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|  | | **Castle Academy**  **Computing Curriculum** | | | | |  |
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| **Data Handling** | **E-Safety** | | **Multimedia** | **Programming** | **Technology in our lives** | **ICT Skills** | |
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|  | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Autumn 1 | **Unit 1.1 - We are treasure hunters**  *The children will program a toy to move around a map to find buried treasure. They will start by thinking of algorithms for their routes, then input these as stored programs for the robot. They predict how the robot will move and will debug their programs.* | **Unit 2.1 - We are astronauts**  *The children will build on work from Unit 1.1 – We are treasure hunters to program a sprite (such as a spaceship) to move around the screen. This unit acts as a springboard for programming in Year 3.* | **Unit 3.1 - We are programmers**  *The children create an animated cartoon using characters they design. They use a paint tool to create characters and backgrounds. They then create an animation by translating a storyboard into a series of scripted instructions (program) for graphic objects.* | **Unit 4.1 - We are software developers**  *The pupils start by playing and analysing educational computer games, identifying those features that make a game successful. They then plan and design a game, with a clear target audience in mind. They create a working prototype, and then develop it further to add functionality and improve the user interface. They test their game and make any necessary changes*. | **Unit 5.1 - We are game developers**  *The pupils plan their own simple computer game. They design characters and backgrounds, and create a working prototype, which they develop further based on feedback they receive.* | **6.1 We are app planners**  *The pupils learn about the capabilities of websites, think of a subject that a website could inform about or engage somebody with, and then pitch the idea for their website.* |
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| Autumn 2 | **Unit 1.2 We are TV chefs**  *Pupils produce short videos of themselves making a healthy meal or snack. They also decompose a complex problem into smaller parts – an important idea from computer science.* | **Unit 2.2 We are games’ testers**  *Pupils will try to work out how some simple Scratch games work. They also look at free online or open source games and share their favourite games with the class.* | **Unit 3.2 We are bug fixers**  *The children work with six example Scratch projects. They explain how the scripts work, finding and correcting errors in them, and explore creative ways of improving them. The children learn to recognise some common types of programming error, and practise solving problems through logical thinking.* | **Unit 4.2 We are toy designers**  *The children work together to design a simple toy that incorporates sensors and outputs and then create an on-screen prototype of their toy in Scratch. Finally, they pitch their toy idea to a Dragons’ Den-style panel.* | **Unit 5.2 We are cryptographers**  *The pupils learn more about communicating information securely through an introduction to cryptography (the science of keeping communication and information secret). They investigate early methods of communicating over distances, learn about two early ciphers, and consider what makes a secure password.* | **Unit 6.2 - We are project managers**  *Pupils work collaboratively to develop a website. Pupils apply computational thinking to the task of managing a complex project.* |
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| Spring 1 | **Unit 1.3 We are painters**  *This unit allows children to create digital illustrations for familiar stories and understand the difference between a print and a digital picture.* | **Unit 2.3 We are photographers**  *The children review photos online, practise using a digital camera, take photos to fit a given theme, edit their photos, and then select their best*  *images to include in a shared portfolio.* | **Unit 3.3 We are presenters**  *This unit gives children a chance to make a short, narrated video of themselves practising a sport or other skill, and to use this to help improve their performance.* | **Unit 4.3 We are musicians**  *The children produce music suitable for any purpose they choose, such as music inspired by the sounds of the Rainforest.* | **Unit 5.3 We are artists**  *The pupils use vector and turtle graphics to explore geometric art, taking inspiration from the work of Escher, Riley and traditional Islamic artists, as well as experimenting with complex ‘fractal’ landscapes.* | **Unit 6.4 We are interface designers**  *The children will start to design the look/feel of their website’s main interface. They begin by sketching ideas, planning the different screen layouts for the pages and developing these using a site mapping tool.* |
