Computing at Hobletts

Computing at Hobletts Manor Junior School:

In Computing, we learn about technology and the many ways it can support us throughout our life. We will understand how technology works by building on our knowledge of coding and programming; using sequence, selection and repetition, identifying variables and logical reasoning to explain how algorithms work. While doing this we will learn to use technology safely, respectfully and responsibly.

Provision:

At Hobletts Manor Junior School, Computing lessons are supported with the tool Purple Mash (www.purplemash.com) as we know that Hobletts Manor Infants School also uses this tool to support transition and progression for the children through our schools.

Aims:

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

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

KS2 pupils should already be able to:

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

Pupils should be taught:

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration

- use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Curriculum Overview

Year Group	Autumn Term Unit of learning	Spring Term Unit of learning	Summer Term Unit of learning
Three	Unit 3.1 Coding (8 lessons – crash course) Unit 3.2 Online Safety (3 lessons)	Unit 3.3 Spreadsheets (4 lessons crash course) Unit 3.4 Touch Typing (4 lessons)	Unit 3.6 Branching Databases (4 lessons) Unit 3.9 Presenting (5/6 lessons)
Four	Unit 4.1 Coding (8 lessons – crash course) Unit 4.2 Online Safety (4 lessons)	Unit 4.3 Spreadsheets (6 lessons – crash course) Unit 4.5 Logo (4 lessons)	Unit 4.6 Animation (3 lessons) Unit 4.7 Effective Searches (3 lessons) Unit 4.8 Hardware Investigators (2 lessons)
Five	Unit 5.1 Coding (8 lessons – crash course) Unit 5.2 Online Safety (3 lessons)	Unit 5.3 Spreadsheets (6 lessons – crash course) Unit 5.4 Databases (4 lessons)	Unit 5.5 Game Creator (5 lessons) Unit 5.7 Concept Maps (4 lessons)
Six	Unit 6.1 Coding (8 lessons – crash course) Unit 6.2 Online Safety (2 lessons)	Unit 6.3 Spreadsheets (6 lessons – crash course) Unit 6.6 Networks (3 lessons)	Unit 6.8 Understanding Binary (4 lessons) Unit 6.9 Spreadsheets (8 lessons)

Year 3

Autumn 1
Through the Ages
Coding
• *Children have a clear idea of how to design and code a program that follows a simple sequence (Unit 3.1 Lessons 2 and 3).* • *Children experiment with the use of timers to achieve delay effects in their programs – they understand the difference between timer-after and timer-every commands. (Unit 3.1 Lesson 2)* • *Children' designs for their programs, show that they are thinking of the structure of a simple program in logical, achievable steps with attention to specific events that initiate specific actions. (Unit 3.1 Lessons 5 & 6).* • *Most children can explain the choice of commands they have included in their program and what they achieve (Unit 3.1 Lessons 5 & 6).* • *Children are able to use the repeat command to program a turtle to draw a square (Unit 3.1 Lesson 3)* • *Children are beginning to understand how code is structured and are able to apply this knowledge when debugging (Unit 3.1 Lesson 4).* • *Most children can integrate multimedia components such as sounds, animation and images into their coding. They can apply specific actions to these objects to animate them as part of the overall process of creating their own program (Unit 3.1. Lessons 5 and 6).* • *They can be reflective on how successful they are at creating their programs and how the previous learning has helped them (Unit 3.1.).*
Subject specific key vocabulary: *algorithm, background, object, implement, predict, run, flowchart, properties, when clicked, when key, timer, sequence, nested, repeat, input, command, button, right-angle, degrees, Nesting, test, debug, actions, object type, alert* **Word list- Year 3/ 4 spellings:** *appear, believe, build, centre, certain, complete, consider, continue, decide, describe, different, disappear, enough, favourite, group, imagine, increase, interest, learn, minute, notice, opposite, ordinary, position, possible, purpose, separate, straight, through, various*

