Emerald Year 5 – Computing Medium Term Planning
(Upper KS2 Curriculum – Year A)

Differentiation by input **see the weekly planning sheet**/

-*Key vocab* for each learning objective is in red font /

-*Resources* -**see the weekly planning** /

-*Minimum Assessment for Learning strategies* for all topics = Peer Talk; targeted questioning; mini white boards; and self and peer marking

- Long term memory development strategies= Recapping pervious learning at the start of each new topic / Long term memory strategy linked to the objectives on this sheet for each week

-Computing Cultural Capital = can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Autumn first half **Computing Systems and Networks –** **Sharing Information**	**Systems** **Learning Objective** - To explain that computers can be connected together to form systems **Success Criteria** - I can describe that a computer system features inputs, processes, and outputs - I can explain that computer systems communicate with other devices - I can explain that systems are built using a number of parts	**Computer systems and us** **Learning Objective** - To recognise the role of computer systems in our lives **Success Criteria** - I can explain the benefits of a given computer system - I can identify tasks that are managed by computer systems - I can identify the human elements of a computer system	**Transferring Information** **Learning Objective** - To recognise how information is transferred over the internet **Success Criteria** - I can explain that data is transferred over networks in packets - I can explain that networked digital devices have unique addresses - I can recognise that data is transferred using agreed methods	**Working together** **Learning Objective** - To explain how sharing information online lets people in different places work together **Success Criteria** - I can explain that the internet allows different media to be shared - I can recognise that connected digital devices can allow us to access shared files stored online - I can send information over the internet in different ways	**Better working together** **Learning Objective** - To contribute to a shared project online **Success Criteria** - I can compare working online with working offline - I can make thoughtful suggestions on my group's work - I can suggest strategies to ensure successful group work	**Shared working** **Learning Objective** - To evaluate different ways of working together online **Success Criteria** - I can explain how the internet enables effective collaboration - I can identify different ways of working together online - I can recognise that working together on the internet can be public or private	Assessment, Consolidation and Review
Key Vocabulary	**System, connection, digital, input, process, output**	**System, connection, digital, input, process, output**	**Protocol, address, packet**	**Chat, explore, slide deck**	**Chat, explore**	**Reuse, remix, collaboration**	
KS2 Computing NC Links	2.1, 2.2, 2.4, 2.6, 2.7	2.1, 2.2, 2.4, 2.6, 2.7	2.1, 2.2, 2.4, 2.6, 2.7	2.1, 2.2, 2.4, 2.6, 2.7	2.1, 2.2, 2.4, 2.6, 2.7	2.1, 2.2, 2.4, 2.6, 2.7	
Computing Strand	CS	CS, IT	NW	IT, NW	ET, NW	DD, ET, NW	
Education for a Connected World	- Copyright and ownership	- Copyright and ownership	- Copyright and ownership	- Copyright and ownership	- Copyright and ownership	- Copyright and ownership	

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	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Autumn second half **Creating Media –** **Video Editing**	**What is video?** **Learning Objective** - To explain what makes a video effective **Success Criteria** - I can explain that video is a visual media format - I can identify features of videos - I can compare features in different videos	**Filming techniques** **Learning Objective** - To identify digital devices that can record video **Success Criteria** - I can identify and find features on a digital video recording device - I can experiment with different camera angles - I can recognise camera angles in a video	**Using a storyboard** **Learning Objective** - To capture video using a range of techniques **Success Criteria** - I can suggest filming techniques for a given purpose - I can capture video using a range of filming techniques - I can review how effective my video is	**Planning a video** **Learning Objective** - To create a storyboard **Success Criteria** - I can outline the scenes of my video - I can decide which filming techniques I will use - I can create and save video content	**Importing and editing video** **Learning Objective** - To identify that video can be improved through reshooting and editing **Success Criteria** - I can explain how to improve a video by reshooting and editing - I can select the correct tools to make edits to my video - I can store, retrieve, and export my recording to a computer	**Video evaluation** **Learning Objective** - To consider the impact of the choices made when making and sharing a video **Success Criteria** - I can evaluate my video and share my opinions - I can make edits to my video and improve the final outcome - I can recognise that my choices when making a video will impact on the quality of the final outcome	Assessment, Consolidation and Review
Key Vocabulary	Video, audio, camera, talking head, panning, close up	Video camera, microphone, lens, close up, mid-range, long shot, moving subject, side by side, high angle, low angle, normal angle	Static camera, zoom, pan, tilt, storyboard	Storyboard, filming, review	Import, split, trim, clip, edit, reshoot	Delete, trim, reorder, export, evaluate, share	
KS2 Computing NC Links	2.5, 2.6, 2.7	2.5, 2.6, 2.7	2.5, 2.6, 2.7	2.5, 2.6, 2.7	2.5, 2.6, 2.7	2.5, 2.6, 2.7	
Computing Strand	CM, DD	CM, CS	CM, SS	CM, DD, ET	CM, ET	CM, DD, ET	
Education for a Connected World							