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| Spring 2 | **Unit 1.4 We are collectors**  *The pupils will use web search engines to collect pictures of different types of animals and then explore ways in which those pictures can be organised.* | **Unit 2.4 We are researchers**  *The children research a topic – safely, effectively and efficiently – using a structured approach (mind mapping). They share their findings with others through a short multimedia presentation.* | **Unit 3.4 We are network engineers**  *The pupils investigate how computer networks work. They use a simulation and learn some simple command prompt (C:) tools for testing*  *network connections.* | **Unit 4.4 We are html editors**  *The children 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.* | **Unit 5.4 We are web developers**  *The pupils work together to create a website explaining e-safety and responsible online behaviour.* | **Unit 6.3 We are market researchers**  *The pupils conduct research into the potential market for their website, using an online survey together with interviews or focus groups. They analyse the data and information they obtain and create a presentation summarising their findings*. |
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| Summer 1 | **Unit 1.5 We are storytellers**  *In this unit, the children create a talking book that they can share with others*. | **Unit 2.5 We are detectives**  *In this unit, the children are challenged to solve a mystery by reading, sending and replying to emails, and by listening to a witness statement. They use a fact file sheet to create a table and identify the culprit.* | **Unit 3.5 We are communicators**  *This unit allows the children to learn about a number of e-safety matters in a positive way. They will work with a partner in another class, learning how to use email and video conferencing safely.* | **Unit 4.5 We are co-authors**  *In this unit, the pupils collaborate to create a ‘mini Wikipedia’. They then go on to add or amend content on the real Wikipedia.* | **Unit 5.5 We are bloggers**  *In this unit, pupils create a media-rich*  *blog, comment on blogs and respond to comments.* | **Unit 6.5 We are mobile app developers**  *In this unit, the pupils draw on their work from the previous Year 6 units to create a working app. They write down their algorithms and use a programming toolkit to code them.* |
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| Summer 2 | **Unit 1.6 We are celebrating**  *In this unit, pupils will have the opportunity to create a digital greetings card, which could be used for a religious festival such as Diwali or Christmas, pupils’ birthdays, or simply to say thank you or good luck.* | **Unit 2.6 We are zoologists**  *In this unit, the children go on a bug hunt, recording and identifying the small animals they find. They then organise the data they have collected, record it using a graphing package, and interpret the graph to answer questions about the animals.* | **Unit 3.6 We are opinion pollsters**  *In this unit, the children create their own opinion poll, seek responses, and then analyse the results.* | **Unit 4.6 We are meteorologists**  *This unit brings together data measurement, analysis and presentation, as the children take on the role of meteorologists and weather presenters.* | **Unit 5.6 We are architects**  *In this unit, the pupils research examples of art gallery architecture, before using Trimble SketchUp to create their own virtual gallery. Finally, they use the gallery to exhibit their own artwork.* | **Unit 6.6 We are marketers**  *The pupils work collaboratively to produce marketing materials for the app they have been developing in the Year 6 units. They create a poster or flyer and shoot a short video.* |
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|  | | | | **Castle Academy – Computing Curriculum** | | | | | | | | | | | | | |  |
| **Year 1** | | | | | | | Aut | | Spr | | | Sum | | Key Vertical Computing Links | | Horizontal/Diagonal Links | | |
| 1 | 2 | 1 | 2 | | 1 | 2 |
|  | **Programming and Computational Thinking** | **We are treasure hunters** | Understand that a programmable toy can be controlled by inputting a sequence of instruction | | | |  |  |  |  | |  |  | **EYFS Technology**  Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes. | | **Year 1 English Autumn 1**  **Narrative**  Traditional tales with predictable phrasing – oral and written sentences | | |
| Develop and record sequences of instructions as an algorithm | | | |  |  |  |  | |  |  |
|  | Program the toy to follow their algorithm | | | |  |  |  |  | |  |  |
| Debug their programs | | | |  |  |  |  | |  |  |
| Predict how their programs will work | | | |  |  |  |  | |  |  |
|  | **We are TV chefs** | Break down a process into simple, clear steps, as in an algorithm | | | |  |  |  |  | |  |  | **Year 1 Autumn 1**  Understand that a programmable toy can be controlled by inputting a sequence of instruction. Develop and record sequences of instructions as an algorithm. Program the toy to follow their algorithm. Debug their programs. Predict how their programs will work. | | **Year 1 English Autumn 2**  **Poetry**  Playground rhymes and songs – performance of poems learned by heart | | |
|  | Use different features of a video camera | | | |  |  |  |  | |  |  |
| Use a video camera to capture moving images develop collaboration skills | | | |  |  |  |  | |  |  |
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| Discuss their work and think about how it could be improved | | | |  |  |  |  | |  |  |