Autumn 2
Through the Ages
Online Safety
• *Children understand the importance of a secure password and not sharing this with anyone else (Unit 3.2 Lesson 1).* • *Furthermore, children understand the negative implications of failure to keep passwords safe and secure and can suggest examples of good and poor passwords (Unit 3.2 Lesson 1).* • *When using the internet, children can appraise the accuracy of the information on a website and make decisions on whether it is a trustworthy source of information (Unit 3.2 Lesson 2).* • *In lesson 1, children have a choice of topics about which to blog. Most children will have gained an understanding that it is not acceptable to use the work of others or post images of others without consent.* • *Most children recognise the PEGI ratings and can give examples of why content is rated and how this protects them (lesson 3)* • *Most children can contribute to a class collaborative file about the effects of inappropriate content with useful suggestions (lesson 3).* • *Most children can answer the quiz questions in lesson 3, their answers demonstrating that they are developing their understanding of the features of online communication. In lesson 1, their blog posts and comments are appropriate.* • *Most children can express the need to tell a trusted adult if they are upset by anything online, in lesson 3 their responses illustrate that they have taken this message onboard.* • *Most children will be able to use Purple Mash as a platform for collaboration. Specifically, they will create a spoof website for other children to read and share on a class display board (Unit 3.2 Lesson 2).* • *In lesson 2, most children can use suitable keywords when trying to verify sources.*
Subject specific key vocabulary: *password, personal information, blog, permission, vlogs, appropriate, internet, website, spoof, verify, reputable source, inappropriate permission* **Word list- Year 3/ 4 spellings:** *accident, accidentally, address, answer, appear, arrive, believe, certain, difficult, experience, group, guard, important, knowledge, learnt, mention, popular, remember, strange, therefore, thought*

Spring 1

Romans

Spreadsheets

- *Most children can create a table of data on a spreadsheet and can use this to automatically create charts/graphs from data. Children will be able to select the most suitable type of chart to use for their data, edit headers and apply axis labels (Unit 3.3. Lesson 1). Children can create their own number lines within 2Calculate including 'more than', 'less than' and 'equal' tools (Unit 3.3. Lesson 2).*
- *Children can collect and enter data within 2Calcualte, they are able to use the graphing tool to create suitable graphical representations of the data they have within a table (Unit 3.3. Lesson 1).*

Subject specific key vocabulary:

pie chart, data, table, bar graph, Spinner tool, More than, less than & equal tool, advanced mode, cell address, Quiz tool

Word list- Year 3/ 4 spellings:

answer, appear, build, centre, certain, complete, consider, knowledge, learn, material, mention, notice, particular, popular, position, thought, various

Spring 2

Romans

Touch Typing

- *Children are developing their touch-typing skills and recognise the importance of positioning of their hands in relation to 'home, bottom and top row.*
- *They are beginning to use both hands when typing with improving typing accuracy and speed.*
- *Children can reflect on their progress and where they need to improve (Unit 3.4 All lessons).*

Subject specific key vocabulary:

posture, typing, keys, spacebar

Word list- Year 3/ 4 spellings:

complete, consider, continue, difficult, guide, notice, ordinary, particular, position, purpose, regular,

Summer

Our World

Branching Databases

- *Using 2 Question, children will learn how to create a branching database that accomplishes a given goal. They will understand how to collect, analyse, evaluate, and present their data and information throughout the unit initially as a paper Yes/No game (Unit 3.6 Lesson 1) and then as a digital version of a branching database (Unit 3.6 Lesson 2, 3 and 4).*
- *Most children can create a branching database and are able to successfully debug it to improve the quality of their digital content creation. Their branching database would have been carefully planned before utilising 2Question (Unit 3.6. Lessons 3 & 4).*
- *Most children will be able to create a branching database which includes suitable text, titles and gathering of appropriate images from online and importing them (Unit 3.6. Lessons 3 &4).*
- *Children can make their own branching databases, collating and organising data by sets of questions they have considered appropriate (Unit 3.6 Lesson 1 . Children analyse each other's branching databases and can make further suggestions for improvement (Unit 3.6 Lessons 3 & 4).*

Subject specific key vocabulary:

data, database, branching database, binary tree, debugging

Word list- Year 3/ 4 spellings:

answer, appear, build, centre, certain, complete, consider, knowledge, learn, material, mention, notice, particular, popular, position, thought, various

Summer
Our World
Presenting
• *Children can add text. pictures and shapes to a slide and format them with tools such as shadows and borders.* • *Children can insert slides into a presentation.* • *Children can use transition effects between slides and animations of the objects in slides.* • *Children can explore the use of timings to a presentation (version dependant).*
Subject specific key vocabulary: *Textbox, presentation, font formatting, WordArt, media, slide, editing, audio, video, animation, transition, preview, sound effect, duration, timing, review* **Word list- Year 3/ 4 spellings:** *address, answer, appear, arrive, build, calendar, centre, certain, circle, complete, consider, continue, different, disappear, enough, experience, experiment, favourite, group, heard, imagine, increase, important, interest, mention, notice, particular, position, possible, question, various*

