The Big Ideas For Computing

Key Concepts

Productivity-

KC1 I know how to use a computer competently (mouse and keyboard)

KC2 I know how to create content using appropriate software.

KC3 I know how to use online sources to create/ add to/ share content.

KC4 I know how to create content to solve real world problems.

Coding –

KC5 I know how to create/edit sprites, backgrounds, avatars.

KC6 I know how to analyse questions and create solutions.

KC 7 I know how to create, manipulate, modify and debug programs.

Digital Art –

KC8 I know how to plan and create images and/or video.

KC9 I know how to edit, adjust and develop images and/or video

Finding similarity and difference -

KC10 I know how to look for commonality between processes.

KC11 I know how to use existing skills to develop solutions to new problems.

Year 1 Autumn Term part 2	
These objectives have not been met before	
National Curriculum Objectives	Key Knowledge and vocabulary
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.	<u>Big Ideas</u> KC1 <u>Revision</u> NA <u>New Learning</u> Typing skills – finding and using touch tabs, developing muscle memory on full size keyboard, developing mouse skills.

<u>Vocabulary</u> Tier 2- (finger names) Tier 3 – keyboard, typing, touch-typing

Year 1 Spring Term Part 1 (Beebots)	
These objectives were not met before.	
National Curriculum Objectives	Key Knowledge and vocabulary
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	<u>Big Ideas</u> KC7 <u>Revision</u> NA <u>New Learning</u> Beebot programming: Arrows to command an object to move, create simple turns. Create a simple program that allows a string of instructions to be repeated easily.

	Vocabulary Tier 1 – Forward, back, turn, Tier 2 – command, rotate Tier 3 - Logic

Year 1 Spring Term Part 2 (Scratch Jr)	
These objectives were not met before.	
National Curriculum Objectives	Key Knowledge and vocabulary
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	Big Ideas KC5, KC7 Revision NA New Learning Scratch Jr – Introducing blocks, commands and order of operations in a sequence. Vocabulary Tier 2 – hold, drag, sequence

	Tier 3 – order, program, block

Year 1 Summer Term part 1	
These objectives have not been met before	
National Curriculum Objectives	Key Knowledge and vocabulary
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	<u>Big Ideas</u> KC1, KC3, KC8 <u>Revision</u> NA <u>New Learning</u> Taking simple images using a point and click device (iPad) Organise images into folders/ sub folders to form galleries related to own topic. <u>Vocabulary</u>

accomplish given goals, including collecting, analysing, evaluating and presenting data and information	Tier 2 – folder/ sub-folder

Year 1 Summer Term Part 2	
These objectives were not met previously	
National Curriculum Objectives	Key Knowledge and vocabulary
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	<u>Big Ideas</u> KC8, KC9 <u>Revision</u> NA <u>New Learning</u> Creating simple drawings using an iPad. Use a paint program to create a digital version of an image. Use zoom in and Zoom out features to allow more intricate editing Change colours, brushes, pens, shapes etc in app. <u>Vocabulary</u> Tier 2 – adjust, zoom

Year 2 Autumn Term Part 2	
These objectives were met before in Year 1 Unit 2	
National Curriculum Objectives	Key Knowledge and vocabulary
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	<u>Big Ideas</u> KC1, KC2, KC3 <u>Revision</u> Typing finger positions, mouse control and click usage. <u>New Learning</u> Multi-program use (simultaneously use WORD and google) Images can be searched for on the internet and then copied into documents to improve their appeal to the audience. <u>Vocabulary</u> Tier 3 – evaluate

Year 2 Spring Term Part 1 (Scratch Jr)	
These objectives were met in Year 1 Unit 3	
National Curriculum Objectives	Key Knowledge and vocabulary
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	Big Ideas KC5, KC6, KC7 Revision Moving and combining blocks to form a simple program. Using iPads to use Scratch Jr. New Learning Scratch Jr, Changing sprite appearance, Changing sprite size and speed of movement, Modifying blocks in an existing program, Adding sound to a sprite Vocabulary