|  | **Creativity** | **We are painters** | Use the web safely to find ideas for an illustration | | | |  |  |  |  | |  |  | **EYFS Technology**  Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.  **EYFS Exploring and using media and materials**  Children sing songs, make music and dance, and experiment with ways of changing them. They safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.  **EYFS Being imaginative**  Children use what they have learnt about media and materials in original ways, thinking about uses and purposes. They represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories.  **EYFS Moving and Handling**  Children show good control and coordination in large and small movements. They move confidently in a range of ways, safely negotiating space. They handle equipment and tools effectively, including pencils for writing.  **EYFS Understanding**  Children follow instructions involving several ideas or actions. They answer ‘how’ and ‘why’ questions about their experiences and in response to stories or events. | | **Year 1 English Spring 1**  **Narrative**  Classic stories which reflect childhood experiences – illustrated sentences, retelling the events of a story  **Non-Fiction**  Description/report of personal experience – journal/diary | | |
| Select and use appropriate painting tools to create and change images on the computer | | | |  |  |  |  | |  |  |
|  | Understand how this use of ICT differs from using paint and paper | | | |  |  |  |  | |  |  |
| Create an illustration for a particular purpose | | | |  |  |  |  | |  |  |
|  | Know how to save, retrieve and change their work | | | |  |  |  |  | |  |  |
| Reflect on their work and act on feedback received | | | |  |  |  |  | |  |  |
|  | **Computer Networks** | **We are collectors** | Find and use pictures on the web | | | |  |  |  |  | |  |  |  | | |
| Know what to do if they encounter pictures that cause concern | | | |  |  |  |  | |  |  |
|  | Group images on the basis of a binary 1 (yes/no) question | | | |  |  |  |  | |  |  |
| Organise images into more than two groups according to clear rules | | | |  |  |  |  | |  |  |
|  | Sort (order) images according to some criteria | | | |  |  |  |  | |  |  |
| Ask and answer binary (yes/no) questions about their images | | | |  |  |  |  | |  |  |
|  | **Communication / Collaboration** | **We are storytellers** | Use sound recording equipment to record sounds | | | |  |  |  |  | |  |  | **Year 1 English Summer 1 Narrative**  Contemporary Animal Stories – a short story which innovates on one that’s been read  **Poetry**  Animal Poems – rhyming couplets about animals | | |
| Develop skills in saving and storing sounds on the computer | | | |  |  |  |  | |  |  |
|  | Develop collaboration skills as they work together in a group | | | |  |  |  |  | |  |  |
| Understand how a talking book differs from a paper-based book | | | |  |  |  |  | |  |  |
|  | Talk about and reflect on their use of ICT | | | |  |  |  |  | |  |  |
| Share recordings with an audience | | | |  |  |  |  | |  |  |
|  | **Productivity** | **We are celebrating** | Develop basic keyboard skills, through typing and formatting text | | | |  |  |  |  | |  |  | **Year 1 Spring 1**  Use the web safely to find ideas for an illustration. Select and use appropriate painting tools to create and change images on the computer.  Understand how this use of ICT differs from using paint and paper. Create an illustration for a particular purpose  Know how to save, retrieve and change their work. Reflect on their work and act on feedback received. | | **Year 1 English Summer** **2**  **Narrative**  Stories with royal characters – an original short story  **Non-Fiction**  Information both real and imagined (royalty) – character profile | | |
| Develop basic mouse skills | | | |  |  |  |  | |  |  |
| Use the web to find and select images | | | |  |  |  |  | |  |  |
|  | Develop skills in storing and retrieving files | | | |  |  |  |  | |  |  |
| Develop skills in combining text and images | | | |  |  |  |  | |  |  |
| Discuss their work and think about whether it could be improved | | | |  |  |  |  | |  |  |
| *Data Handling* | | | | | *E-Safety* | *Multimedia* | | | | | *Programming* | | | | *Technology in our lives* | | *ICT Skills* | |

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|  | | | | **Castle Academy – Computing Curriculum** | | | | | | | | | | | | | |  |
| **Year 2** | | | | | | | Aut | | Spr | | | Sum | | Key Vertical Computing Links | | Horizontal/Diagonal Links | | |
| 1 | 2 | 1 | 2 | | 1 | 2 |
|  | **Programming and Computational Thinking** | **We are astronauts** | Have a clear understanding of algorithms as sequences of instructions | | | |  |  |  |  | |  |  | **Year 1 Autumn 1**  Understand that a programmable toy can be controlled by inputting a sequence of instructions. Develop and record sequences of instructions as an algorithm. Program the toy to follow their algorithm. Debug their programs. Predict how their programs will work. | |  | | |
| Convert simple algorithms to programs | | | |  |  |  |  | |  |  |
|  | Predict what a simple program will do | | | |  |  |  |  | |  |  |
| Spot and fix (debug) errors in their programs | | | |  |  |  |  | |  |  |
|  | **We are games’ testers** | Describe carefully what happens in computer games | | | |  |  |  |  | |  |  | **Year 2 Autumn 1**  **Year 1 Autumn 1**  Understand that a programmable toy can be controlled by inputting a sequence of instructions. Develop and record sequences of instructions as an algorithm. Program the toy to follow their algorithm. Debug their programs. Predict how their programs will work. | |  | | |
| Use logical reasoning to make predictions of what a program will do | | | |  |  |  |  | |  |  |
|  |
| Test these predictions | | | |  |  |  |  | |  |  |
|  | Think critically about computer games and their use | | | |  |  |  |  | |  |  |
| Be aware of how to use games safely and in balance with other activities | | | |  |  |  |  | |  |  |