Year 4

Autumn
Where We All Live!
Coding
• *Children's design shows that they are thinking of the required task and how to accomplish this in code using coding structures for selection and repetition (Unit 4.1 Lessons 1 and 6). Children can identify an error within a program that prevents it following the desired algorithm and then fix it (Unit 4.1), they apply these techniques to their own code to fix bugs.* • *Children understand IF and IF/ ELSE statements for selection and combine these with other coding structures including variables to achieve the effects that they design in their programs (Unit 4.1 Lesson 4).* • *Their design demonstrates their growing understanding of when a coded solution will require repetition e.g. in Lesson 4 'Reginal Rocket' children can see that the position of the rocket is changed repeatedly until it is in line with the rocket launch pad. They can explain the new command 'Repeat Until'.* • *They make use of user input (Unit 4.1 Lesson 2) and outputs such as 'print to screen' (Unit 4.1 Lesson 4) as well as sound and movement of objects. They understand how variables can be used to store information while a program is executing (Unit 4.1 Lesson 5) and make attempts to use and manipulate the value of variables.* • *Children's designs for their programs show that they are thinking of the structure of a simple program in logical, achievable steps with attention to specific events that initiate specific actions (Unit 4.1 Lessons 1 and 6). Children can 'read' others' code and predict what will happen in a program which helps them to correct errors (Unit 4.1). They can also make good attempts to fix their own bugs as their coding becomes more complex (Unit 4.1 Lesson 6). Most children can create programs which accomplish a specific goal utilising a variety of media such as images, sounds and animation effects. (Unit 4.1 Lessons 1 and 6).* • *Children can interpret the flowcharts used to represent IF/ELSE statements (Unit 4.1 Lesson 4) and create their own when planning their programs.*
Subject specific key vocabulary: *background, button, object, properties, code block, predict, event, debugging, action, selection, if statement, decision, command, coordinate, flowchart, repeat until, if/else statement, inputs, execute, variable, number variable, alert, prompt,* **Word list- Year 3/ 4 spellings:** *appear, believe, build, centre, certain, complete, consider, continue, decide, describe, different, disappear, enough, favourite, group, imagine, increase, interest, learn, minute, notice, opposite, ordinary, position, possible, purpose, separate, straight, through, various*

Autumn
Where We All Live!
Online safety
• *Children have decided upon the most important online safety messages to communicate and have shared these ideas in their Top Tips for Online Safety publication (lesson 2). They put this knowledge into action in their own online activity.* • *Children can explore key concepts relating to online safety using 2Connect Unit 4.2 Lesson 1). They help others to understand the importance of online safety (Unit 4.2 Lesson 2) and apply their knowledge through the creation of online safety resources which are then used as part of presentation to parents (Unit 4.2 Lesson 1).* • *Using the example from lesson 1, children can give some examples of things to look out for in an email to ensure that it from a valid source and is not a phishing scam email. They can explain what can be learnt by looking at the padlock details for a website (lesson 1).* • *Most children can reflect upon positive and negative aspects of a digital footprint and can give examples of the care they would take when sharing online in relation to their and others' digital footprint (lesson 1).* • *Most children can give reasons for taking care when installing apps or software. They know what Malware is and the possible impact of computer viruses and can give recommendations for how best to ensure that they only install valid software as part of their top tips document in lesson 2.* • *Most children can give reasons for limiting screen time that include the effect on physical and mental health. In lesson 4, they were able to reflect on their own screen time and collective class screen time and begin to make informed decisions about when to limit their own screen time.* • *Most children can explain how plagiarism is stealing, they are beginning to be able to identify the aspects of sharing that would be classed as plagiarism (lesson 3).* • *In lesson 4, children were able to include actions for reporting cyberbullying or inappropriate content in their screen time study document.* • *By completing lesson 4, most children would have saved both online and locally to a device and are able to explain the differences between the two storage types. Most children will be able to identify key messages that should be shared with other children and parents about online safety, including identification of reliable content from websites found via common search engines (Unit 4.2 Lessons 1 & 2).*
Subject specific key vocabulary: *report, smart rules, spam, attachment, phishing, digital footprint, malware, software, virus, adflyn, ransomeware, cookies, plagiarism, watermark, citation, copyright, collaborating, data analysis, collaborative database,* **Word list- Year 3 / 4 spellings:** *accident, accidentally, address, answer, appear, arrive, believe, certain, difficult, experience, group, guard, important, knowledge, learnt, mention, popular, remember, strange, therefore, thought*

Spring
Ancient Egyptians
Spreadsheets
• *Children will use 2Calculate to design a graph to solve a mathematical problem (Unit 4.3 Lesson 3).* • *Children will present, format and analyse their data and information in a variety of ways and use their spreadsheets to solve and check mathematical problems and concepts (Unit 4.3 Lesson 5).* • *Most children can use the number formatting tools within 2Calculate to appropriately format numbers (Unit 4.3. Lesson 1).* • *Children can add a formula to a cell to automatically make a calculation in that cell using the 'formula wizard' (Unit 4.3. Lesson 1).* • *They will be fluent in copying and pasting contents between cell(s) (Unit 4.3. Lesson 1).* • *Children can use spreadsheets to collate data and extract information from it to answer questions e.g. children can create line graphs and can use it to identify when something will happen using 2Calculate (Unit 4.3 Lesson 3).*
Subject specific key vocabulary: *formula wizard, percentages, decimal place, format cell, average, equal tool, random number tool, spinner tool, timer, line graph, data, chart, resize, budget, totals, calculations, place value, 'is equals to' tool, set image* **Word list- Year 3/ 4 spellings:** *answer, appear, build, centre, certain, complete, consider, knowledge, learn, material, mention, notice, particular, popular, position, thought, various*

