BADSWORTH
CofE School
CARE – Prepare – Believe
'I can do all things through Him who strengthens me'
Philippians 4:13

Badsworth Church of England Junior & Infant School

In Computing at Badsworth C of E Junior & Infant School, we intend to embed deep links with computing across a variety of curriculum subjects, in particular mathematics, science and design technology. Our progressive curriculum, Teach Computing, continually builds on prior learning and knowledge to consolidate previous skills and deepen pupil's understanding of the subject as a whole. Pupils are taught how to use technology safely, respectfully and responsibly. They should leave Badsworth C of E Junior and Infant School as active and conscientious participants of an increasingly digital world.

EYFS

Barefoot Computing Units of Work					
Awesome Autumn Three Autumn themed activities which see the children explore patterns in Garlands Galore, create a leaf labyrinth and make Pumpkin Soup using computational thinking skills.	**Winter Warmers** Snowmen scarves and patterns, creating igloos and bird feeders- all take centre stage in our three winter themed activities.	**Busy Bodies** Provides four activities that help children discover how bodies move and grow. Using the resources provided they explore and learn about parts of the body, growth and movement. Simple algorithms are created and adapted to form a routine of movements.	**Springtime** Three Spring themed activities see the children make a Rabbit run, create Junk scarecrows and explore sequencing whilst planting seeds.	**Boats Ahoy** Takes children on a journey of discovery as they investigate boats. Four activities make up this set of resources. Includes different uses of boats, floating and sinking predictions, creating a good boat through exploring designs and role play.	**Summer Fun** Children explore their surroundings and get creative, take a journey and make a map, and discover seaside tangrams, in these three fun activities.
Use of Technology Throughout the year, in addition to the above adult-led activities, children will have the opportunity to explore technology independently during provision time. These will include experience such as tablets, chromebooks, interactive whiteboard, Beebots and any other technology toys.					
Skills					
Creating, Pattern, Logic, Algorithms, Decomposition, Collaborating	Algorithms, Creating, Collaboration, Decomposition, Tinkering, Persevering	Algorithms, Decomposition, Debugging, Logic, Patterns, Abstraction	Abstraction, Tinkering, Creating, Collaborating, Algorithms, Persevering, Decomposition	Algorithms, Decomposition, Creating, Tinkering, Logic, Patterns, Abstraction, Collaborating	Tinkering, Persevering, Patterns, Logic, Decomposition, Debugging, Collaborating, Algorithms

Computational Thinking Skills								
Collaboration	**Creating**	**Tinkering**	**Preserving**	**Pattern**	**Logical Reasoning**	**Abstraction**	**Algorithms**	**Decomposition**
Knowledge								
Prime Areas Communication & Language - Listening, attention and understanding **Prime Areas Personal, Social & Emotional Development** - Self regulation - Managing self - Building relationships **Specific Areas Understanding the World** - Past & present - People, cultures & communities **Expressive Arts & Design** - Creating with materials	**Characteristics of Effective Learning** - Creating and thinking critically **Prime Areas Physical Development** - Gross motor skills - Fine motor skills **Specific Areas Understanding the World** - The natural world **Expressive Arts & Design** - Creating with materials - Being imaginative & expressive	**Characteristics of Effective Learning** - Playing and exploring - Active learning **Prime Areas Physical Development** - Gross motor skills - Fine motor skills **Specific Areas Expressive Arts & Design** - Creating with materials - Being imaginative & expressive	**Characteristics of Effective Learning** - Playing and exploring - Active learning **Prime Areas Communication & Language** - Listening, attention and understanding **Personal, Social & Emotional Development** - Managing self	**Characteristics of Effective Learning** - Playing and exploring - Creating and thinking critically **Prime Areas Communication & Language** - Listening, attention and understanding - Speaking **Specific Areas Literacy** - Comprehension - Word reading - Writing **Mathematics** - Number - Numerical patterns **Understanding the World** - Past & present - People, cultures & communities - The natural world **Expressive Arts & Design** - Creating with materials	**Characteristics of Effective Learning** - Playing and exploring - Creating and thinking critically **Prime Areas Communication & Language** - Listening, attention and understanding - Speaking **Specific Areas Literacy** - Comprehension - Word reading - Writing **Mathematics** - Number - Numerical patterns **Understanding the World** - Past & present - People, cultures & communities - The natural world **Expressive Arts & Design** - Creating with materials	**Characteristics of Effective Learning** - Playing and exploring - Creating and thinking critically **Prime Areas Communication & Language** - Listening, attention and understanding - Speaking **Specific Areas Literacy** - Comprehension - Word reading - Writing **Mathematics** - Number - Numerical patterns **Understanding the World** - Past & present - People, cultures & communities - The natural world **Expressive Arts & Design** - Creating with materials	**Characteristics of Effective Learning** - Playing and exploring - Creating and thinking critically **Prime Areas Communication & Language** - Listening, attention and understanding - Speaking **Specific Areas Literacy** - Comprehension - Word reading - Writing **Mathematics** - Number - Numerical patterns **Understanding the World** - Past & present - People, cultures & communities - The natural world **Expressive Arts & Design** - Creating with materials	**Characteristics of Effective Learning** - Playing and exploring - Creating and thinking critically **Prime Areas Communication & Language** - Listening, attention and understanding - Speaking **Specific Areas Literacy** - Comprehension - Word reading - Writing **Mathematics** - Number - Numerical patterns **Understanding the World** - Past & present - People, cultures & communities - The natural world **Expressive Arts & Design** - Creating with materials