|  | **Creativity** | **We are photographers** | Consider the technical and artistic merits of photographs | | | |  |  |  |  | |  |  | **Year 1 Spring 1**  Use the web safely to find ideas for an illustration. Select and use appropriate painting tools to create and change images on the computer. Understand how this use of ICT differs from using paint and paper. Create an illustration for a particular purpose. Know how to save, retrieve and change their work. Reflect on their work and act on feedback received. | | **Year 2 English Spring 1**  **Narrative**  Picture books – illustrated story  **Poetry**  Non-fiction  Journals (seed growth) – plant growth diary/journal | | |
| Use a digital camera or camera app | | | |  |  |  |  | |  |  |
|  | Take digital photographs | | | |  |  |  |  | |  |  |
| Review and reject or pick the images they take | | | |  |  |  |  | |  |  |
|  | Edit and enhance their photographs | | | |  |  |  |  | |  |  |
| Select their best images to include in a shared portfolio | | | |  |  |  |  | |  |  |
|  | **Computer Networks** | **We are researchers** | Develop collaboration skills through working as part of a group | | | |  |  |  |  | |  |  | **Year 1 Spring 2**  Find and use pictures on the web. Know what to do if they encounter pictures that cause concern. Group images on the basis of a binary 1(yes/no) question. Organise images into more than two groups according to clear rules. Sort (order) images according to some criteria. Ask and answer binary (yes/no) questions about their images. | | **Year 2 English Spring 2**  **Non-Fiction**  Instructions (safety in the home) - Safety information booklet | | |
| Develop research skills through searching for information on the internet | | | |  |  |  |  | |  |  |
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| Improve note-taking skills through the use of mind mapping | | | |  |  |  |  | |  |  |
|  | Develop presentation skills through creating and delivering a short multimedia presentation | | | |  |  |  |  | |  |  |
|  | **Communication / Collaboration** | **We are detectives** | Understand that email can be used to communicate | | | |  |  |  |  | |  |  | **Year 1 Summer 1**  Use sound recording equipment to record sounds. Develop skills in saving and storing sounds on the computer. Develop collaboration skills as they work together in a group. Understand how a talking book differs from a paper-based book. Talk about and reflect on their use of ICT. Share recordings with an audience. | |  | | |
| Develop skills in opening, composing and sending emails | | | |  |  |  |  | |  |  |
|  | Gain skills in opening and listening to audio files on the computer | | | |  |  |  |  | |  |  |
| Use appropriate language in emails | | | |  |  |  |  | |  |  |
|  | Develop skills in editing and formatting text in emails | | | |  |  |  |  | |  |  |
| Be aware of e-safety issues when using email | | | |  |  |  |  | |  |  |
|  | **Productivity** | **We are zoologists** | Sort and classify a group of items by answering questions | | | |  |  |  |  | |  |  | **Year 1 Spring 2**  Find and use pictures on the web. Know what to do if they encounter pictures that cause concern. Group images on the basis of a binary 1(yes/no) question. Organise images into more than two groups according to clear rules. Sort (order) images according to some criteria. Ask and answer binary (yes/no) questions about their images. | | **Year 2 Maths Autumn 2**  Interpret and construct simple pictograms, tally charts, block diagrams and tables  Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity. Ask-and-answer questions about totalling and comparing categorical data | | |
| Collect data using tick charts or tally charts | | | |  |  |  |  | |  |  |
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| Use simple charting software to produce pictograms and other basic charts | | | |  |  |  |  | |  |  |
| Take, edit and enhance photographs | | | |  |  |  |  | |  |  |
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| Record information on a digital map | | | |  |  |  |  | |  |  |
| *Data Handling* | | | | | *E-Safety* | *Multimedia* | | | | | *Programming* | | | | *Technology in our lives* | | *ICT Skills* | |

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|  | | | | **Castle Academy – Computing Curriculum** | | | | | | | | | | | | | |  | |
| **Year 3** | | | | | | | Aut | | Spr | | | Sum | | Key Vertical Computing Links | | Horizontal/Diagonal Links | | |
| 1 | 2 | 1 | 2 | | 1 | 2 |
|  | **Programming and Computational Thinking** | **We are programmers** | Create an algorithm for an animated scene in the form of a storyboard | | | |  |  |  |  | |  |  | **Year 2 Autumn 1**  Have a clear understanding of algorithms as sequences of instructions. Convert simple algorithms to programs. Spot and fix (debug) errors in their programs.  **Year 2 Autumn 2**  Use logical reasoning to make predictions of what a program will do. Think critically about computer games and their use. | |  | | |
| Write a program in Scratch to create the animation | | | |  |  |  |  | |  |  |
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| Correct mistakes in their animation programs | | | |  |  |  |  | |  |  |
|  | **We are bug fixers** | Develop a number of strategies for finding errors in programs | | | |  |  |  |  | |  |  | **Year 3 Autumn 1**  Write a program in Scratch to create the animation. Correct mistakes in their animation programs.  **Year 2 Autumn 2**  Describe carefully what happens in computer games. Use logical reasoning to make predictions of what a program will do.  Test these predictions. Think critically about computer games and their use. Be aware of how to use games safely and in balance with other activities. | |  | | |
