changes based upon feedback and self-evaluation, as relevant.	
create groups and share work between them to allow review of work.	invite feedback/responses from others, e.g. <i>use 'comment' in Word Online/Excel Online for asking questions or adding suggestions</i>						
	create groups and share work between them to allow review of work.						

Classroom task ideas are available on Hwb.	1., 2. and 3. For the Welsh Baccalaureate Enterprise and Employability Challenge, plan a professional multimedia presentation to be viewed by a panel, using a range of multimedia components.	1., 2. and 3. Plan the Welsh Baccalaureate Individual Project.	Evaluating and improving – Exemplification of tasks				
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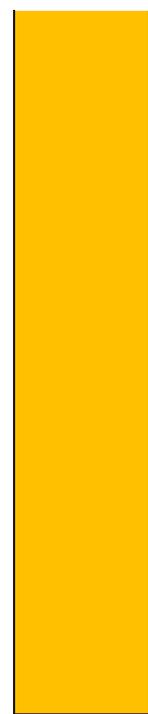


design simple sequences of instructions (algorithms) including the use of Boolean values (i.e. yes/no/true/false), e.g. <i>within the algorithm, demonstrate the correct use of Boolean values giving an either/or response.</i>	demonstrate how programs or processes run by following a sequence of instructions exactly and in order	identify different parts of a process, e.g. <i>variables, loops, case statements and comments</i>	identify patterns and opportunities for re-using code (instructions), e.g. <i>parts of a method or instruction list that can be used to solve similar problems in different situations and/or systems</i>	decompose complex processes and determine the actions of individual parts, e.g. <i>multiple WHILE, FOR and IF in either text-based or block-based programming environments</i>	independently create and design models and explain how they represent real-world problems, e.g. <i>selecting and correctly using an appropriate method for illustrating a problem, such as a flowchart or spreadsheet</i>	demonstrate the benefits of using part or whole instructions or methods (functions/procedures) in solving a problem, e.g. <i>compartmentalise sections of a problem and call them when needed.</i>	Problem solving and modelling
	demonstrate how an algorithm is useful for representing a solution to a problem through testing	predict process outcome after modifying inputs, e.g. <i>predicting the effect of changing/editing a set of instructions</i>	apply logical reasoning to a problem to formulate a solution, e.g. <i>explain and justify how and why a solution to a problem is suitable</i>	follow given written instructions or flowcharts to determine the function or output of a process	follow and develop logical solutions to determine actions and outputs of a program/process, e.g. <i>follow pseudocode or a flowchart to come to an outcome, develop a written sequence of steps that could be followed.</i>		
	understand that changing instructions can affect or even terminate a process, e.g. <i>moving instructions around in a program could produce unexpected outcomes or cause the program to fail altogether.</i>	modify a given flowchart to change the variables of an algorithm, e.g. <i>add a process or a counter to it that would increment or decrement values.</i>	modify a given flowchart to change rules of an algorithm, e.g. <i>adjust conditions of actions in a flowchart, for instance changing the boundaries of a counter in a loop to change how the program functions</i>	recognise that algorithms are language agnostic			
			change an algorithm and predict the outcome.	follow and develop logical solutions, e.g. <i>demonstrate how a problem could be solved selecting a suitable method to illustrate</i>			
				detect and correct simple errors in algorithms, e.g. <i>can identify and correct where a syntax error will occur, for instance missing equal signs, variable names spelled incorrectly.</i>			