Key Prompts and Questions								
■ What shall I do? Good idea, I will get... ■ Who did you work with? ■ Whose turn is it? ■ Do you have the same as...? ■ Who can you work with to change this?	■ How did you make that? ■ Show me what it does. ■ Did you test it? ■ What do you like about yours? ■ Does it work as you wanted it to? ■ I wonder how it could be better? ■ What could you do to change it?	■ Have a go… ■ Why don't you try... ■ What do you think will happen? ■ I wonder what might happen if...	■ Self-talk / model how you (the adult) is persevering with something tricky or challenging ■ Which part is tricky? ■ How can we fix the tricky part? ■ Let's try and finish what we have started	■ Are these (objects, pictures etc.) the same? ■ What is the same / different about them? ■ Can you explain the pattern? ■ How can we continue the pattern? ■ Is there a mistake in this pattern? ■ I wonder how we could fix it… ■ Could you make your own pattern from…? ■ What is the rule for your pattern?	■ I wonder what will happen… ■ I wonder how it works… ■ Will it...float / sink / break / fall etc? Why? Why not? ■ What happened? ■ Did that surprise you? Why? ■ What have you found out? ■ How do you know that?	■ What do you need to include? ■ Which parts are important? ■ Why do / don't you need that? ■ Why did you choose to include.....? ■ Do you have the same as...? ■ How is yours different? Is that important?	■ Which one might come first? ■ What comes next? ■ Which one is before / after this one? ■ Which one is the last one? ■ Can you put these steps into the right order?	■ What do we need to do? ■ What are the main parts we need to do / make? ■ What do we need to do first? ■ Which part shall we think about next? ■ Self-talk / model how you (the adult) is splitting a task into parts to make it easier, e.g. first we need to make the cake mix, next put the cakes in the oven, and then put the icing on.

Year 1 – 6

Computing Systems and Networks					
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Knowledge					
<u>Technology Around Us</u> Identify technology in the classroom and how it helps us (DL) Name the main parts of a computer (IT)	**<u>IT Around Us</u>** Describe the uses of computers (DL) Recognise different types of computers in school and understand that a computer is part of IT (DL)	**<u>Connecting Computers</u>** Explain that digital devices accept inputs and produce outputs (CS) Explain how we use digital devices for different activities (DL)	**<u>The Internet</u>** Describe how networks connect to other networks Recognise that the World Wide Web is part of the internet	**<u>Systems and Searching</u>** Describe that a computer system features inputs, processes and outputs, recognising these features in large IT systems (CS) Explain that computers are connected together to form	**<u>Communication and Collaboration</u>** Explain that data is transferred in packets (CS) Recognise that data is transferred across