| Build up resilience and strategies for problem solving | | | |  |  |  |  | |  |  |
|  | Increase their knowledge and understanding of Scratch | | | |  |  |  |  | |  |  |
| Recognise a number of common types of bug in software | | | |  |  |  |  | |  |  |
|  | **Creativity** | **We are presenters** | Gain skills in shooting live video, such as framing shots, holding the camera steady, and reviewing | | | |  |  |  |  | |  |  | **Year 2 Spring 1**  Consider the technical and artistic merits of photographs. Use a digital camera or camera app. Take digital photographs  Review and reject or pick the images they take. Edit and enhance their photographs  Select their best images to include in a shared portfolio. | | **Year 3 English Spring 1**  **Narrative**  Imagined recounts – diary  **Non-fiction**  Eyewitness accounts (including video and audio recordings) - imagined eye-witness account of a real event | | |
|  | Edit video, including adding narration and editing clips by setting in/out points | | | |  |  |  |  | |  |  |
|  | Understand the qualities of effective video, such as the importance of narrative, consistency, perspective and scene length | | | |  |  |  |  | |  |  |
|  | **Computer Networks** | **We are network engineers engineers** | Understand the physical hardware connections necessary for computer networks to work | | | |  |  |  |  | |  |  | *First encounter.* | |  | | |
| Understand some features of internet protocols | | | |  |  |  |  | |  |  |
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| Understand some diagnostic tools for investigating network connections | | | |  |  |  |  | |  |  |
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| Develop a basic understanding of how domain names are converted to IP addresses | | | |  |  |  |  | |  |  |
|  | **Communication / Collaboration** | **We are communicators** | Develop a basic understanding of how email works | | | |  |  |  |  | |  |  | **Year 3 Spring 2**  Understand the physical hardware connections necessary for computer networks to work.  Understand some features of internet protocols.  Develop a basic understanding of how domain names are converted to IP addresses.  **Year 2 Summer 1**  Understand that email can be used to communicate. Develop skills in opening, composing and sending emails. Use appropriate language in emails. Develop skills in editing and formatting text in emails. Be aware of e-safety issues when using email | | **Year 3 PSHE Spring 2**  I can identify when something feels safe or unsafe.  **Year 3 PSHE Summer 1**  I know and can use some strategies for keeping myself safe online.  **Year 3 English Summer 1**  **Non-fiction**  Instructions (Egyptians) | | |
| Be able to use email to send a message | | | |  |  |  |  | |  |  |
|  |
| Be aware of broader issues surrounding email, including ‘netiquette’ and e-safety | | | |  |  |  |  | |  |  |
|  | Work collaboratively with a remote partner | | | |  |  |  |  | |  |  |
| Experience video conferencing | | | |  |  |  |  | |  |  |
|  | **Productivity** | **We are opinion pollsters** | Understand some elements of survey design | | | |  |  |  |  | |  |  | **Year 2 Summer 2**  Sort and classify a group of items by answering questions. Collect data using tick charts or tally charts. Use simple charting software to produce pictograms and other basic charts.  **Year 1 Spring 2**  Group images on the basis of a binary 1 (yes/no) question. Organise images into more than two groups according to clear rules. Sort (order) images according to some criteria  Ask and answer binary (yes/no) questions about their images. | | **Year 3 Maths Summer 1**  Interpret and present data using bar charts, pictograms and tables  Solve one-step and two-step questions [for example ‘How many more?’ and ‘How many fewer?’] using information presented in scaled bar charts and pictograms and tables  **Year 3 English Summer 2**  **Non-Fiction**  Persuasive Language | | |
|  | Understand some ethical and legal aspects of online data collection | | | |  |  |  |  | |  |  |
|  | Use the web to facilitate data collection | | | |  |  |  |  | |  |  |
| Use charts to analyse data | | | |  |  |  |  | |  |  |
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| Interpret results represented in a chart or table | | | |  |  |  |  | |  |  |
| *Data Handling* | | | | | *E-Safety* | *Multimedia* | | | | | *Programming* | | | | *Technology in our lives* | | *ICT Skills* | | |

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|  | | | | **Castle Academy – Computing Curriculum** | | | | | | | | | | | | | |  |
| **Year 4** | | | | | | | Aut | | Spr | | | Sum | | Key Vertical Computing Links | | Horizontal/Diagonal Links | | |
| 1 | 2 | 1 | 2 | | 1 | 2 |
|  | **Programming and Computational Thinking** | **We are software developers** | Develop an educational computer game using selection and repetition | | | |  |  |  |  | |  |  | **Year 3 Autumn 2**  Develop a number of strategies for finding errors in programs. Build up resilience and strategies for problem solving. Increase their knowledge and understanding of Scratch. Recognise a number of common types of bug in software.  **Year 3 Autumn 1**  Create an algorithm for an animated scene in the form of a storyboard. Write a program in Scratch to create the animation. Correct mistakes in their animation programs | | **Year 4 Maths Autumn 1**  Estimate and use inverse operations to check answers to a calculation | | |
| Understand and use variables | | | |  |  |  |  | |  |  |
|  |
| Start to debug computer programs  recognise the importance of user interface design, including consideration of input and output | | | |  |  |  |  | |  |  |