	Tier 2 – Sequence Tier 3 - Program

Year 2 Spring Term Part 2 (Scratch Jr part 2)	
These objectives were met in Year 2 Unit 3	
National Curriculum Objectives	Key Knowledge and vocabulary
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	<u>Big Ideas</u> KC5, KC6, KC7 <u>Revision</u> Scratch Jr, Changing sprite appearance, Changing sprite size and speed of movement, Modifying blocks in an existing program, Adding sound to a sprite <u>New Learning</u> Using speak function to introduce command broadcasting. Modifying sprites to appear and disappear (show and hide) Adding additional sprites and two+ strings of commands. <u>Vocabulary</u>

| | Tier 2 – command string, script, sprite |
| | Tier 3 – program, broadcast |

Year 2 Summer Term (Short unit to facilitate SATs tests etc.)	
These objectives were not met previously	
National Curriculum Objectives	Key Knowledge and vocabulary
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	Big Ideas KC8, KC9 Revision Use of a camera to take basic point and shoot pictures Organising and deleting unwanted images. New Learning Planning for a picture, framing and angle. Getting permissions for images – check it's okay with the people in it. Safety check for personal information. Using zoom to get closer, Picking the best image from a set (builds on Year 1 skills) Vocabulary

	Tier 2 – adjust

Year 3 Autumn Term Part 2	
These objectives were met before in Year 2 Unit 2	
National Curriculum Objectives	Key Knowledge and vocabulary
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	Big Ideas KC1, KC2, KC3 KC10, KC11 Revision Typing finger positions, managing text in a wordprocessor – changing colour, size, font etc. New Learning Introducing GSuite – Logins for internet sites (and associated security needs) Vocabulary Tier 2 – adjust, evaluate, choose, hold, drag

Year 3 Spring Term Part 1	
These objectives were met in Year 2 Unit 3	
National Curriculum Objectives	Key Knowledge and vocabulary
Design, write and debug programs that accomplish specific goals Solve problems by decomposing them into smaller parts Use sequence, selection, and repetition in programs Use logical reasoning to explain how some simple algorithms work	Big Ideas KC5, KC6, KC7, KC10, KC11 Revision Coding methodologies – order and consequence of incorrect code construction. Block use and colour coding for code block purpose. New Learning Introduce SCRATCH (full version) Describe differences in coding structure – horizontal to vertical Introduce code block sections and their interlinking methods. Choose a pre-prepared sprite Use SCRATCH to animate a sprite Add backgrounds (stage) designs to fit the brief. Vocabulary

| | Tier 2 – command string, sprite, stage |
| | Tier 3 – program, de-bug. |

Year 3 Spring Term Part 2	
These objectives were met in Year 3 Unit 3	
National Curriculum Objectives	Key Knowledge and vocabulary
Design, write and debug programs that accomplish specific goals Solve problems by decomposing them into smaller parts Use sequence, selection, and repetition in programs Use logical reasoning to explain how some simple algorithms work	<u>Big Ideas</u> KC5, KC6, KC7 KC10, KC11 <u>Revision</u> Coding methodologies – order and consequence of incorrect code construction. Block use and colour coding for code block purpose. SCRATCH (full version) <u>New Learning</u> SCRATCH music. Using scratch code to add music with tap blocks, music choices to match sprite choices. <u>Vocabulary</u> Tier 2 – script, command string, sprite, stage Tier 3 – program, de-bug.

Year 3 Summer Term Part 1	
These objectives were met previously in Year 2 unit 6	
National Curriculum Objectives	Key Knowledge and vocabulary
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	<u>Big Ideas</u> KC8, KC9 <u>Revision</u> Planning for a picture, framing and angle. Using zoom to get closer. <u>New Learning</u> Planning for a picture including distance, angle and composition. Preparing the target – getting into position and making choices on framing. Check and select best images. Eliminating blur, light bleed and artefacts from pictures. Making the most of the technology to hand. <u>Vocabulary</u> Tier 2 – edit

Year 3 Summer Term Part 2	
These objectives were not met previously	
National Curriculum Objectives	Key Knowledge and vocabulary
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	<u>Big Ideas</u> KC8, KC9 <u>Revision</u> Techniques to get the best picture <u>New Learning</u> Evaluating examples of photography<u>.</u> Using on-device tools to edit and improve images. Using painting packages to add effects and make changes to images captured on camera. <u>Vocabulary</u> Tier 2 – edit

Year 4 Autumn Term Part 2	
These objectives were met before in Year 3 Unit 2	
National Curriculum Objectives	Key Knowledge and vocabulary
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	<u>Big Ideas</u> KC1, KC2, KC3 KC10, KC11 <u>Revision</u> GSuite logins, maintaining password security, choosing a string password, keyboard and mouse manipulation. <u>New Learning</u> Live collaboration, team working on a set task. Use GSuite share and live editing systems to create a topic related response to a set task. <u>Vocabulary</u> Tier 2 – live-editing, Tier 3 – collaboration,