Spring
Ancient Egyptians
Logo
• *Children can 'read' 2Logo programs with several steps and predict the outcome accurately (Unit 4.5 Lesson 1) & (Unit 4.5 Lesson 3).* • *Children can think about the 2Logo commands that they need steps of two or more commands at a time before executing the code to check the result e.g. fd 4 rt 90 fd 6 rt 90.* • *When their code does not execute as they expect, they can sometimes find the error independently but as the code becomes longer, they need support to do so (Unit 4.5 Lesson 2).* • *They understand the repeat command and can plan simple repeat structures before executing rather than relying on trial-and-error (Unit 4.5 Lesson 3).* • *They experiment with repeating procedures to make more complex patterns (Unit 4.5 Lesson 4). They understand the value of a procedure in making code more efficient and call these procedures appropriately (Unit 4.5 Lesson 4).* • *Most children can manipulate instructions within 2Logo to create common shapes using repeat functions (Unit 4.5. Lesson 3). They can edit instructions to produce shapes created in the most efficient way including using the Procedures function (Unit 4.5. Lesson 4).* • *In (Unit 4.5 Lesson 4), they can use some knowledge of mathematics to understand how the patterns are formed.*
Subject specific key vocabulary: *2 Logo, grid, run speed, Logo commands, prediction, pen up, pen down, multi line mode, debugging, repeat, procedure, SETPC, SETPS* **Word list- Year 3/ 4 spellings:** *appear, believe, build, centre, certain, complete, consider, continue, decide, describe, different, disappear, enough, favourite, group, imagine, increase, interest, learn, minute, notice, opposite, ordinary, position, possible, purpose, separate, straight, through, various*

Summer
Ancient Greeks and the Olympics
Animation
• *Initially children will use a pencil and paper flip book to understand the basics of stop motion animation (Unit 4.6 Lesson 1).* • *Children transfer this knowledge and create their own animation using 2Animate (Unit 4.6 Lesson 3).* • *Children know, understand, and use the onion skin animation tool within 2Animate to show movement across the screen (Unit 4.6 Lesson 2).* • *Furthermore, they select backgrounds and sounds to make their animation more immersive (Unit 4.6 Lesson 2).* • *Children share their learning by displaying their animation on a display board or blog (Unit 4.6 Lesson 3).*
Subject specific key vocabulary: *animation, frame, fps, pause, onion skinning, stop motion* **Word list- Year 3/ 4 spellings:** *appear, arrive, believe, build, centre, decide, describe, disappear, experiment, guide, increase, material, position, possible, remember, various*

Summer
Ancient Greeks and the Olympics
Effective searches
• *Initially children will use a pencil and paper flip book to understand the basics of stop motion animation (Unit 4.6 Lesson 1).* • *Children transfer this knowledge and create their own animation using 2Animate (Unit 4.6 Lesson 3).* • *Children know, understand, and use the onion skin animation tool within 2Animate to show movement across the screen (Unit 4.6 Lesson 2).* • *Furthermore, they select backgrounds and sounds to make their animation more immersive (Unit 4.6 Lesson 2).* • *Children share their learning by displaying their animation on a display board or blog (Unit 4.6 Lesson 3).*
Subject specific key vocabulary: *search engine, results page, internet, key words, reliability, easter eggs, balanced view* **Word list- Year 3/ 4 spellings:** *address, answer, consider, history, knowledge, learn,*

Summer
Ancient Greeks and the Olympics
Hardware investigations
• *Children recognise the main component parts of hardware which allow computers to join and form a network (Unit 4.8 Lesson 1).* • *Children can create their own leaflet to share their understanding of Computer Hardware (Unit 4.8 Lesson 2).*
Subject specific key vocabulary: *hardware, software, components, peripherals, motherboard, CPU, RAM, hard drive, graphics card, network card, monitor, mouse, keyboard, input, output* **Word list- Year 3/ 4 spellings:** *build, history, learn, important, strength*