|  | **We are toy designers** | Design and make an on-screen prototype of a computer-controlled toy | | | |  |  |  |  | |  |  | **Year 3 Autumn 2**  Develop a number of strategies for finding errors in programs. Build up resilience and strategies for problem solving. Increase their knowledge and understanding of Scratch. Recognise a number of common types of bug in software. | |  | | |
|  | Understand different forms of input and output (such as sensors, switches, motors, lights and speakers | | | |  |  |  |  | |  |  |
|  | Design, write and debug the control and monitoring program for their toy | | | |  |  |  |  | |  |  |
|  | **Creativity** | **We are musicians** | Use one or more programs to edit music | | | |  |  |  |  | |  |  | *First encounter.* | | **Year 4 Music Spring 1**  Benjamin Britten’s music and cover versions | | |
|  | Create and develop a musical composition, refining their ideas through reflection and discussion | | | |  |  |  |  | |  |  |
|  | Develop collaboration skills  develop an awareness of how their composition can enhance work in other media | | | |  |  |  |  | |  |  |
|  | **Computer Networks** | **We are html editors** | Understand some technical aspects of how the internet makes the web possible | | | |  |  |  |  | |  |  | **Year 3 Spring 2**  Understand the physical hardware connections necessary for computer networks to work. Understand some features of internet protocols. Understand some diagnostic tools for investigating network connections.  Develop a basic understanding of how domain names are converted to IP addresses. | | **Year 4 English Spring 1 &2**  **Non-Fiction**  Advertising campaigns (environmental issues) – posters, leaflets and radio/tv adverts | | |
| Use HTML tags for elementary mark up | | | |  |  |  |  | |  |  |
|  |
| Use hyperlinks to connect ideas and sources | | | |  |  |  |  | |  |  |
|  | Code up a simple web page with useful content | | | |  |  |  |  | |  |  |
| Understand some of the risks in using the web | | | |  |  |  |  | |  |  |
|  | **Communication / Collaboration** | **We are co-authors** | Understand the conventions for collaborative online work, particularly in wikis | | | |  |  |  |  | |  |  | **Year 3 Summer 1**  Develop a basic understanding of how email works. Be able to use email to send a message. Be aware of broader issues surrounding email, including ‘netiquette’ and e-safety. Work collaboratively with a remote partner  Experience video conferencing.  **Year 3 Spring 2**  Understand some features of internet protocols. Develop a basic understanding of how domain names are converted to IP addresses. | | **Year 4 English Summer 1**  **Narrative**  Biography (real or imagined) – magazine article (Class magazine)  **Non-Fiction**  ‘How to’ guides (inventions) – guidebook/webpage | | |
| Be aware of their responsibilities when editing other people’s work | | | |  |  |  |  | |  |  |
|  | Become familiar with Wikipedia, including potential problems associated with its use | | | |  |  |  |  | |  |  |
| Practise research skills | | | |  |  |  |  | |  |  |
|  | Write for a target audience using a wiki tool | | | |  |  |  |  | |  |  |
| Develop collaboration skills | | | |  |  |  |  | |  |  |
|  | **Productivity** | **We are meteorologists** | Understand different measurement techniques for weather, both analogue and digital | | | |  |  |  |  | |  |  | **Year 3 Summer 2**  Understand some elements of survey design. Understand some ethical and legal aspects of online data collection. Use the web to facilitate data collection. Use charts to analyse data.  Interpret results represented in a chart or table  **Year 2 Summer 2**  Use simple charting software to produce pictograms and other basic charts. Take, edit and enhance photographs. Record information on a digital map | | **Year 3 Maths Summer 1**  Interpret and present data using bar charts, pictograms and tables  **Year 4 Maths Spring 1**  Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs | | |
|  | Use computer-based data logging to automate the recording of some weather data | | | |  |  |  |  | |  |  |
| Use spreadsheets to create charts | | | |  |  |  |  | |  |  |
|  |
| Analyse data, explore inconsistencies in data and make predictions | | | |  |  |  |  | |  |  |
|  |
| Practise using presentation software and, optionally, video | | | |  |  |  |  | |  |  |
| *Data Handling* | | | | | *E-Safety* | *Multimedia* | | | | | *Programming* | | | | *Technology in our lives* | | *ICT Skills* | |

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|  | | | | **Castle Academy – Computing Curriculum** | | | | | | | | | | | | | |  |
| **Year 5** | | | | | | | Aut | | Spr | | | Sum | | Key Vertical Computing Links | | Horizontal/Diagonal Links | | |
| 1 | 2 | 1 | 2 | | 1 | 2 |
|  | **Programming and Computational Thinking** | **We are game developers** | Create original artwork and sound for a game | | | |  |  |  |  | |  |  | **Year 4 Autumn 2**  Design and make an on-screen prototype of a computer-controlled toy. Design, write and debug the control and monitoring program for their toy.  **Year 4 Autumn 1**  Develop an educational computer game using selection and repetition  Understand and use variables. Recognise the importance of user interface design, including consideration of input and output. | |  | | |
| Design and create a computer program for a computer game, which uses sequence, selection, repetition and variables | | | |  |  |  |  | |  |  |
|  | Detect and correct errors in their computer game | | | |  |  |  |  | |  |  |