Identify rules to keep us safe and healthy when using technology (DL)	Explain how IT helps us (DL) Identify rules for how to use IT safely (DL)	Understand the similarities and differences between digital and non-digital tools (DL) Discuss why we need a network switch (CS) Explain how messages are passed through different connections (CS) Demonstrate how information can be passed between devices (CS) Explain the role of a switch, server and wireless network point in a network (CS) Identify how devices in a network are connected together (CS) Identify the benefits of computer networks (DL)	Explain that the global interconnection of networks is the internet Recognise the need for security on the internet Describe how to access the World Wide Web and how information can be shared Describe the types of content/media that can be added, created, and shared on the World Wide Web Explain how the content of the World Wide Web is created, owned, and shared by people Explain that the internet enables us to view the World Wide Web which comprises of websites and web pages Describe the benefits and current limitations of World Wide Web media Explain why we should think carefully before sharing or resharing content (DL) Explain why some information we find online might not be honest, accurate or legal (DL)	IT systems where data can be transferred (CS) Recognise the role of web crawlers in creating an index (CS) Relate a search term to the search engine's index (CS) Explain how search results are selected and ranked to make them more useful (CS) Explain why the order of results is important and to whom (CS)	networks using agreed protocols (methods) Recognise that connected digital devices can allow us to access shared files stored online (CS) Explain that networked digital devices have unique addresses (CS) Discuss the opportunities that technology offers for communication and collaboration (DL) Compare different methods of communication over the internet (DL) Recognise computers connected to the internet allow people in different places to work together which can be public or private Understand that what they share may not be private (DL)
Skills					

Technology Around Us	**IT Around Us**	**Connecting Computers**	**The Internet**	**Systems and Searching**	**Communication and Collaboration**
Switch on and log into a computer (IT) Use a mouse to click and drag (IT) Use a mouse to create a picture (IT) Use a mouse to open a program (IT) Save work to a file (IT) Type their name on a keyboard (IT) Delete letters (IT) Open work from a file (IT) Use the arrow keys to move a cursor (IT)	Use the correct IT for different types of activities (IT) Demonstrate how to use IT safely Identify examples of IT in school and how we use it (DL) Identify examples of IT beyond school and how we use it (DL)	Classify input and output devices (CS) Design their own digital device, using their knowledge of inputs and outputs Identify networked devices around school	No new skills this unit	Demonstrate that different search terms produce different results Evaluate the results of search terms and refine as necessary Compare results from different search engines (IT) Complete a web search to find specific information (IT)	Send information over the internet in different ways (IT) Contribute to a shared project online (IT) Choose methods of internet communication and collaboration to suit particular purposes (IT) Decide what should and should not be shared online (DL)
Vocabulary					
File	IT	Input	World Wide Web	System	Internet address
Keyboard	Devices	Process	Website	Search engine	Data packet
Click and drag	Information Technology	Output	Router	Web crawlers	Public
Save	Barcode	Network	Network switch	Index	Private
Program	Portable	Server	Wireless Access Point (WAP)	Rank	Collaborative project

Programming					
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Knowledge					
A - Moving a Robot Explain what a given command does	**A - Robot Algorithms** Describe a series of instructions as a sequence (CS)	**A - Sequencing Sounds** Explain that a sequence starts because of an input and what a sequence is	**A - Repetition in Shapes** Explain that you can use a loop command in a program to repeat instructions	**A - Selection in Physical Computing** Identify a condition and an action in a project and that a	**A - Variables in Games** Know that a variable is something that is changeable and can be used in a program (CS)

Match a command to an outcome (CS) Understand that a program is a set of commands that a computer can run Recall that a series of instructions can be issued before they are enacted Explain what their program should do (CS)	Explain what happens when we change the order of instructions Recognise that you can predict the outcome of a program	Identify that a program includes sequences of commands Identify that the sequence of a program is a process	Explain that in programming there are indefinite loops and count-controlled loops Explain that an indefinite loop will run until the program is stopped Explain that you can program a loop to stop after a specific number of times	condition can only be true or false (CS) Relate that a count-controlled loop contains a condition Compare a count-controlled loop with a condition-controlled loop Explain that a condition-controlled loop will stop when a condition is met and a loop will complete a cycle before it stops	Define a program variable as a placeholder in memory for a single value Explain that a variable has a name and a value that can be used by any program Recognise that the value of a variable can be changed and updated or set as a constant (fixed value) (CS) Identify that variables can hold numbers (integers) or letters (strings)
B - Programming Animations Recognise how to run a command Select commands for a given purpose Predict the outcome of a command on a device	**B - Programming Quizzes** Identify the start of a sequence and explain how to run the program (CS) Predict the outcome of a sequence of commands (CS) Decide which blocks to use to meet a design	**B - Events and Actions in Programs** Explain that the order of commands can affect a program's output Identify that different sequences can achieve the same output or a different output Explain the relationship between an event and an action (CS) Identify how to improve a program	**B - Repetition in Games** Justify when to use a loop and when not to Recognise tools that enable more than one process to be run at the same time (concurrency) Explore more than one programming environment (CS) Predict the outcome of snippets of code (CS) Know when to use infinite or count-controlled loops (CS)	**B - Selection in Quizzes** Identify the outcome of user input in an algorithm (CS) Identify the setup code needed in their program (CS) Explain that selection can be used to branch the flow of a program or to repeatedly check whether a condition has been met Explain the importance of instruction order in 'if...then...else...' statements	**B - Sensing Movement** Identify that variables can hold numbers (integers) or letters (strings) Explain that there is only one value for a variable at any one time and, if read, the value remains Explain that if you change the value of a variable, you cannot access the previous value (cannot undo) Explain that the name of a variable needs to be unique and the name is