Year 4 Spring Term Part 1	
These objectives were met in Year 2 Unit 3	
National Curriculum Objectives	Key Knowledge and vocabulary
Design, write and debug programs that accomplish specific goals Solve problems by decomposing them into smaller parts Use sequence, selection, and repetition in programs Use logical reasoning to explain how some simple algorithms work	Big Ideas KC5, KC6, KC7 Revision Coding methodologies – order and consequence of incorrect code construction. Block use and colour coding for code block purpose. Link to perseverance of self-check and error correction. New Learning Introduce SCRATCH (full web-version) Describe differences in coding structure – horizontal to vertical (Scratch Jr on iPads vs Scratch full web version) Introduce code block sections and their interlinking methods. Choose a pre-prepared sprite Use SCRATCH to animate a sprite Add backgrounds (stage) designs to fit the brief. Vocabulary Tier 2 – command string, sprite, stage, block Tier 3 – program, sequence, de-bug.

Year 4 Spring Term Part 2	
These objectives were met in Year 4 Unit 3	
National Curriculum Objectives	Key Knowledge and vocabulary
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	Big Ideas KC5, KC6, KC7 KC10, KC11 Revision Coding methodologies – order and consequence of incorrect code construction. New Learning SCRATCH interactions. Adding variables Creating complex strings of blocks. Using logical reasoning to predict user needs. Using peer assessment to de-bug/ check user interactions and make improvements. Vocabulary Tier 2 – scripts, command string, sprite, stage, block Tier 3 – program, de-bug.

Year 4 Summer Term Part 1	
These objectives were previously met in Year 3 unit 6	
National Curriculum Objectives	Key Knowledge and vocabulary
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	<u>Big Ideas</u> KC8, KC9 <u>Revision</u> Techniques to get the best picture <u>New Learning</u> Planning, preparing, filming and editing a video for a specified purpose. Storyboard an advert to sell a specified item. Plan and script the film. Video using multiple takes. Combine clips into a single film using iMovie. Share and evaluate the film. <u>Vocabulary</u> Tier 2 – adjust, edit,

Year 4 Summer Term Part 2	
These objectives were previously met in Year 4 unit 2	
National Curriculum Objectives	Key Knowledge and vocabulary
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	<u>Big Ideas</u> KC1, KC3 <u>Revision</u> Keyboard and mouse use. <u>New Learning</u> Coding using HTML coding systems learn about the history of the web, before studying HTML (hypertext mark-up language), the language in which web pages are written. They learn to edit and write HTML, and then use this knowledge to create a web page. <u>Vocabulary</u> Tier 2 – Live editing Tier 3 – hypertext, mark up, language, HTML

Year 5 Autumn Term Part 2	
These objectives were met before in Year 4 Unit 2	
National Curriculum Objectives	Key Knowledge and vocabulary
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	<u>Big Ideas</u> KC1, KC2, KC3 KC10, KC11 <u>Revision</u> GSuite logins, maintaining password security, choosing a string password, keyboard and mouse manipulation. Live collaboration, team working on a set task. Use GSuite share and live editing systems to create a topic related response to a set task. <u>New Learning</u> Use GSuite – docs, sheets and sites to create an advertising campaign for an event. Draw on classroom work on persuasive writing to assist. Use sheets to calculate costs, profits. Use docs to create posters. Use sites to create a simple website design. <u>Vocabulary</u> Tier 2 – (Specific names of program features in selected program)

Year 5 Spring Term Part 1	
These objectives were met in Year 4 Unit 4	
National Curriculum Objectives	Key Knowledge and vocabulary
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	Big Ideas KC5, KC6, KC7 KC10, KC11 Revision Using movement blocks to create movement strings. New Learning SCRATCH interactions. Adding non-player sprites that act as obstacles Coding for semi-random movement Coding for variation over time Coding for repeatability (EXT adding scores/ high score board) Vocabulary Tier 2 – block, Tier 3 – program,

Year 5 Spring Term Part 2	
These objectives were met in Year 5 Unit 3	
National Curriculum Objectives	Key Knowledge and vocabulary
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	<u>Big Ideas</u> KC5, KC6, KC7 KC10, KC11 <u>Revision</u> SCRATCH interactions, non-player sprites, semi-random movement, variation over time, repeatability <u>New Learning</u> Coding a visual controller mapped to the keyboard. Code arrow keys on keyboard to rotate the controller wheel and catch the NPC sprites as they reach a set point. Add control to issue a speech bubble 'game is over' text. <u>Vocabulary</u> Tier 2 – (changeable) block Tier 3 – variable,