Year 5

Autumn
Anglo Saxons and Scots
Coding
• *Children can create more complex programs and are beginning to understand that there are ways to simplify code to make their programming more efficient. They are able to recall and apply previous coding knowledge in their code. (Unit 5.1 Lessons 1 and 4).* • *Children understand what simulations are and can formulate and program an algorithm for an observed traffic light sequence. (Unit 5.1 Lesson 2).* • *Children understand the processes of decomposition and abstraction and can apply this knowledge when planning algorithms for a program. (Unit 5.1 Lesson 3).* • *Children can include sequence, selection and repetition into code as well as use functions to make their programming more efficient. (Unit 5.1 Lesson 4).* • *Children understand what a physical system is and can consider how they can program objects to behave like the would in 'real life'.* • *Children test and debug their program as they go and can use logical methods to identify the approximate cause of any bugs but might need support to identify the specific line of code that is causing the problem. Children begin to understand how functions work (Unit 5.1 Lesson 4).* • *Children understand that there are different variable types and begin to explore how they can be used (Unit 5.1 Lesson 5).* • *Children can 'read' others' code and predict what will happen in a program which helps them to correct errors.* • *They can also make good attempts to fix their own bugs as their coding becomes more complex (Unit 5.1 Lesson 6).* • *Throughout this unit, children will demonstrate that they are open to feedback from both the teacher and fellow peers on their programs, specifically where they are expected to improve or create a game.*
Subject specific key vocabulary: *event, key press, collision, object, action, variable, selection, if/else statements, coordinates, simplify, efficient, computer generated variable, simulation, physical system, algorithm, properties, decomposition, abstraction, friction, function, predict, string, variables, values, tabs, text variable, collision, when key, random, output, concatenation, print to screen,* **Word list- Year 5/ 6 spellings:** *category, communicate, develop, environment, equipment, programme, symbol, system,*

Autumn
Anglo Saxons and Scots
Online Safety
• *Children demonstrate an understanding of their responsibility to others as well as to themselves when communicating and sharing content online.* • *Children demonstrate a clear understanding of what the SMART rules are and how they should be applied to using technology safely and respectfully (Unit 5.1 Lesson 1).* • *In lesson 1, children demonstrate that they are developing critical thinking skills in their online experience and know what sorts of inappropriate content should be reported.* • *They can apply their knowledge in the creation of a comic strip to teach other children about online safety (Unit 5.2 Lesson 2). When doing image editing in lesson 2, they were able to see both the positive and negative consequences of technological developments including altering images both in terms of impact upon themselves and impact upon others.* • *In lesson 3, children can explain why citations must be considered when using the work of others. They know that there is a convention for recording citations and can put this into practice in their work.* • *In lesson 3, children's contributions demonstrate a growing awareness of the context of communication and an ability to view the communication from the intended audience's point-of-view.* • *Most children will be able demonstrate that they understand what is meant by reliable and can build on their ability to identify reliable content. In lesson 3 while completing the citation writing frame, they were able to recognise that it is not a good idea to rely upon only 1 source for information.*
Subject specific key vocabulary: *responsibility, SMART rules, encrypt, critical thinking, image manipulation, avatar, citation, validity, reliability, plagiarism, bibliography, copyright, creative commons licence, communication,* **Word list- Year 5/ 6 spellings:** *apparent, appreciate, attached, available, awkward, category, communicate, community, correspond, develop, disastrous, embarrass, environment, harass, identity, language, occur, opportunity, recognise, recommend, relevant,*

Spring
Viking Invasion
Spreadsheets
• *Children can create a formula using 2Calculate that converts metres into centimetres (Lesson 1). Children can program different variables to convert data from one format and present it in an alternative way (Lesson 4).* • *Furthermore, they can convert their data into a graphical format (Lesson 2).* • *Throughout this unit, children will be tasked with creating spreadsheets which are contextualised and evaluating them.* • *Most children can use suitable layouts and content (and explain this) which achieve a specific goal, such as creating a spreadsheet to work out the area and perimeter of rectangles (Lesson 3). Their layouts and* • *contents will be fit for purpose for their intended audience, such as applying graphs to represent data (Lesson 2).* • *Children will use, manipulate, and create spreadsheets within this unit.* • *Their improving skill of using text variables to perform calculations, advanced mode and count tools will lead to the creation of their own purposeful spreadsheet.* • *Children will invite feedback through sharing their spreadsheets, focusing on the functionality, layout, clear purpose and whether it achieve it.* • *Most children can use 2Calculate to produce functional spreadsheets with clear purpose and their spreadsheets are set up so that interrogation of data is easily achieved.* • *They demonstrate they can use formulae such as converting between measures and incorporating text variables to perform calculations.* • *Automatic graph creation from data sets is easily achieved by the children, including appropriate labelling and graph type for data type.*
Subject specific key vocabulary: *formula, formulae, conversion, advanced mode, copy and paste, advanced mode, 'How many?' tool, variable, perimeter, area, modelling, text variables, cell format, totalling tool, budget, profit* **Word list- Year 5/ 6 spellings:** *develop, excellent, programme, recognise, relevant, sufficient, system,*