| Use iterative development techniques (making and testing a series of small changes) to improve their game. | | | |  |  |  |  | |  |  |
|  | **We are cryptographers** | Be familiar with semaphore and Morse code | | | |  |  |  |  | |  |  | **Year 4 Spring 2**  Understand some technical aspects of how the internet makes the web possible  Use HTML tags for elementary mark up. Use hyperlinks to connect ideas and sources. Code up a simple web page with useful content. Understand some of the risks in using the web. | |  | | |
| Understand the need for private information to be encrypted | | | |  |  |  |  | |  |  |
|  | Encrypt and decrypt messages in simple ciphers | | | |  |  |  |  | |  |  |
| Appreciate the need to use complex passwords and to keep them secure | | | |  |  |  |  | |  |  |
|  |
| Have some understanding of how encryption works on the web | | | |  |  |  |  | |  |  |
|  | **Creativity** | **We are artists** | Develop an appreciation of the links between geometry and art | | | |  |  |  |  | |  |  | **Year 1 Spring 1**  Use the web safely to find ideas for an illustration. Select and use appropriate painting tools to create and change images on the computer. Understand how this use of ICT differs from using paint and paper. Create an illustration for a particular purpose. Know how to save, retrieve and change their work. Reflect on their work and act on feedback received. | | **Year 5 Art Spring 1/2**  Aztecs *(more info to follow)*  **Year 5 Maths Autumn 2**  Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles.  Identify: angles at a point and 1 whole turn (total 360°), angles at a point on a straight line and half a turn (total 180°), other multiples of 90° | | |
| Become familiar with the tools and techniques of a vector graphics package | | | |  |  |  |  | |  |  |
|  | Develop an understanding of turtle graphics | | | |  |  |  |  | |  |  |
| Experiment with the tools available, refining and developing their work as they apply their own criteria to evaluate it and receive feedback from their peers | | | |  |  |  |  | |  |  |
|  |
| Develop some awareness of computer-generated art, in particular fractal-based landscapes | | | |  |  |  |  | |  |  |
|  | **Computer Networks** | **We are web developers** | Develop their research skills to decide what information is appropriate | | | |  |  |  |  | |  |  | **Year 4 Spring 2**  Understand some technical aspects of how the internet makes the web possible.  Use HTML tags for elementary mark up.  Use hyperlinks to connect ideas and sources. Code up a simple web page with useful content. Understand some of the risks in using the web. | | **Year 4 PSHE Spring 2**  I can recognise when people are putting me under pressure and can explain ways to resist this. | | |
| Understand some elements of how search engines select and rank results | | | |  |  |  |  | |  |  |
|  | Question the plausibility and quality of information | | | |  |  |  |  | |  |  |
| Develop and refine their ideas and text collaboratively | | | |  |  |  |  | |  |  |
|  |
| Develop their understanding of e-safety and responsible use of technology | | | |  |  |  |  | |  |  |
|  | **Communication / Collaboration** | **We are bloggers** | Become familiar with blogs as a medium and a genre of writing | | | |  |  |  |  | |  |  | **Year 4 Summer 1**  Understand the conventions for collaborative online work, particularly in wikis. Be aware of their responsibilities when editing other people’s work. Become familiar with Wikipedia, including potential problems associated with its use. Practise research skills. Write for a target audience using a wiki tool. Develop collaboration skills | | **Year 5 English Autumn 1**  **Narrative**  Sci-fi – short story or play  **Non-fiction**  Newspaper reports (historical events/space race) - newspaper | | |
|  | Create a sequence of blog posts on a theme | | | |  |  |  |  | |  |  |
|  | Incorporate additional media | | | |  |  |  |  | |  |  |
|  | Comment on the posts of others  develop a critical, reflective view of a range of media, including text | | | |  |  |  |  | |  |  |
|  | **Productivity** | **We are architects** | Understand the work of architects, designers and engineers working in 3D | | | |  |  |  |  | |  |  | **Year 5 Spring 1**  Develop an appreciation of the links between geometry and art. Become familiar with the tools and techniques of a vector graphics package. Develop an understanding of turtle graphics. Experiment with the tools available, refining and developing their work as they apply their own criteria to evaluate it and receive feedback from their peers. Develop some awareness of computer-generated art, in particular fractal-based landscapes. | | **Year 5 Summer 1**  Identify 3D shapes, including cubes and other cuboids, from 2D representations.  Distinguish between regular and irregular polygons based on reasoning about equal sides and angles. | | |
| Develop familiarity with a simple CAD (computer aided design) tool | | | |  |  |  |  | |  |  |
|  |
| Develop spatial awareness by exploring and experimenting with a 3D virtual environment | | | |  |  |  |  | |  |  |
|  |
| Develop greater aesthetic awareness | | | |  |  |  |  | |  |  |
| *Data Handling* | | | | | *E-Safety* | *Multimedia* | | | | | *Programming* | | | | *Technology in our lives* | | *ICT Skills* | |

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|  | | | | **Castle Academy – Computing Curriculum** | | | | | | | | | | | | | |  |
| **Year 6** | | | | | | | Aut | | Spr | | | Sum | | Key Vertical Computing Links | | Horizontal/Diagonal Links | | |
| 1 | 2 | 1 | 2 | | 1 | 2 |