<p>1. An example of a task here would be twenty questions using yes/no answers to reasonably deduce what object someone is thinking of, such as the game <i>Guess Who?</i>. More able learners could model this in a programming language that gives a potential answer at the end after entering yes/no values.</p> <p>2. (Barefoot) Logical number sequences activity</p> <p>Learners explain the rules for a number sequence and predict what comes next.</p>	<p>2. Develop a solution to a problem and demonstrate what would happen if the instructions were in the wrong order. This could be further illustrated by coming up with actual examples of what would make the solution fail and how they could test it suitably. Imagine if two sets of traffic were allowed to travel at the same time without some element of control, or one way system.</p>	<p>Physical education/Dance Look at a sequence of steps for a dance or performance and identify different parts of it. What would the performance look like if the order were changed around?</p> <p>Physical education Look at sport movements and explain how small changes can affect overall movement.</p> <p>Geography Explore a flowchart which examines the effect of global warming with inputs such as the amount of carbon dioxide produced, deforestation, etc., and modify the inputs and variable values.</p> <p>Languages Come to a conclusion of what country you are in by looking at a flowchart that asks questions as inputs on things like currency, landmarks, travel times to get there, etc.</p> <p>Mathematics Look at an algorithm to predict the formula for the area or circumference of a circle.</p> <p>ICT Demonstrate appropriate basic commenting of code to explain functionality to a third party, using appropriate language conventions, e.g. <i># in Python</i>.</p> <p>Model a solution that replicates a calculator to take in two operands and an operator. Explaining what would be the result of getting the operators the wrong way around or the operands mixed up. During the design of this solution using a flowchart, inputs could be tested for accuracy before potentially coding the solution.</p> <p>Science Change a method or step in a method, predict results in</p>	<p>Physical education Identify parts of a performance that could be extracted and inserted into a separate sequence. Explain what the possibilities and outcomes are of modifying a performance.</p> <p>Drama/Media Set piece in film production, sequence sets and acts in the filming process so filming can be done in location order rather than chronological order.</p> <p>Food technology Large scale food production and flowcharts. Recipes large or small scale seeing similarities and differences with the two recipes and could apply numerical quantitative reasoning, i.e. proportional, linear.</p> <p>Geography Using visual evidence such as water features on a map, determine where a country is located and what the impact is on the country.</p> <p>Produce travel itineraries and journeys and predict the time/monetary cost of adding or removing points of interest.</p> <p>History Identify historical events and processes and discuss what changes could have been made to any of the events and predict an alternative outcome, e.g. <i>First World War</i>.</p> <p>Languages Identify patterns in translation and attempt to produce instructions/code to solve translation problems. Can also provide rules for translation.</p> <p>Mathematics Investigate to solve a problem where algorithms are used to process information, e.g. <i>calculating volume based on measurements and then using this in comparing volumes of different shapes</i>.</p> <p>Explain rationale within mathematics reasoning task.</p> <p>Using an algorithm, e.g. <i>multi-step function machines which</i></p>	<p>Physical education Examine repetition and recursion in dance moves and in musical scores.</p> <p>Food technology Break down individual parts of a recipe and determine what each part does. Follow a recipe to a successful outcome.</p> <p>Religious education Create flowcharts to show sequence of possible events in making moral choices, to investigate alternative history 'what if', e.g. <i>decisions made during the First World War, etc.</i></p> <p>Languages Produce a set of instructions to direct someone to a location (left, right, straight on, etc.) This can then be turned into using different languages to describe one function of a robot, e.g. <i>forward, back, turn left, repeat, etc.</i>, in different languages.</p> <p>Mathematics Dry-run an algorithm as part of an application in substitution.</p> <p>ICT Given a complex solution to a problem, for instance pseudocode or a flowchart, learners can not only follow it but can also explain the individual components of the solution. This could be a large flowchart that takes in class test scores and produces percentage success at the end. They could then demonstrate how this could be improved by taking names in as input and outputting names and scores for individuals when the algorithm ends.</p> <p>Science Decompose chemical and physical processes and determine action of each part, where possible demonstrate/model on computer programme.</p> <p>Basic vector diagrams for directions.</p>	<p>Music Detect and correct errors in musical scores.</p> <p>Compose a musical piece that requires a number of specific components.</p> <p>Physical education Produce a sequence of dance steps that when put together and performed would last a specific duration.</p> <p>Food technology Develop a costing for a meal and scale it up for multiple diners. What are the options for different types of the same ingredient? What would be the outcome on monetary cost/health in choosing alternatives? Justify choices.</p> <p>Geography Develop a model of population statistics over time. What is the impact of increases/decreases in population density? How can public services be managed or maintained with large increases?</p> <p>Design a computational model to represent global warming, earthquake analysis and volcanic activity in a region.</p> <p>Languages Analyse and explain the common problems with an online translating service or tool.</p> <p>Mathematics Look at common mistakes learners make via a mistake in algorithm method, e.g. <i>mistakes made in changing the subject of a formula, mistakes learners make in using the quadratic formula or cosine rule, etc.</i></p> <p>ICT Learners should be encouraged to develop logical solutions to problems and provide justification for how and why the problem has been solved in the way it has. This could be a project involving the collection of information before the production of output, or it could be a spreadsheet to model a scenario, e.g. <i>managing the finances for a large event. It could be a programming activity where they produce a solution to</i></p>	<p>Food technology Investigate the possible different procedures of a drinks vending machine that allow it to vend a variety of drinks from the same machine.</p> <p>Geography Immigration management, what are the key stages in the dealing with mass immigration? What stages work well and why? Could you reuse these in other models?</p> <p>What are the different stages involved in combating coastal erosion and what benefits do they offer in the order that they are done?</p> <p>Languages Write a report on the justification of writing code to analyse data, etc. Part of evaluation in Welsh Bac investigation or science experiment write-up.</p> <p>Justify using code, rules or data sets in report writing.</p> <p>Mathematics Utilise spreadsheet functions to solve a large/complex statistical problem.</p> <p>ICT/Science When solving a large problem, we generally break it down into smaller parts, solve those individually, and in doing so the whole problem is solved. Learners could be involved in a large project involving multiple tasks that need completing or problems that need solving. Can they explain why some tasks were completed before others (could use a Gantt chart critical path to explain). If learners are to demonstrate this using code, can they produce a solution to a problem using functions or procedures that are isolated from the rest of the program and run (called) when they are required.</p>	<p>Problem solving and modelling – Exemplification of tasks</p>
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Link to be made live later in the Autumn term.