Spring
Viking Invasion
Databases
• *Children can contribute to the design of a collaborative (Unit 5.4 Lesson 2) and individual database (Unit 5.4 Lesson 3 and 4).* • *They can design and enter information accurately into their own database and create questions about their database for their classmates to answer. Furthermore, they can use the search functionalities to answer questions (Unit 5.4 Lesson 1 and Lesson 3 and 4).* • *Most children will be able to create a database within 2Investigate which contains contextualised information relating to a topic. They can add fields which are appropriate for the topic choice and present data using graphical tools, table views, and search for appropriate content to be displayed to answer a question (Unit 5.4. Lessons 3 & 4).* • *Throughout this unit, children will be learning how to effectively utilise a database. They will respond to feedback from peers and the class teacher.* • *Most children can interrogate a database, including the different ways the data can be sorted and displayed – Table view, Find, Sort, Charts (Unit 5.4 Lesson 1).* • *They can use more advanced features such as the 'statistics tool' to display multiple pieces of statistical information at the same time and produce reports on specific criterion (Unit 5.4 Lesson 1 & 2).*
Subject specific key vocabulary: *database, search, record, field, sort, group, arrange, statistics, reports, charts, avatar, collaborative,* **Word list- Year 5/ 6 spellings:** *develop, excellent, programme, recognise, relevant, sufficient, system,*

Summer
Enchanting Earth
Game creator
• *Most children can plan a computer game (2DIY3D) using a template. They carefully use the 'Think about' feature in the planning templates to assess their progress against the tasks and how well they have considered key criteria (Unit 5.5. All lessons).* • *When creating their games, children think about the component parts and design these as components in a theme rather than completely isolated parts. They consider aspects such as the movement of the characters and goal objects to increase playability. When designing the game environment, they do this with the end-user experience in mind.* • *Most children can combine text, sound, and graphic components within a 2DIY3D game. Their games demonstrate a well-planned approach, with appropriate use of text, sound, and graphic components. They easily mix their approaches for image use such as uploading and using the drawing tools. Successful application of animation features to objects is applied to enhance their games (Unit 5.5. Lessons 2, 3 & 4).* • *Children can use a given success criteria to review and analyse what makes a successful computer game (Unit 5.5 Lesson 1). Children consider the end user of their game by designing appropriate settings and characters that maintain the user's interest and engagement levels (Unit 5.5 Lesson 2/3). Furthermore, children demonstrate the ability to objectively review and evaluate a range of completed games (Unit 5.5 Lesson 5).* • *Children can evaluate their own and others' games with 2DIY3D for content and design. They use this peer and self-assessment opportunity to make improvements to their own game (Unit 5.5. Lesson 5). Feedback which focuses on the design elements of their game against key criteria such as playability, challenge, engagement, use of advanced features and suitability for intended audience.*
Subject specific key vocabulary: *evaluation, theme, scene, textures, images, screenshot, quest, instructions, feedback, promotion* **Word list- Year 5/ 6 spellings:** *category, communicate, develop, environment, equipment, programme, symbol, system*

Summer
Enchanting Earth
Concept maps
• *Children can use 2Connect to design and create concept maps that collect and present a range of linked ideas (Lessons 1 and 2).* • *Children can use the additional features of the software in 2Connect to present their concept maps as a visual whole class presentation (Lesson 4) and as written text (Lesson 3).* • *Most children will be able to work successfully with others to create an online collaborative concept map using 2connect (Lesson 4) which has been well thought out for layout and content, using features such as image and node layout choices appropriately.* • *They can reflect on these choices and discuss the rationale for them.* • *During presentations (Lesson 4), children can give constructive feedback sensitively and respond well to others' feedback.*
Subject specific key vocabulary: *concept, node, connecitons, story mode, heading, subheading, collaborate, presentation mode* **Word list- Year 5/ 6 spellings:** *develop, excellent, recognise, relevant, sufficient, system,*

