Computing at Wisborough Green Primary School (1 year cycle)

<table>
<tr><th colspan="4">EYFS</th></tr>
<tr><td colspan="4">There are no specific Early Learning Goals that directly relate to National Curriculum computing objectives. However, there are from the 2020 Development Matters that develop the prerequisite skills for computing within the national curriculum.

During their first year in school the children will be introduced to appropriate technology and use it within their provision. For example; using an iPad to play games or create music & art work, programming Beebots or other roamers and role play with a range of real everyday technology (mobile phones, computer keyboards, laptops etc).
They will also have discussions about keeping safe online, being positive digital citizens and digital wellbeing.</td></tr>
<tr><th>Personal, Social and Emotional Development</th><th>Physical Development</th><th>Understanding the World</th><th>Expressive Arts and Design</th></tr>
<tr><td>Reception:
Show resilience and perseverance in the face of a challenge.
Know and talk about the different factors that support their overall health and wellbeing: (sensible amounts of ‘screen time)
ELG:
Be confident to try new activities and show independence, resilience and perseverance in the face of challenge.
Explain the reasons for rules, know right from wrong and try to behave accordingly.</td><td>3-4 Years old:
Match their developing physical skills to tasks and activities in the setting.

Reception:
Develop their small motor skills so that they can use a range of tools competently, safely and confidently.</td><td>3 -4 Years old:
Explore how things work.</td><td>Reception:
Explore, use and refine a variety of artistic effects to express their ideas and feelings.

ELG:
Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</td></tr>
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Year 1		
Autumn	Spring	Summer
Computing Systems and Networks Technology Around Us: Recognising technology in school and using it responsibly - Explain how technology examples help us - Locate technology in the classroom - Name parts of a computer - Understand how to switch on and log on to a computer - Understand how to use a mouse to click and drag objects on a screen; create a picture; open a program; and open work from a file - Understand how to save work to a file - Understand that writing on a computer is called typing - Use the keyboard: to type their name on a computer; delete letters; use the arrow keys - Create rules for using technology responsibly and explain why these rules are important	**Programming** Moving a Robot: Writing short algorithms and programs for floor robots, and predicting program outcomes - Explain what a given command will do - Run a command on a device - Predict the outcome of a command on a device - Physically follow and give each other instructions to move around - Combine forwards and backwards commands to make a sequence - Combine four direction commands to make sequences - Plan simple programmes - Use the word debug to correct any mistakes - Explain what their program should do - Identify several possible solutions	- **Creating Media** - Digital Writing: Using a computer to create and format text, before comparing to writing non-digital - - Identify and find the keys on the keyboard - Open word processor - Understand how to enter text onto the computer - Use backspace, letter, number and space keys - Understand how to change the font and use bold, italic and underline - Begin to type capital letters - Understand how to use undo to remove changes - Explain which tools they have used and why they have used them - Compare using a computer with using pencil and paper and discuss which one they prefer

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Year 2		
Autumn	**Spring**	**Summer**
Creating Media Digital Photography: Capturing and changing digital photographs for different purposes - Capture digital photos in both portrait and landscape format - Explain the process of taking a good photograph and why a photo looks better in portrait or landscape - Improve a photograph by retaking it and identify what is wrong with a photograph - Experiment with different light sources and explore the effect that light has on a photo - Use tools to change photographs and recognise that images can be changed - Identify which images are real and which have been changed	**Data and Information** Pictograms: Collecting data in tally charts and using attributes to organise and present data on a computer - Use tally charts to compare totals and record data - Enter data onto a computer - Use computers to view data in a different format - Use pictograms to answer simple questions and explain what the pictogram shows - Use a tally chart to create a pictogram - Create pictograms to arrange objects by an attribute and draw conclusions from it - Give examples of why information should not be shared	**Programming** Programming Quizzes: Designing algorithms and programs that use events to trigger sequences of code to make an interactive quiz - Identify that a program needs to start - Show how to run a program - Predict and change the outcome of a sequence of commands - Create a program based on a design - Create an algorithm - Compare the project to the design - Debug and improve projects