					meaningless to a computer
Skills					
A - Moving a Robot Predict the outcome of a command on a device including the use of forwards and backwards commands and a sequence involving up to 4 commands (CS) List which commands can be used on a given device Run a command on a floor robot (CS) Choose a series of commands for a given purpose Combine 4 direction commands to make a sequence (forwards, backwards, left and right) that can be run as a program (CS) Run a program on a device	**A - Robot Algorithms** Create a program using a given design (CS) Run a program on a device Use the same commands to create algorithms for a range of sequences (CS) Use an algorithm to program a sequence on a floor robot (CS) Trace a sequence to predict an outcome (CS) Identify routes around a map (CS) Test a map to ensure it is usable (CS) Create an algorithm to meet a goal (CS) Use an algorithm to create a program (CS) Test and debug each part of a program (CS)	**A - Sequence Sounds** Explore programming environments (e.g. Scratch) by identifying objects and commands (CS) Follow a design to create a program (CS) Create a sequence of connected commands (CS) Start programs in different ways (CS) Combine sound commands into a particular order (CS) Build a sequence of commands (CS) Make own design choices by assigning actions to sprites (CS) Implement their algorithm as code (CS) Create a project based on a task description (CS)	**A - Repetition in Shapes** Program a computer by typing commands (CS) Write an algorithm in text-based language (CS) Use and modify a count-controlled loop and an indefinite loop to produce a given outcome (CS) Use a procedure in a program (CS) Design and create programs that include appropriate loops to produce a given outcome (CS) Create two or more sequences that run at the same time	**A - Selection in Physical Computing** Create a simple circuit and connect to a microcontroller (CS) Connect more than 1 output component to a microcontroller (CS) Use count-controlled loops to control outputs (CS) Design a conditional loop (CS) Program a microcontroller to respond to an input (CS) Use selection to direct the flow of a program (CS) Design a physical project that includes selection (CS) Create a program (incl. testing and debugging) that includes a physical computing project (CS)	**A - Variables in Games** Use events in a program to set variables (CS) Create games that use variables (CS) Test and debug projects that include variables (CS)
B - Programming Animations Use more than 1 programming tool (CS) Use commands to move a sprite (CS)	**B - Programming Quizzes** Change the outcome of a series of commands (CS) Match 2 sequences with the same outcome (CS)	**B - Events and Actions in Programs** Program movement using 4 directions (CS)	**B - Repetition in Games** Run more than 1 process at a time (CS)	**B - Selection in Quizzes** Modify conditions in a program (CS)	**B - Sensing Movement** Test a program on an emulator (CS) Transfer programs to a controllable device (CS)

Run a program (CS) Use a start block in a program (CS) Use more than one block by joining them together (CS) Change the value of a block (CS) Add blocks to sprites (CS) Delete sprites (CS) Add more than 1 sprite to a project (CS) Create algorithms for sprites (CS) Test programs that they have created (CS)	Build sequences of blocks Select background, characters and images for their own or given designs Create a program using their own design (CS) Debug and improve their projects (CS)	Use a programming extension (CS) Develop their program by adding different features (CS) Fix bugs in a program against a given design (CS)	Write programs that include 2 or more loops that run at the same time (CS) Re-use existing code snippets on new sprites (CS) Design programs that use repetition (CS) Create projects that include repetition (CS)	Create a program with different outcomes using selection (CS) Use selection in an infinite loop to check a condition (CS) Show that a condition can direct program flow in one of two ways (CS)	Use selection to determine the flow of a program (CS) Use a variable in an 'if, then, else' statement to select the flow of a program (CS) Update a variable with a user input (CS) Use an operand (<>=) in an if, then statement Design a program that uses inputs and outputs on a controllable device (CS)
Vocabulary					
A - Moving a Robot	**A - Robot Algorithms**	**A - Sequence Sounds**	**A - Repetition in Shapes**	**A - Selection in Physical Computing**	**A - Variables in Games**
Device	Algorithm	Costume	Code snippet	Microcontroller	Variable
Command button	Predict	Backdrop	Text-based language	Condition	Fixed value
Sequence	Programming	Motion block	Count-controlled loop	Selection	Integer
Program	Code	Sound block	Procedure	Conditional loop	String
Test	Debug	Event block	Screen turtle	Circuit	User input
B - Programming Animations	**B - Programming Quizzes**	**B - Events and Actions in Programs**	**B - Repetition in Games**	**B - Selection in Quizzes**	**B - Sensing Movement**
Sprite	Design	Pen block	Infinite loop	Condition	Controllable device
Value	Stage	Extension	Programming language	Selection	Conditional statement
Algorithm	Modify	Template	Process	Binary question	Operand
Project	Run	Implement	Effectiveness	Program flow	Order
Delete	Outcome	Evaluate	Repetition	Setup code	Transfer