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	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Spring first half **Programming A –** **Selection in Physical Computing**	**Connecting Crumbles** **Learning Objective** - To control a simple circuit connected to a computer **Success Criteria** - I can create a simple circuit and connect it to a microcontroller - I can program a microcontroller to make an LED switch on - I can explain what an infinite loop does	**Combining output components** **Learning Objective** - To write a program that includes count-controlled loops **Success Criteria** - I can connect more than one output device to a microcontroller - I can use a count-controlled loop to control outputs - I can design sequences for given output devices	**Controlling with conditions** **Learning Objective** - To explain that a loop can stop when a condition is met **Success Criteria** - I can explain that a condition is either true or false - I can design a conditional loop - I can program a microcontroller to respond to an input	**Starting with selection** **Learning Objective** - To explain that a loop can be used to repeatedly check whether a condition has been met **Success Criteria** - I can explain that a condition being met can start an action - I can identify a condition and an action in my project - I can use selection (an 'if…then…' statement) to direct the flow of a program	**Drawing designs** **Learning Objective** - To design a physical project that includes selection **Success Criteria** - I can identify a real-world example of a condition starting an action - I can describe what my project will do - I can create a detailed drawing of my project	**Writing and testing algorithms** **Learning Objective** - To create a program that controls a physical computing project **Success Criteria** - I can write an algorithm that describes what my model will do - I can use selection to produce an intended outcome - I can test and debug my project	Assessment, Consolidation and Review
Key Vocabulary	**Microcontroller, components, connection, infinite loop**	**Microcontroller, output component, motor, repetition, count-controlled loop**	**Microcontroller, Crumble controller, components, switch, motor, LED, Sparkle, crocodile clips, connect, battery box, program, condition**	**Input, output, selection, condition, action**	**Selection, condition, action, repetition**	**Selection, condition, action, repetition, debug**	
KS2 Computing NC Links	2.1, 2.2, 2.3, 2.6	2.1, 2.2, 2.3, 2.6	2.1, 2.2, 2.3, 2.6	2.1, 2.2, 2.3, 2.6	2.1, 2.2, 2.3, 2.6	2.1, 2.2, 2.3, 2.6	
Computing Strand	CS, PG	CS, PG	CS, PG	PG	CS, DD	CS, DD	
Education for a Connected World	- Copyright and ownership	- Copyright and ownership	- Copyright and ownership	- Copyright and ownership	- Copyright and ownership	- Copyright and ownership	

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	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Spring second half **Data and Information –** **Flat-file Databases**	**Creating a paper-based database** **Learning Objective** - To use a form to record information **Success Criteria** - I can create multiple questions about the same field - I can explain how information can be recorded - I can order, sort, and group my data cards	**Computer databases** **Learning Objective** - To compare paper and computer-based databases **Success Criteria** - I can choose which field to sort data by to answer a given question - I can explain what a 'field' and a 'record' is in a database - I can navigate a flat-file database to compare different views of information	**Using a database** **Learning Objective** - To outline how grouping and then sorting data allows us to answer questions **Success Criteria** - I can combine grouping and sorting to answer more specific questions - I can explain how information can be grouped - I can group information to answer questions	**Using search tools** **Learning Objective** - To explain that tools can be used to select specific data **Success Criteria** - I can choose multiple criteria to answer a given question - I can choose which field and value are required to answer a given question - I can outline how 'AND' and 'OR' can be used to refine data selection	**Comparing data visually** **Learning Objective** - To explain that computer programs can be used to compare data visually **Success Criteria** - I can explain the benefits of using a computer to create graphs - I can refine a chart by selecting a particular filter - I can select an appropriate chart to visually compare data	**Databases in real life** **Learning Objective** - To apply my knowledge of a database to ask and answer real-world questions **Success Criteria** - I can ask questions that will need more than one field to answer - I can present my findings to a group - I can refine a search in a real-world context	Assessment, Consolidation and Review
Key Vocabulary	**Database, data, information, record, field, sort, order, group**	**Database, data, field, record, sort, order**	**Database, record, field, group, search, sort, order**	**Database, record, field, value, search, criteria**	**Database, record, field, graph, chart, axis, compare, filter**	**Database, field, record, graph, chart, presentation**	
KS2 Computing NC Links	2.5, 2.6	2.5, 2.6	2.5, 2.6	2.5, 2.6	2.5, 2.6	2.5, 2.6	
Computing Strand	DI, ET	DD, DI	DI	DI, ET	DI, ET	DI, ET	
Education for a Connected World							