Year 5 Summer Term Part 1	
These objectives were met in Year 5 Unit 4	
National Curriculum Objectives	Key Knowledge and vocabulary
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	<u>Big Ideas</u> KC5, KC6, KC7 KC10, KC11 <u>Revision</u> Using existing skills with scratch to include movement, timing, direction, speed and location setting. <u>New Learning</u> Game design and development Identify the needs of the audience/ player. Debug and vary the game to fit the needs of the user. Modify the original plan in light of experience changes needed. <u>Vocabulary</u> Tier 2 – (changeable) block Tier 3 – variable

Year 5 Summer Term Part 2	
These objectives were met in Year 5 Unit 2	
National Curriculum Objectives	Key Knowledge and vocabulary
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	<u>Big Ideas</u> KC8, KC9 KC1, KC2, KC3, KC4 <u>Revision</u> NA <u>New Learning</u> Using Sketch up to model 3D objects Understand vertices, edges and faces or 3D shapes. Create a 3D rendering of a building using wireframe and surface modelling. Add textures, fills and papers to create realism. <u>Vocabulary</u> Tier 2 – (Specific to this program) - vertex, surface, structure, apex, wallpaper, texture, view, angle, scale, volume,

Year 6 Autumn Term Part 2	
These objectives were met before in Year 5 Unit 2	
National Curriculum Objectives	Key Knowledge and vocabulary
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	<u>Big Ideas</u> KC1, KC2, KC3 KC10, KC11 <u>Revision</u> GSuite logins, maintaining password security, choosing a string password, keyboard and mouse manipulation. Live collaboration, team working on a set task. Use GSuite to share and live editing systems to create a topic related response to a set task. <u>New Learning</u> Credibility checks using website cross-referencing and deductive reasoning. Establish if a source is reliable based on fact checking.

	Decision making based on source – be able to list significant news and media outlets that can be regarded as trustworthy.
	Vocabulary Tier 2 – live editing, adjust, evaluate Tier 3 - Logic, accurate, credible,

Year 6 Spring Term Part 1	
These objectives were last met in Year 5 Unit 4	
National Curriculum Objectives	Key Knowledge and vocabulary
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	Big Ideas KC5, KC6, KC7 KC10, KC11 Revision Block linking, Coloured block purpose recap. broadcasting New Learning Exploring place value requires pupils to use their knowledge of broadcasting to build place value models within several different contexts. Vocabulary

| | Tier 2 – changeable block, sequence, selection, |
| | Tier 3 – broadcasting, decomposition |

Year 6 Spring Term Part 2	
These objectives were last met in Year 6 Unit 3	
National Curriculum Objectives	Key Knowledge and vocabulary
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	<u>Big Ideas</u> KC5, KC6, KC7 KC10, KC11 <u>Revision</u> Block linking, Coloured block purpose recap. Sound blocks <u>New Learning</u> How to add sound to your Scratch project How to create and use lists to store data How to create and use custom blocks for repeating code <u>Vocabulary</u> Tier 2 – (custom) block, <u>Tier 3 – Abstraction, debugging,</u>

Year 6 Summer Term Part 1	
These objectives were met in Year 5 Unit 6	
National Curriculum Objectives	Key Knowledge and vocabulary
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	Big Ideas KC8, KC9 KC1, KC2, KC3, KC4 KC10, KC11 Revision Using Sketch up to model 3D objects Understand vertices, edges and faces or 3D shapes. Create a 3D rendering of a building using wireframe and surface modelling. Add textures, fills and papers to create realism. New Learning

	Design and develop a 3D school that mirrors the current school building. Collect and use accurate measurements to manage scale. Use advanced tool to simulate depth and shadow. Vocabulary Tier 2 – (Specific to this program) - vertex, surface, structure, apex, wallpaper, texture, view, angle, scale, volume,

Year 6 Summer Term Part 2	
These objectives were met in Year 5 Unit 2	
National Curriculum Objectives	Key Knowledge and vocabulary
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	Big Ideas KC8, KC9 Revision Creating planned video Editing video in iMovie Add features to the video for a specified audience – backgrounds, sound/music. New Learning Use advanced features in iMovie to create a movie trailer for use in end of year assembly.

	Create a longer piece using previous learning on camera angles, framing, colour and setting to ensure quality. Create multiple versions to allow a 'best' version to be chosen. Vocabulary Tier 3 – Age appropriate, collaboration,