		light of changes, such as science experiments. Compose an experiment and demonstrate in a flowchart change variables either theoretical or with experimental data and predict the outcome.	<p><i>examine the effects of changing the variables, for instance, $y = 4x^2 + 3x$, what happens if we change the 3, what happens if we change the 4?</i></p> <p>ICT Develop a written/coded set of rules for a 'rock, paper, scissors' game. There are a number of possible permutations when two people play this game and these could all be modelled in a number of if statements to determine a winner. What would happen if one of the permutations were removed or omitted altogether? Using a complete test table with all possible combinations on a developed flowchart would highlight errors prior to programming fully.</p> <p>Science Develop formula or equation based on experimental data.</p> <p>Develop an algorithm for organism/living things, classification or chemical compounds.</p>		<p><i>a problem and are able to independently develop it from inception to completion, correcting errors along the way.</i></p> <p>Science Model population growth in an ecosystem.</p> <p>Errors in methodology and in accuracy of equipment.</p> <p>Model motion, e.g. <i>motion under gravity and compare with experimental data.</i></p>		
Create, explore and analyse data sets, highlighting relationship within them e.g. <i>using spreadsheets, databases, tables and charts</i>	Construct, refine and interrogate data sets to test or support an investigation.	create a data capture form, capture data, search data and create a database or spreadsheet with appropriate data input method.	construct frequency tables for sets of data, grouped where appropriate, and perform simple analysis on data sets.	search through large data sets and identify trends where appropriate.	use data to explain and add validity to conclusion and where possible modify conclusion and/or hypothesis.	use appropriate programs to produce statistical evidence based on their own collected data/identified scenario and justify reasoning.	Data and information literacy
<p>1. Database</p> <p>Interrogate a database using search and sort filters, e.g. <i>sorting on a particular field or record.</i></p> <p>Create a database, e.g. <i>collect, prepare and create a database ensuring accuracy of entry and editing mistakes.</i></p> <p>Perform simple manipulations of a database, e.g. <i>adding field.</i></p> <p>Perform searches on larger databases and online databases.</p> <p>Spreadsheet</p> <p>Create a spreadsheet with a variety of data and use simple formulas, e.g. <i>sum, +, -, *, /.</i></p> <p>Explore patterns and relationships and make simple predictions about changing variables in data, e.g. <i>such as selling twice as many apples.</i></p>	<p>1. Database</p> <p>Create and organise a database with a variety of fields to record results, Search using two or more criteria for a specific purpose.</p> <p>Add and remove data fields to improve quality.</p> <p>Use the results from searches and represent the information appropriately, e.g. <i>carry out relevant searches using =, >, <, >=, <=, <> and represent searched information in relation to task.</i></p> <p>Spreadsheet</p> <p>Create spreadsheets with increasing complexities and test hypothesis, e.g. <i>create spreadsheets with simple formulae (+ - * /, sum, max, min, average).</i></p> <p>'What if' – predict outcome of change of single data items, perform changes and record actual outcome.</p>	<p>1. Create an online form to capture data.</p> <p>1. Database</p> <p>Check validity of data entered.</p> <p>Carry out searches on multiple fields, e.g. <i>AND, OR, NOT.</i></p> <p>Spreadsheet</p> <p>Use of complex formulae and formatting, e.g. <i>IF, and Conditional formatting.</i></p> <p>Present output results in a variety of formats (screen and paper).</p>	<p>1. Database</p> <p>Construct frequency tables for a given set of data, grouped where appropriate.</p> <p>Perform wildcard search, e.g. - ?, *.</p> <p>Perform complex searches related to natural language queries designed by the learners.</p> <p>Spreadsheet</p> <p>Construct frequency tables.</p> <p>Use decision functions, e.g. <i>If, Vlookup, COUNTIF and multiple IF.</i></p> <p>Represent data visually from a secondary source and/or experiment.</p>	<p>1. Database</p> <p>Design and use appropriate apparatus to capture large data sets such as scientific equipment and data loggers.</p> <p>Spreadsheet</p> <p>Produce complex formulae to allow data manipulation and calculation for selected tasks.</p>	<p>1. Database</p> <p>Produce reports, pictures, audio to represent data suitable for task and audience.</p> <p>Create rules to perform a task.</p> <p>Spreadsheet</p> <p>Use more than one function in a spreadsheet.</p>	<p>1. Database</p> <p>Create a database with relevant information and develop input forms.</p> <p>Create appropriate output forms/reports to display relevant information.</p> <p>Produce queries based on multiple search criteria.</p> <p>Know the benefits and limitations of storing information in a flat file structure.</p> <p>Spreadsheet</p> <p>Create custom rules or Macros to validate and/or verify data.</p>	Data and information literacy – Exemplification of tasks



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