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	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Summer first half **Creating Media – Vector Drawing**	**The drawing tools** **Learning Objective** - To identify that drawing tools can be used to produce different outcomes **Success Criteria** - I can discuss how a vector drawing is different from paper-based drawings - I can identify the main drawing tools - I can recognise that vector drawings are made using shapes	**Create a vector drawing** **Learning Objective** - To create a vector drawing by combining shapes **Success Criteria** - I can explain that each element added to a vector drawing is an object - I can identify the shapes used to make a vector drawing - I can move, resize, and rotate objects I have duplicated	**Being effective** **Learning Objective** - To use tools to achieve a desired effect **Success Criteria** - I can explain how alignment grids and resize handles can be used to improve consistency - I can modify objects to create different effects - I can use the zoom tool to help me add detail to my drawings	**Layers and objects** **Learning Objective** - To recognise that vector drawings consist of layers **Success Criteria** - I can change the order of layers in a vector drawing - I can identify that each added object creates a new layer in the drawing - I can identify which objects are in the front layer or in the back layer of a drawing	**Manipulating objects** **Learning Objective** - To group objects to make them easier to work with **Success Criteria** - I can copy part of a drawing by duplicating several objects - I can group to create a single object - I can reuse a group of objects to further develop my vector drawing	**Get designing** **Learning Objective** - To evaluate my vector drawing **Success Criteria** - I can apply what I have learned about vector drawings - I can suggest improvements to a vector drawing - I can evaluate alternatives to vector drawings	Assessment, Consolidation and Review
Key Vocabulary	Vector, drawing tools, shapes, object, icons, toolbar	Vector drawing, object, move, resize, colour, rotate, duplicate/copy	Organise, zoom, select, rotate, object, alignment grid, resize, handles, consistency, modify	Layers, object, front, back, order	Copy, paste, group, ungroup, duplicate, object, vector drawing, reuse	Improvement, evaluate, alternatives, vector drawing	
KS2 Computing NC Links	2.6	2.6	2.6	2.6	2.6	2.6	
Computing Strand	CM, DI, ET	CM, ET	CM, ET	CM, ET	CM, ET	CM, DD	
Education for a Connected World	- Managing online information - Online relationships - Online reputation - Self-image and identity	- Managing online information - Online relationships - Online reputation - Self-image and identity	- Managing online information - Online relationships - Online reputation - Self-image and identity	- Managing online information - Online relationships - Online reputation - Self-image and identity	- Managing online information - Online relationships - Online reputation - Self-image and identity	- Managing online information - Online relationships - Online reputation - Self-image and identity	

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Summer second half **Programming B – Selection in Quizzes**	**Exploring conditions** **Learning Objective** - To explain how selection is used in computer programs **Success Criteria** - I can identify conditions in a program - I can modify a condition in a program - I can recall how conditions are used in selection	**Selecting outcomes** **Learning Objective** - To relate that a conditional statement connects a condition to an outcome **Success Criteria** - I can create a program with different outcomes using selection - I can identify the condition and outcomes in an 'if.. then…else' statement - I can use selection in an infinite loop to check a condition	**Asking questions** **Learning Objective** - To explain how selection directs the flow of a program **Success Criteria** - I can design the flow of a program which contains 'if… then… else…' - I can explain that program flow can branch according to a condition - I can show that a condition can direct program flow in one of two ways	**Planning a quiz** **Learning Objective** - To design a program which uses selection **Success Criteria** - I can identify the outcome of user input in an algorithm - I can outline a given task - I can use a design format to outline my project	**Testing a quiz** **Learning Objective** - To create a program which uses selection **Success Criteria** - I can implement my algorithm to create the first section of my program - I can share my program with others - I can test my program	**Evaluating a quiz** **Learning Objective** - To evaluate my program **Success Criteria** - I can extend my program further - I can identify ways the program could be improved - I can identify what setup code I need in my project	Assessment, Consolidation and Review
Key Vocabulary	**Selection, condition, true, false, count-controlled loop**	**Selection, condition, true, false, outcomes, conditional statement (the linking together of a condition and outcomes), algorithm, program, debug**	**Selection, condition, true, false, outcomes, question, answer, algorithm, program, debug**	**Task, design, algorithm, input, program, selection, condition, outcomes**	**Implement, design, algorithm, program, selection, condition, outcome, test, run**	**Implement, design, algorithm, program, debug, test, setup, selection, condition, outcome, share, evaluate, constructive**	
KS2 NC Links	2.1, 2.2, 2.3, 2.6	2.1, 2.2, 2.3, 2.6	2.1, 2.2, 2.3, 2.6	2.1, 2.2, 2.3, 2.6	2.1, 2.2, 2.3, 2.6	2.1, 2.2, 2.3, 2.6	
Computing Strand	AL, PG	AL, PG	AL, PG	DD, PG	DD, PG	DD, PG	
Education for a Connected World							