Data and Information					
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**

Knowledge					
Grouping Data Explain that objects can be grouped by similarities Recognise that information can be presented in different ways	**Pictograms** Explain that we can use a computer to present information in different ways Give simple examples of why information should not be shared (DL) Compare objects that have been grouped by attribute	**Branching Databases** Identify questions with yes/no answers and attributes that you can ask yes/no questions about Select an attribute to separate objects into two similarly sized groups Explain that a branching database is an identification tool Recognise that a data set can be structured using yes/no questions Explain that a well-structured branching database will enable you to identify objects using fewer questions Suggest real-world applications for branching databases	**Data Logging** Identify data that can be logged over time Recognise that a sensor can be used as an input device for data collection Explain that a data logger captures 'data points' from sensors over time Identify that sensors are input devices and can be used as an input device for data collection Explain that a data logger captures 'data points' from sensors over time	**Flat-file Databases** Explain that a computer program can be used to organise data and compare data visually Explain that tools can be used to select data to answer questions Explain how operands can be used to filter data Outline how 'AND' and 'OR' can be used to refine data selection Explain that we present information to communicate a message	**Spreadsheets** Identify questions that can be answered using spreadsheet data Explain what an item of data is in a spreadsheet Explain how the data type determines how a spreadsheet can process the data Explain that formula can be used to produce calculated data Recognise cells can be linked and that a cell's value automatically updates when the value in a linked cell is changed Explain why data should be organised in a spreadsheet
Skills					
Grouping Data Collect simple data Show that collected data can be counted Choose an attribute to group objects by	**Pictograms** Enter data onto a computer (IT) Use a computer to view data in different formats (pictograms)	**Branching Databases** Create questions with yes/no answers that will divide objects into equally sized sub-groups Select attributes to separate objects (IT)	**Data Logging** Use a digital device to collect data automatically and choose how often to automatically collect data samples Use a set of logged data to find information	**Flat-file Databases** Choose which attribute and value to search by to answer a given question (operands) Choose multiple criteria to search data to answer a given question (AND and OR)	**Spreadsheets** Calculate data using a formula for each operation Use functions to create new data Use existing cells within a

Describe a group of objects (based on commonality)	Use a computer to create pictograms that arrange objects by an attribute(IT) Use a computer program to present information in different ways (IT) To use a computer to answer comparison questions (graphs, tables)	Create a branching database (IT) Identify objects using a branching database (IT) Retrieve information from different levels of a branching database	Use a computer program to sort data by one attribute Export information in different formats	Select an appropriate graph to visually compare data	formula Choose suitable ways to present spreadsheet data
Vocabulary					
Properties	Pictogram	Sub-group	Data set	Form	Spreadsheet
Data	Attribute	Branching database	Sensor	Field	Cell
Label	Arrange	Structure	Data logger	Chart	Formula
Group	Collect	Identification tool	Data point	Flat-file database	Calculated data
Compare	Present	Database	Analyse	Records	Format