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<table>
<tr><th colspan="3">Year 3</th></tr>
<tr><th>Autumn</th><th>Spring</th><th>Summer</th></tr>
<tr>
<td><u>Touch Typing</u>
In preparation for the times table test in Year 4 throughout the year the children will complete the touch-typing program on BBC Bitesize, both in class and as a homework task. When you can do it well, touch typing is the fastest way to write. Many people quickly learn to touch type faster than they can write with a pen. It's important not to look at your hands when you are learning to type. The best way to ensure that you don't look at your hands is to cover them up - you can make a simple box out of cardboard or wood to cover both the keys and your hands.

https://toybox.tools.bbc.co.uk/activities/id/activity-dance-mat-typing/exitGameUrl/http%3A%2F%2Fwww.bbc.co.uk%2Fguides%2Fz3c6tfr</td>
<td><u>Programming</u>
Events and Actions in Programs: Writing algorithms and programs that use a range of events to trigger sequences of actions

- Choose which keys to use for actions and explain their choices
- Explain the relationship between an event and an action
- Identify a way to improve a program
- Consider the real world when making design choices
- Match a piece of code to an outcome
- Modify and test a program using a design
- Make design choices and justify them</td>
<td><u>Creating Media</u>
Desktop Publishing: Creating documents by modifying text, images, and page layouts for a specified purpose

- Explain the difference between text and images and identify the advantages and disadvantages of using text and images
- Recognise that text and images can communicate messages clearly
- Edit text, change font style, size, and colours for a given purpose
- Create a template for a particular purpose
- Define the term ‘page orientation’
- Recognise placeholders and say why they are important
- Choose the best locations for content and suitable layouts for a given purpose and paste text and images
- Match a layout to a purpose
- Compare work made on desktop publishing to work created by hand and identify the uses of desktop publishing in the real world</td>
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<tr><th colspan="3">Year 4</th></tr>
<tr><th>Autumn</th><th>Spring</th><th>Summer</th></tr>
<tr>
<td><u>Computing Systems and Networks</u>
The Internet: Recognising the internet as a network of networks including the WWW, and why we should evaluate online content

- Demonstrate how information us shared across the internet
- Discuss why a network needs protecting
- Describe the different networked devices and how they connect
- Recognise that the World Wide Web is part of the internet that contains websites and web pages
- Describe how to access websites, where websites are stored when uploaded to the World Wide Web
- Explain the types of media that can be shared on the World Wide Web
- Create media which can be found on websites</td>
<td><u>Programming</u>
Repetition in Games: Using a block-based programming language to explore count-controlled and infinite loops when creating a game

- Modify a snippet of code to create a given outcome
- Predict the outcome of a snippet of code
- Modify loops to produce a given outcome
- Recognise that some programming languages enable more than one process to be run at once</td>
<td><u>Creating Media</u>
Photo Editing: Manipulating digital images, and reflecting on the impact of changes and whether the require purpose is fulfilled

- Explain the effect that editing can have on an image
- Explore how images can be changed in real life
- Consider why someone might want to change the composition of an image
- Explain what has changed on an image
- Choose different effects and explain why these were chosen
- Retouch images and give examples of positive and negative effects</td>
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- Explain that new content can be created online and recognise that I can add content to the World Wide Web - Explain why some information online may not be honest, accurate, or legal	- Evaluate the effectiveness of the repeated sequences used in their program - Explain what the outcome of the repeated action should be - Design, build and evaluate a program	- Create new images by combining parts of images - Sort images into 'fake' or 'real' and explain their reasoning - Consider the effect of adding other elements - Evaluate the impact of effects through feedback