Year 6

Autumn
History of London – WW2
Coding
• *Children are beginning to be able to turn a more complex programming task into an algorithm by identifying the important aspects of the task (abstraction) and then decomposing them in a logical way using their knowledge of possible coding structures and applying skills from previous programs.* • *They can then use this design to write a program using 2Code (Unit 6.1 Lessons 1 and 2).* • *Children can translate algorithms that include sequence, selection and repetition into code and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures including nesting structures within each other (Unit 6.1 Lessons 1-6).* • *Children can plan, design and create a program that includes variables relating to timing and scoring along with buttons which launch other programs (Unit 6.1 Lessons 1 and 2). Furthermore, children will consider how to organise their code using multiple tabs (Unit 6.1 Lessons 1, 2, 3 and 5).* • *They use functions within their code to eradicate unnecessary code and make their programming more efficient (Unit 6.1 Lesson 3).* • *Their coding displays an understanding of the function of variables in coding (Unit 6.1 Lessons 1 and 2 and Lesson 6), outputs such as sound and movement (Unit 6.1 Lessons 1 and 2), inputs from the user of the program such as button clicks (Unit 6.1 Lessons 3, 4 & 5) and the value of Functions (Unit 6.1 Lesson 3).* • *Children can make good attempts to 'read' code and predict what will happen in a program (Unit 6.1 Lessons 4 and 6). They can usually interpret a program in parts and can make logical attempts to put the separate parts of a complex algorithm or program together to explain the program as a whole (Unit 6.1 Lesson 6).* • *Children test and debug their program as they go and can use logical methods to identify the approximate cause of any bugs but might need support to identify the specific line of code that is causing the problem as the complexity of the programs increases. They try to improve and debug their own programs (Unit 6.1 All Lessons).* • *Within their programs, they can use features such as interactivity with the end users with the desired effect of adding greater impact. (Unit 6.1. Lesson 5 and 6).* • *Most children demonstrate a secure understanding of the impact of changing the position of instructions within 2Code. With this knowledge, they can demonstrate use of the tabs feature to carefully section code for the intention of easier debugging and less code error, as their coding becomes more complex.*
Subject specific key vocabulary: *algorithm, action, output, selection, variables, repeat, timer, launch command, debug, alert, string, x and y properties, coordinates, decomposition, object, event, function, turtle object, text object, execute, function call, tabs, flowchart, simulation, procedure, input, concatenation* **Word list- Year 5/ 6 spellings:** *category, communicate, develop, environment, equipment, programme, symbol, system,*

Autumn
History of London – WW2
Online Safety
• *Children have a good knowledge of the benefits and risks to working collaboratively. They have no trouble navigating networks within Purple Mash (Work folders, class folders and group folders), the local network (school) and the Internet (using as a source for research or leisure time). They use these networks to collaborate using Purple Mash tools such as 2Write, 2Connect and 2Blog and can use a variety of networked devices such as webcams, online tools, printers, and tablets in a connected way for their educational benefit.* • *Children can use search tools and routinely try to verify the validity and reliability of their sources. They look for corroborating sources for information and enter keywords that help them to choose the best results.* • *Children demonstrate an understanding of their responsibility to others as well as to themselves when communicating and sharing content online. They can identify a variety of risks and benefits of technology (lessons 1 and 3). They feel confident in having strategies to help them promote a positive online image of themselves in their digital footprint.* • *Children can identify location sharing as a risk to online safety in lesson 1 and could relate this to work done on protecting their identifying private information.* • *Children were able to identify the padlock and https as aids to the online safety in lesson 1 and could explain what these means referring to the work that they did on this in previous years' online safety units.* • *Children' work in lesson 1, indicates that they have a clear understanding of terms such as Computer virus, Location sharing, phishing scams, spam email, Malware and Identity theft. In lesson 2, they make sensible contributions to the question of what risks there are when installing an App and the possible risks hidden in the small print.* • *Children's work as digital footprint detectives in lesson 2 demonstrates that they understand the impact of a positive and negative digital footprint and how to take control of their own online virtual image.* • *Most children can balance the positive impact of technology with the reasons for limiting screen time that include the effect on physical and mental health. In lesson 3, they were able to reflect on their own screen time and collective class screen time and begin to make informed decisions about when to limit their own screen time* • *Having studied this aspect in depth in year 5 (lesson 3), children routinely include citations in their research work across subjects. They also take care to credit the artist when using images from the Internet. In lesson 2, as part of the discussion surrounding digital footprints, children explored the existence of metadata to track the source of images.* • *Having studied this aspect in depth in year 5 (lesson 2, step 11+ and lesson 3, step 6+), children take care to credit the artist when using images from the Internet and know how to explore the rights and permissions associated with an image online. They can explain the difference between copyright and privacy and are mindful of both aspects when working with images.* • *Most children can make informed choices when communicating online for example selecting the appropriate form of communication for its purpose and audience. They can discuss the use of instant messaging in social contexts, aware of the pros and cons of using such tools.*
Subject specific key vocabulary: *secure websites, location sharing, spoof websites, phishing, password, PEGI, digital footprint, inappropriate, print screen, screen time, data analysis* **Word list- Year 5/ 6 spellings:** *apparent, appreciate, attached, available, awkward, category, communicate, community, correspond, develop, disastrous, embarrass, environment, harass, identity, language, occur, opportunity, recognise, recommend, relevant,*