Creating Media					
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Knowledge					
Digital Painting Recognise computers can be used to create digital art Explain what different freehand tools do Recognise tools can be adjusted to suit a purpose	**Digital Photography** To recognise that some digital devices can capture images using a camera and those photos can be saved and viewed later Explain how to take a photograph Describe features of 'good' photographs Explain how photos can be improved, recognising they can be changed after being taken	**Stop-Frame Animation** Explain that animation is a sequence of drawings or photographs (IT) Identify that a capturing device needs to be in a fixed position Recognise that smaller movements create smoother animation Explain the need for consistency in working Explain that a project must be exported so it can be shared	**Audio Production** Identify digital devices that can record sound and play it back (DL) Identify inputs and outputs required to play or record sound (CS) Recognise that recorded audio can be stored and edited Recognise that sound can be represented visually as a waveform Recognise that audio can be layered so that multiple	**Video Production** Explain that a video is a visual media format (CS) Identify digital devices that can and can't record video (DL) Explain the purpose of a storyboard Recognise that filming techniques can be used to create different effects Identify videos can be improved through and reshooting or editing either	**Web Page Creation** Recognise the relationship between HTML and visual display Recognise that web pages can contain different media types and are written by people Recognise that a website is a set of hyperlinked web pages and the implications of linking to content owned by others Recognise the need to

	Identify photos that have been changed (DL)		sounds can be played at the same time	on a recording device or a computer Explain the limitations of editing video on a recording device	preview pages (different screens / devices) Recognise the need for a navigation path Recognise common features of a web page layout (IT) Understand the importance of copyright-free images (DL)
Digital Writing Recognise that a keyboard is used to enter text on a computer and that text can be edited Recognise the appearance of text can be changed Recognise the Shift key changes the output of a key	**Digital Music** Identify that computers can be used to play sounds of different instruments Identify that the same pattern can be represented in different ways Compare playing music on instruments with making music on a computer	**Desktop Publishing** Explain the differences between text and images and recognise that they can be used together to convey information (IT) Define landscape and portrait as two different page orientations, considering how different layouts, font styles and effects suit different purposes Recognise and understand the importance of placeholders that structure DTP pages (IT) Identify the uses of desktop publishing in the real world (DL)	**Photo Editing** Recognise that digital images can be manipulated and changed for different purposes Identify changes we can make to an image (DL) Explore how images can be changed in real life (DL) Recognise that not all images are real and explain how they know (DL) Compare original images with edited ones (DL)	**Introduction to Vector Graphics** Understand that vector drawings are made using separate objects/ shapes (IT) Recognise that each object in a drawing is in its own layer and can be scaled without impact on quality Identify the main drawing tools (IT) Identify which objects are in the front layer or back layer of a drawing (IT) Explain how alignment and size guides can help create a more consistent drawing	**3D Modelling** Explain that 3D models can be created on a computer and manipulated using digital tools Recognise that a 3D environment can be viewed from different perspectives Show how placeholders can create holes in 3D objects Recognise that artefacts can be broken down into a collection of 3D objects
Skills					
Digital Painting	**Digital Photography**	**Stop-Frame Animation** Plan an animation using a storyboard (IT)	**Audio Production** Use a digital device to record sound (IT)	**Video Production** Experiment with different camera angles (IT)	**Web Page Creation**

Use freehand paint tools to create a picture using a range of colours (IT) Use the shape and line tool to make marks and create a picture (IT) Use the fill tool to colour an enclosed area Use the undo button to correct a mistake Change the brush size and colour (IT) Make appropriate shape and colour choices when painting a digital picture (IT) Choose the best paint tool for the purpose, combining a range of tools to create a piece of artwork (IT)	Use a digital device capture an image, holding the camera still for a clear photograph (IT) Take photos in portrait and landscape formats (IT) View photos on a device and decide which to keep Improve a photo by retaking it (IT) Explore the effect light has on a photograph (IT) Use filters to edit the appearance of an image (IT)	Use onion-skinning to help make small changes between frames (IT) To capture an image and move a subject between captures Create an effective stop-frame animation (IT) Add additional media to enhance their animation (IT) Review and improve their animation (IT)	Save a digital recording as a file (IT) Open a digital recording from a file (IT) Edit sections of a recording such as changing the volume of tracks in a project (IT) Delete a section of audio Import audio into a project	Use pan, tilt and zoom (IT) Capture a video using a range of filming techniques, combining for a given purpose (IT) Reshoot a scene or improve later through editing including the use of split, trim and crop Store, retrieve, export, save and share a video to a computer (IT)	Review and explore websites (navigations bars, headers) (DL) Add content to their own web page (add text, embed media) (IT) Preview their own web page (different screen sizes) (IT) Set the appearance and style of text on their web page Create multiple web pages (IT) Create hyperlinks between pages (IT) Link web pages using hyperlinks (IT)
Digital Writing Open a word processor (IT) Enter text into a computer using the letter, number and space keys (IT) Position the text cursor in a chosen location Use the Backspace key to remove text (IT) Use the undo tool (IT)	**Digital Music** Experiment with musical patterns and different sounds on a computer Use a computer to compose a rhythm and a melody on a given theme Use a computer to play the same music in different ways (e.g. tempo) Evaluate and improve a musical composition created on a computer	**Desktop Publishing** Add text to a placeholder and change font style, size and colours for a given purpose (IT) Add, remove, resize, move and rotate images in a placeholder Create a template using text and images placeholders for the page layout (IT)	**Photo Editing** Use an application to change whole or part of a digital image or to add to the composition of a digital image Change the composition of an image (IT) Choose effects to make an image fit a scenario (IT) Choose appropriate tools to retouch an image (IT)	**Introduction to Vector Graphics** Add an object to a vector drawing Create a vector drawing for a given purpose (IT) Move, resize and rotate objects (IT) Duplicate objects (IT) Use alignment grids and resize handles (IT)	**3D Modelling** Create accurately sized 3D digital objects and position them relative to one another (IT) Manipulate (select/ move/ delete) 3D digital objects using digital tools (IT) Change the colour of 3D objects (IT) Resize 3D objects (IT)