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Year 5		
Autumn	**Spring**	**Summer**
Computing Systems and Networks Sharing Information: Identifying and exploring how information is shared between digital systems - Describe that a computer system features inputs, processes, and outputs - Explain the benefits of a given computer system - Identify tasks that are managed by computer systems - Explain that data is transferred over networks in packets - Compare working online with working offline - Suggest strategies to ensure successful group work - Explain how the internet enables effective collaboration - Recognise that working together on the internet can be public or private **Creating Media** Webpage Creation: Designing and creating webpages, giving consideration to copyright, aesthetics and navigation - Explain that a video can include both visual and audio media - Plan a video using a storyboard - Demonstrate suitable methods of using a digital device to record video - Demonstrate safe use and handling of devices - Select a suitable device and software to capture video - Explain why lighting and angle are important - Store, retrieve and export a recording to a computer - Evaluate and edit a video	**Programming A** Selection in Physical Computing: Exploring conditions and selection using a programmable microcontroller - Build a simple circuit to connect a microcontroller to a computer - Connect more than one output device - Decide which output devices are controlled with a count-controlled loop - Explain that a condition is something that can either be true or false - Identify a condition and action in a project - Test and debug a project - Use selection to produce an intended outcome - Write an algorithm to control lights and a motor **Data and Information** Flat-file Databases: Using a database to order data and create charts to answer questions - Explain how information can be recorded - Order, sort and group data - Explain what a 'field' and a 'record' is in a database - Navigate a flat-file database to compare different views of information - Choose which field and value are required to answer a given question - Explain the benefits of using a computer to create graphs - Refine a search in a real-world context	**Creating Media** Vector Drawing: Creating images in a drawing program by using layer and groups of objects - Discuss how vector drawing is different from paper-based drawings - Explain that each element added to a vector drawing is an object - Move, resize and rotate objects that have been duplicated - Explain how alignment grids and resize handles can be used to improve consistency - Modify objects to create different effects - Identify the different layers of a drawing - Suggest improvements and alternatives to vector drawings **Programming B** Selection in Quizzes: Exploring selection in programming to design and code an interactive quiz - Identify and modify conditions in a program - Identify the condition and outcomes in an if..then..else statement - Explain that program flow can branch according to a condition - Identify the outcome of user input in an algorithm - Design, implement, share and test an algorithm for a program - Identify ways the program could be improved and what setup code the project needs

Computing at Wisborough Green Primary School (1 year cycle)

Year 6		
Autumn	**Spring**	**Summer**
Computing Systems and Networks Internet Communication: Recognising how the WWW can be used to communicate and be searched to find information - Compare results from different search engines - Recognise the role of web crawlers in creating an index - Explain that a search engine follows riles to rank relevant pages and that search results are ordered - Suggest some of the criteria that a search engine checks to decide on the order of results - Describe some ways that search results can be influenced - Explain how search engines make money - Explain, compare and identify the different ways in which people communicate over the internet - Explain that communication on the internet may not be private **Creating Media** Webpage Creation: Designing and creating webpages, giving consideration to copyright, aesthetics, and navigation - Discuss the different types of media used on websites - Know that websites are written in HTML - Draw a web page layout that suits my purpose - Find copyright-free images and explain why you should use copyright-free images - Evaluate what a web page looks like on different devices and suggest/make edits - Explain what a navigation path is - Evaluate the user experience of a website	**Programming A** Variables in Games: Exploring variables when designing and coding a game - Explain that variable changes can be defined - Explain that a variable has a name and a value - Identify a program variable as a placeholder in memory for a single value - Create algorithms for a project - Explain the design choices - Test the code that has been written - Extend the game further using more variables - Identify ways that the game could be improved - Share the game with others **Data and Information** Introduction to Spreadsheets: Answering questions by using spreadsheets to organise and calculate data - Explain the relevance of data headings - Explain what an item of data is - Construct a formula in a spreadsheet - Explain the relevance of a cell's data type - Create and apply a formula - Explain why data should be organised - Produce a graph to show the answer to questions	**Creating Media** 3D Modelling: Planning, developing and evaluating 3D computer models of physical objects - Select, move and delete a digital 3D shape - Identify how graphical objects can be modified - Rotate, select and duplicate multiple 3D objects - Identify the 3D shapes needed to create a model of a real-world object - Plan a 3D model - Decide how the model can be improved - Evaluate and modify the model **Programming B** Sensing: Designing and coding a project that captures inputs from a physical device - Apply knowledge of programming to a new environment - Determine the flow of a program using selection - Experiment with different physical inputs - Use a condition to change a variable - Modify a program to achieve a different outcome - Decide what variables to include in a project - Design the algorithm for a project - Create and test a program based on the design - Use a range of approaches to find and fix bugs