|  | **Programming and Computational Thinking** | **We are app planners** | Develop an awareness of the purposes of different types of websites | | | |  |  |  |  | |  |  | **Year 5 Autumn 2**  Be familiar with semaphore and Morse code. Understand the need for private information to be encrypted  Encrypt and decrypt messages in simple ciphers. Appreciate the need to use complex passwords and to keep them secure. Have some understanding of how encryption works on the web | |  | | |
| Understand geolocation, including GPS | | | |  |  |  |  | |  |  |
| Identify interesting, engaging content | | | |  |  |  |  | |  |  |
|  |
| Evaluate competing products | | | |  |  |  |  | |  |  |
| Pitch a proposal for a new website | | | |  |  |  |  | |  |  |
|  | **We are project managers** | Scope a project to identify different components that must be successfully combined | | | |  |  |  |  | |  |  | **Year 6 Autumn 1**  Develop an awareness of the purposes of different types of websites. Understand geolocation, including GPS. Identify interesting, engaging content. Evaluate competing products. Pitch a proposal for a new website. | |  | | |
| Identify their existing talents and plan how they can develop further knowledge and skills | | | |  |  |  |  | |  |  |
| Identify the component tasks of a project and develop a timeline to track progress | | | |  |  |  |  | |  |  |
|  |
| Identify the resources they’ll need to accomplish a project | | | |  |  |  |  | |  |  |
|  | Use web-based research skills to source tools, content and other resources | | | |  |  |  |  | |  |  |
| Consider strategies to ensure the quality of a collaborative project | | | |  |  |  |  | |  |  |
|  | **Creativity** | **We are interface designers** | Work collaboratively to design the website’s interface | | | |  |  |  |  | |  |  | **Year 4 Summer 2**  Understand different measurement techniques for weather, both analogue and digital. Use computer-based data logging to automate the recording of some weather data. Use spreadsheets to create charts. Analyse data, explore inconsistencies in data and make predictions. Practise using presentation software and, optionally, video. | | **Year 5 English Spring 1**  **Narrative**  Biography – biography (anthology) | | |
| Use site mapping tools to create a design prototype of their website | | | |  |  |  |  | |  |  |
|  |
| Develop or source the individual interface components (media assets) they will use | | | |  |  |  |  | |  |  |
|  | Address accessibility and inclusion issues | | | |  |  |  |  | |  |  |
| Document their design decisions and the process they’ve followed | | | |  |  |  |  | |  |  |
|  | **Computer Networks** | **We are market researchers** | Create a set of good survey questions | | | |  |  |  |  | |  |  | **Year 5 Summer 2**  Understand the work of architects, designers and engineers working in 3D. Develop familiarity with a simple CAD (computer aided design) tool.  Develop spatial awareness by exploring and experimenting with a 3D virtual environment. Develop greater aesthetic awareness. | | **Year 5 Maths Spring 2**  Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs  **Year 5 English Spring 2**  **Non-fiction**  Speeches – a speech | | |
| Analyse the data obtained from a survey | | | |  |  |  |  | |  |  |
|  | Work collaboratively to plan questions | | | |  |  |  |  | |  |  |
| Conduct an interview or focus group | | | |  |  |  |  | |  |  |
| Analyse and interpret the information obtained from interviews or a focus group | | | |  |  |  |  | |  |  |
|  |
| Present their research findings | | | |  |  |  |  | |  |  |
|  | **Communication / Collaboration** | **We are mobile app developers** | Become familiar with another programming toolkit or development platform | | | |  |  |  |  | |  |  | **Year 6 Spring 2**  Create a set of good survey questions. Analyse the data obtained from a survey. Work collaboratively to plan questions. Conduct an interview or focus group. Analyse and interpret the information obtained from interviews or a focus group.  Present their research findings. | | **Year 6 Maths Autumn 2**  Use simple formulae. Express missing number problems algebraically  **Year 6 Maths Spring 1**  Enumerate possibilities of combinations of 2 variables. Find pairs of numbers that satisfy an equation with 2 unknowns. | | |
| Import existing media assets to their project | | | |  |  |  |  | |  |  |
|  |
| Write down the algorithms for their app | | | |  |  |  |  | |  |  |
|  | Program, debug and refine the code for their website | | | |  |  |  |  | |  |  |
| Thoroughly test and evaluate their website | | | |  |  |  |  | |  |  |
|  | **Productivity** | **We are marketers** | Consider key marketing messages, including identifying a unique selling point | | | |  |  |  |  | |  |  | **Year 6 Spring 2**  Create a set of good survey questions  Analyse the data obtained from a survey. Work collaboratively to plan questions. Conduct an interview or focus group. Analyse and interpret the information obtained from interviews or a focus group. Present their research findings. | | **Year 6 English Summer 2**  **Non-Fiction**  Memoirs – Chapter Book | | |
|  | Develop a printed flyer or brochure incorporating text and images | | | |  |  |  |  | |  |  |
|  | Further develop knowledge, skills and understanding in relation to creating a website | | | |  |  |  |  | |  |  |
|  | Further develop skills relating to shooting and editing video | | | |  |  |  |  | |  |  |
| *Data Handling* | | | | | *E-Safety* | *Multimedia* | | | | | *Programming* | | | | *Technology in our lives* | | *ICT Skills* | |