Use punctuation and special characters Select text by clicking and dragging (IT) Select a word by double clicking (IT) Change the appearance of text on a computer to achieve a desired effect Use bold, italic and underline (IT) Type in capital letters (IT) Change the font (IT)		Change the page orientation i.e. portrait to landscape and vice versa (IT) Edit text to communicate more clearly (IT) Copy and paste text and images into a document (IT) Choose a suitable layout for a given purpose (IT)	Combine parts of images to create new images (IT)	Modify objects to create different effects (IT) Use the zoom tool to add more detail (IT) Change the order of layers in a vector drawing (IT) Group objects (IT) Evaluate vector drawings (IT)	Rotate 3D objects (IT) Select and duplicate 3D objects (IT) Group digital 3D shapes and a placeholder to create a hole in an object (IT) Modify multiple 3D objects in a variety of ways (IT) Create a 3D digital model using a variety of 3D shapes that reflects a real world object (IT) Combine objects to create a 3D digital artefact
Vocabulary					
Digital Painting	**Digital Photography**	**Stop-Frame Animation**	**Audio Production**	**Video Production**	**Web Page Creation**
Freehand tools	Capture	Animation	Record	Visual media format	Hypertext Markup Language (HTML)
Line tool	Landscape	Stop-frame animation	Audio file	Camera angle	Ownership
Shape tool	Portrait	Onion skinning	Podcast	Filming technique	Copyright
Brush tool	Retake	Frame	Appropriate content	Reshoot	Navigation path
Digital painting	Adjust	Storyboard	Editable	Clip	Hyperlink
Digital Writing	**Digital Music**	**Desktop Publishing**	**Photo Editing**	**Introduction to Vector Graphics**	**3D Modelling**
Word processor	Rhythm	Text	Composition	Vector drawing	Workplane
Bold	Pitch	Image	Filter	Duplicate	Recolour
Underline	Melody	Layout	Colour effect	Alignment grid	Construct
Italics	Pattern	Page orientation	Cloning	Resize handle	Three Dimensional (3D)
Toolbar	Tempo	Placeholder	Retouch	Layer	Hollow

Each unit links between the content of the lessons, the National Curriculum and the Education for a Connected World framework (https://www.gov.uk/government/publications/education-for-a-connected-world). The table below shows which units link to online safety or digital citizenship and which aspects of Education for a Connected World are covered within the Teach Computing Curriculum. Not all of the objectives in the framework are covered in the Teach Computing Curriculum, however, the coverage required for the computing national curriculum is provided. Online safety is also addressed throughout our PSHE curriculum, theme days such as Safer Internet Day and one off lessons. Lessons according to the particular needs of a child or cohort may be warranted and can be resourced from here: **https://czone.eastsussex.gov.uk/safeguarding/safeguarding-in-schools-colleges-and-early-years-settings/education-for-a-connected-world-resources/**