Spring
Rainforests
Spreadsheets
• *Children can create a spreadsheet and collect data using 2Calculate that answers a mathematical problem relating to probability (Unit 6.3 Lesson 1).* • *Children can use a spreadsheet to model a real-life situation (Unit 6.3 Lesson 3).* • *Most children will be able to create spreadsheets which contain visual elements such as suitable graphs which represent their data (Unit 6.3. Lesson 1). They will select an appropriate graphical representation of their data from the available choice.* • *They can create a computational model which successfully solves a given problem (Unit 6.3. Lesson 2). Their use of tools and features to maximise spreadsheet content is secure such as: 'How many', 'function', 'format' and 'image toolbar' (Unit 6.3).* • *They interrogate and refine data with increasing efficiency. For example, children create a spreadsheet to answer a mathematical question, creating a computational model or to support with planning a school event. They utilise advanced features such as the 'formula wizard' for efficiency and know the best layouts to use to support easier interrogations of data (Unit 6.3).*
Subject specific key vocabulary: *count tool, dice tool, chart, formula wizard, computational model, percentage, format, move tool, budget, Advanced mode, profit, expenses* **Word list- Year 5/ 6 spellings:** *develop, excellent, programme, recognise, relevant, sufficient, system,*

Spring
Rainforests
Networks
• *Children can explain the difference between the Internet and the World Wide Web and can show all the things they use the internet for using 2Connect (Unit 6.6 Lesson 1).* • *Children know what a WAN and LAN are and can describe how they access the internet in school (Unit 6.6 Lesson 2).*
Subject specific key vocabulary: *internet, world wide web, website, network, web server, web page, hosting, data, LAN, WAN, WLAN, router, switch, hub, Ethernet, Wi-Fi, search engine, ip address, ISP, DNS* **Word list- Year 5/ 6 spellings:** *available, communicate, community, convenience, environment, explanation, physical, recognise, relevant, system*

Summer
Mayans
Understanding Binary
• Throughout the unit, children will examine and understand how within digital systems, whole numbers are used as the basis of representing all types of data and that this is known as a binary format. Children will know that binary codes contain only the digits 0 and 1. • When looking at binary, children will be able to relate 0 to an 'off' switch and 1 to an 'on' switch and know that these represent the on and off electrical states respectively in hardware and robotics (Lesson 1). • Most children will show an understanding of the system in order to be able to count up from 0 in binary, as well as converting decimal numbers into binary, using visual aids if necessary (Lessons 2&3). Children will understand the 'division by two' method as a way of converting numbers from decimal to binary (Lesson 3). • Children will be able to use their knowledge of binary and of code to make their own program which represents the state of an object as active or inactive, using the respective binary values or 1 or 0 (Lesson 4).
Subject specific key vocabulary: input decimal, binary, integer, denary, base 10, base2, transistor, microprocessor, chip, nanotechnology, bit, nibble, byte, kilobyte, megabyte, gigabyte, tetrabyte, sequence, switch, remainder, game states, variable **Word list- Year 5/ 6 spellings:** available, category, communicate, community, convenience, correspond, develop, identity, individual, language, necessary, profession, recognise, relevant, symbol, system, variety,

Summer
Mayans
Spreadsheets
• Children have a good understanding of a variety of purposes for using spreadsheets. Children appreciate the advantage of using a spreadsheet for certain tasks over a paper-based method. • Children understand and use the new vocabulary relating to spreadsheets: cells, columns, rows, cell names, sheets, workbook. They can locate frequently used functions and tools and know how to find the functions that they need. • Children can use a spreadsheet to carry out basic calculations including all the operators (addition, subtraction, multiplication and division) using formulae (lesson 2). • Children know that tools such as series fill exist and can make use of the assistance they provide. • Children understand the idea of using a spreadsheet to model a situation. Given a precise situation and guidance on layout, they can create a useful model. They can use it to answer questions (lesson 3 & lesson 7). • With direction, children can use flash fill, convert text to tables, splitting cells and sorting for organising and presenting their data in a spreadsheet (lesson 4). • Children know how to incorporate formulae for percentages, averages, max and min into their spreadsheets (lesson 5). They are beginning to develop a critical eye when it comes to the conclusions that can be made from data (lesson 5, step 21). • Children can use graphic functionality within a spreadsheet program to make their data clearer and use this to answer questions (lesson 6).
Subject specific key vocabulary: spreadsheet, cell, cell , reference, data, column, row, workbook, sheet, categories ribbon, formula, formulae, calculation, formula bar, series, computational model, template, budget, expense, formatting, currency, delimiter, sorting, flash fill, auto-fit, filter, average, minimum, maximum, graph, chart, horizontal axis, vertical axis, conditional formatting, budget, profit **Word list- Year 5/ 6 spellings:** develop, excellent, programme, recognise, relevant, sufficient, system,