**Computing Curriculum Intent – KS2**

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**National Curriculum Aims for Computing:**

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.

**National Curriculum Subject Content for KS2:**

Pupils should be taught to:

* 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.

This has been simplified for coverage to the following:

1 – Coding. Including designing, writing and debugging using programming software and hardware such as Scratch, Spheros and Robot Pets.

2 – Input and output variables. This includes using hardware such as visual or audio recording equipment and then editing the outcomes.

3 – World Wide Web. Looking at working collaboratively and sharing files etc, as well as web design and content creation.

4 – Combined Information Technology. This includes the termly change between word processing, presentation software and spreadsheet software.

5 – Animation. Using various software and hardware to animate and digitalise materials. Stop Motion Animation and looking at Augmented Reality.

6 – Photo Editing. Using cameras and digital image capture hardware and then manipulating the image either in hardware or through digital software.

7 – E-safety and Digital Citizenship.

**Cycle A – Academic Year 2021-2022**

**Year 3 / 4**

|  |  |  |  |  |  |
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| **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
| Invasion  (History Driver) | Misty Mountain, Winding River  (Geography Driver) | Ancient Civilisations  (History Driver) | Predator  (Science Driver) | Burps, Bottoms & Bile  (Science Driver) | Potions  (Science Driver) |
|  |  | E-safety and Digital Citizenship (Internet Safety Day).  Animation.  Using software to turn an image into a talking picture and use the animations to share information in answers to given questions (audio recording).  Input and output variables.  Children develop a Newspaper report script and then film using iPads. Use iMovie to then edit the footage together, add news frames, music and titles. | Coding.  Using the Sphero programmable robots to develop code which will enable the children to avoid obstacles.  World Wide Web.  Creating shared and collaborative presentations on insect predators.  Combined Information Technology. | Photo Editing.  Editing self-portraits to reflect changes over time of tooth decay. | Combined Information Technology (Digital Lit.)  Coding.  Use software to develop stages and sprites and programme the sprite to move around the route of George’s house.  Photo Editing.  Digitalise designs into editable and printable safety labels. Including the use of layers which can independently be manipulated. |
|  |  | Animate Everything  iMovie | Sphero Edu.  Google Slides | Gimp | Microsoft PowerPoint  Scratch  Gimp |

**Year 5 / 6**

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| --- | --- | --- | --- | --- | --- |
| **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
| Off with her head!  (History Driver) | Frozen Kingdoms  (Geography Driver) | Tomorrow’s World  (Computing Driver) | Maya  (History Driver) | Darwin’s Delights  (Science Driver) | Britain at War  (History Driver) |
| Input and output variables.  Use recording microphones and laptops to record and edit collaborative songs.  Combined Information Technology.  Create presentations which explain the relationships between the royal family of the House of Tudor. | Photo Editing.  Use the green screen, cameras and editing software to transport images of children in school to the frozen polar regions.  Input and output variables.  Combined Information Technology (Digital Literacy with Word Processing focus and Typing skills). | E-safety and Digital Citizenship.  Using the internet to effectively research.  Introduce the ideas of advanced searching and removing words from search criteria and searching within websites.  Coding.  Use coding to create algorithms for robots to follow to navigate a maze.  Use software online to create an abstract algorithm for sorting through a group of numbers - introducing the children to the bubble sort formulae.  World Wide Web.  Develop designs and content for a website advertising a new digital creation they have developed.  Input and output variables.  Understand how networks connect different technological devices and people together.  Photo Editing.  Design visual content and logos for a website using drawing technology. | Combined Information Technology (Digital Literacy with presentation focus and Typing skills). | Combined Information Technology (Digital Literacy with spreadsheet focus and Typing skills). | Coding.  Use coding software to build up a model of how to practise and visualise the sending of messages in code.  Input and output variables.  Children record speeches developed impersonating the great leaders from the warring nations.  Animation.  Children put words in the mouths of the leaders from the nations of the war using animation software. |
| Audacity  Focusky | Gimp | Chrome, Safari, Yahoo etc.  Spheros  Scratch  Weebly  Paint/Gimp/Brackets |  |  | Scratch  Garageband  Animate Everything. |

**Cycle B – Academic Year 2020-2021 & 2022-2023**

**Year 3 / 4**

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| **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
| Through the Ages  (History Driver) | Rocks, Relics & Rumbles  (Geography Driver) | Mighty Metals  (Science Driver) | Road Trip USA  (Geography Driver) | Scrumdiddlyumpious  (D&T Driver) | Emperors & Empires  (History Driver) |
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**Year 5 / 6**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
| Sow, Grow & Farm  (Geography Driver) | Shang Dynasty  (History Driver) | Alchemy Island  (Science Driver) | Stargazer  (Science/Computing Driver) | Time Traveller  (A&D/T/PHSE/Science Driver) | Glorious Greeks  (History Driver) |
| Combined Information Technology (Digital Literacy with Word Processing focus and Typing skills). | E-safety and Digital Citizenship.  Using the internet to effectively research elements of the Shang Dynasty.  Input and output variables.  Using digital software to input the dynamics of the burial chamber of Fu Hoa’s burial chamber. Use 3D building techniques to create an output which shows the visuals of this chamber graphically. | E-safety and Digital Citizenship.  Using the internet to effectively research the events which made up the Space Race.  Look at how searches can be enhanced through teaching website address endings.  Photo Editing.  Taking photos on hardware and learning how to upload and transfer these photos across to the computer. Using software to manipulate images by introducing layering and area selection.  Input and output variables.  Discuss ownership of online content and download royalty free music. Edit the music together using audio editing software to create a soundtrack for your journey around Alchemy Island.  Coding.  Use software to use codes which refer to possible outcome and consequence such as ‘if’ ‘then’ and ‘otherwise’. | Coding.  Use the Sphero to navigate a mars rover around different terrain types. Create more complex algorithms for the Sphero to follow, to create regular shapes etc.  Combined Information Technology (Digital Literacy with presentation focus and Typing skills). | E-safety and Digital Citizenship.  Using the internet to effectively research Andy Warhol.  How can you bookmark information on the web.  Combined Information Technology.  Creating digital time capsules within folders. Organising and storing information. | Combined Information Technology (Digital Literacy with spreadsheet focus and Typing skills). |
|  | Chrome, Safari, Yahoo etc.  Sketch Up | Chrome, Safari, Yahoo etc.  Gimp  Audacity  Scratch | Sphero | Chrome, Safari, Yahoo etc. |  |