Online Safety					
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Education for a Connected World Links					
Technology Around Us Health, well-being and lifestyle - I can identify rules that help keep us safe and healthy in and beyond the home when using technology - I can give some simple examples Copyright and ownership - I know that the work I create belongs to me - I can name my work so that others know it belongs to me	**IT Around Us** Health, well-being, and lifestyle - I can identify rules that help keep us safe and healthy in and beyond the home when using technology - I can give some simple examples	**Stop-Frame Animation** Managing online information - I can use key phrases in search engines. - I can use search technologies effectively. Copyright and ownership - I can explain why copying someone else's work from the internet without permission can cause problems. - I can give examples of what those problems might be. - When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it. - I can give some simple examples. - I can give examples of content that is permitted to be reused. - I can demonstrate the use of search tools to find and access online content	**The Internet** Managing online information - I can analyse information to make a judgement about probable accuracy, and I understand why it is important to make my own decisions regarding content and that my decisions are respected by others. - I can explain what is meant by fake news, e.g. why some people will create stories or alter photographs and put them online to pretend something is true when it isn't. - I can describe ways of identifying when online content has been commercially sponsored or boosted, (e.g. by commercial companies or by vloggers, content creators, or influencers). - I can describe how fake news may affect someone's emotions and behaviour, and explain why this may be harmful.	**Systems and Searching** Managing online information - I am aware that a person's online activity, history or profile (their 'digital personality') will affect the type of information returned to them in a search or on a social media feed, and how this may be intended to influence their beliefs, actions and choices. - I can explain how search engine rankings are returned and can explain how they can be influenced (e.g. commerce, sponsored results)	**Communication and Collaboration** Copyright and ownership - I can describe and assess the benefits and the potential risks of sharing information online. - I can assess and justify when it is acceptable to use the work of others - I can give examples of content that is permitted to be reused

		which can be reused by others.			
Digital Writing Privacy and security - I can give reasons why I should only share information with people I choose to and can trust	**Digital Photography** - To identify that some images are not real (fake)	**Desktop Publishing** Managing online information - I can use key phrases in search engines - I can use search technologies effectively Copyright and ownership - When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it - I can demonstrate the use of search tools to find and access online content which can be reused by others	**Audio Production** Copyright and ownership - I can explain why copying someone else's work from the internet without permission can cause problems - I can give examples of what those problems might be - When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it - I can give some simple examples		**Spreadsheets** Managing information online - I can describe how I can search for information within a wide group of technologies (e.g. social media, image sites, video sites) - I can use different search technologies - I can evaluate digital content and can explain how I make choices from search results
	Digital Music Copyright and ownership - I know that work I create belongs to me		**Photo Editing** Self-image and identity - I can describe ways in which people might make themselves look different online		**3D Modelling** Privacy and Security - I can describe strategies for keeping my personal information private, depending on context
	Pictograms Self image and identity - I can recognise that I can say 'no'/'please stop'/'I'll tell'/'I'll ask' to somebody who asks me to do something that makes me feel sad, embarrassed or upset - I can explain how this could be either in real life or online				**Web Page Creation** Online relationships - I can use the internet with adult support to communicate with people I know. **Managing information online** Online relationships - I can use the internet with adult support to

	- If something happens that makes me feel sad, worried, uncomfortable, or frightened I can give examples of when and how to speak to an adult I can trust <u>Health, wellbeing and lifestyle</u> - I can identify rules that help keep us safe and healthy in and beyond the home when using technology - I can give some simple examples <u>Privacy and security</u> - I can identify some simple examples of my personal information (e.g. name, address, birthday, age, location) - I can describe the people I can trust and can share this with; I can explain why I can trust them - I can recognise more detailed examples of information that is personal to me (e.g. where I live, my family's names, where I go to school)				communicate with people I know. <u>Managing information online</u> - I can navigate online content, websites, or social media feeds using more sophisticated tools to get to the information I want (e.g. menus, sitemaps, breadcrumb-trails, site search functions). <u>Copyright and ownership</u> - I can explain why copying someone else's work from the internet without permission can cause problems. - I can give examples of what those problems might be. - When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it. - I can give some simple examples. - I can assess and justify when it is acceptable to use the work of others. - I can give examples of content that is permitted to be reused. - I can demonstrate the use of search tools to find and access online

					content which can be reused by others. - I can demonstrate how to make references to and acknowledge sources I have used from the internet. - I can explain the principles of fair use and apply this to case studies.

Primary computing glossary - Use this for reference if you are unsure what any of your key vocabulary means

Early Years | EN | Barefoot Computing - More in depth information about computational thinking skills in EYFS and detailed information about each activity they will undertake