**Westhead Lathom St James' CE Primary School**
**Year 5/6 Computing**

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| **Questions to Develop Children's Spirituality in Computing:** | How are we as humans different to computers?<br>Does giving a computer a name make it a person?<br>If a computer went home in your place would anyone notice? Why? What's different?<br>What does it mean to be human?<br>Do we every treat people like machines?<br>Do you ever treat a computer/device as if it is more than just a machine?<br>Can devices/computers break the rules/misbehave?<br>What are the positives and negatives of the technology in our lives? |
| **Development of the child:** | Reasoning, enquiry, interpretation, critical mind and questioning. |

**Westhead Lathom St James' CE Primary School**
**Year 5/6 Computing**

| **Topic:** Digital Literacy<br><br>**Units:**<br>DL- Internet Communications<br>DL-Sharing Information<br><br>**Subject:** Computing | **Prior Knowledge/Links:**<br><br>DL- The Internet (Y3/4)<br>DL-Connecting Computers (Y3/4) | |
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| **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.<br>• Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.<br>• Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. | • Know that a computer system features inputs, processes, and outputs<br>• Know that computer systems communicate with other devices<br>• Know that systems are built using a number of parts<br>• Know the benefits of a given computer system<br>• Know and identify tasks that are managed by computer systems<br>• Know the human elements of a computer system<br>• Know that data is transferred over networks in packets<br>• Know that networked digital devices have unique addresses<br>• Know that data is transferred using agreed methods<br>• Know that the internet allows different media to be shared<br>• Know that connected digital devices can allow us to access shared files stored online<br>• Know we can send information over the internet in different ways<br>• Know how the internet enables effective collaboration<br>• Know that working together on the internet can be public or private<br>• Know how to compare results from different search engines<br>• Know how to complete a web search to find specific information and how refine this search<br>• Know the role of web crawlers in creating an index<br>• Know we can relate a search term to the search engine's index<br>• Know that a search engine follows rules to rank relevant pages<br>• Know that search results are ordered<br>• Know some of the limitations of search engines<br>• Know that different methods of communication suit particular purposes<br>• Know different ways in which people communicate<br>• Know when I should and should not share<br>• Know that communication on the internet may not be private | System<br>Input<br>Output<br>Network<br>Data<br>Device<br>Transfer<br>Media<br>File<br>Internet<br>Collaboration<br>Public/private<br>Search engine<br>Web crawler<br>Communication |

**Westhead Lathom St James' CE Primary School**
**Year 5/6 Computing**

| **Topic:** Computer Science<br><br>**Units:**<br>CS- Variables in Games<br>CS- Sensing<br>CS- Selection in Physical Computing<br>CS- Selection in Quizzes<br><br>**Subject:** Computing | **Prior Knowledge/Links:**<br><br>CS-Repetition in Shapes (Y3/4)<br>CS-Sequencing Sounds (Y3/4)<br>CS- Repetition in Games (Y3/4)<br>CS- Events and Actions in Programmes (Y3/4) | |
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| **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.<br>• Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.<br>• Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.<br>• Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. | • Know how to build a simple circuit to connect a microcontroller to a computer<br>• Know why we use infinite loops<br>• Know how to program a microcontroller to light an LED<br>• Know how to connect more than one output device to a microcontroller<br>• Know that a condition is something that can either be true or false (eg whether a value is more than 10, or whether a button has been pressed)<br>• Know how to program a microcontroller to respond to an input<br>• Know that the way that a variable changes can be defined<br>• Know examples of information that is variable<br>• Know that variables can hold numbers or letters<br>• Know that a variable has a name and a value and that these values can be changed<br>• Know when it is useful in a program to change a variable<br>• Know how to create algorithms<br>• Know how test code created/written<br>• Know how to extend games further using more variables<br>• Know how to transfer a program to a controllable device<br>• Know examples of conditions in the real world<br>• Know how to use a variable in an if… then… else… statement to select the flow of a program"<br>• Know how to use a condition to change a variable<br>• Know the importance of the order of conditions in else if statements<br>• Know how to modify a program to achieve a different outcome<br>• Know how to use an operand (e.g. <>=) in an if… then… statement | Circuit<br>Microcontroller<br>Loop<br>Program<br>LED<br>Variables<br>Value<br>Algorithm<br>Code<br>Control |

**Westhead Lathom St James' CE Primary School**
**Year 5/6 Computing**

| **Topic:** Information Technology<br><br>**Units:**<br>IT- Webpage Creation<br>IT- Introduction to Spreadsheets<br>IT- 3D Modelling<br>IT-Video Editing<br>IT-Flat file Databases<br>IT- Vector Drawing<br><br>**Subject:** Computing | **Prior Knowledge/Links:**<br><br>IT- Audio Editing (Y3/4)<br>IT- Stop Frame Animation (Y3/4)<br>IT-Data Logging (Y3/4)<br>IT- Photo Editing (Y3/4)<br>IT-Branching Databases (Y3/4)<br>IT-Desktop Publishing (Y3/4) | |
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| **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.<br>• Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. | • Know how to ask and answer questions from an existing data set<br>• Know the relevance of data headings<br>• Know how to apply an appropriate number format to a cell<br>• Know how to build a data set in a spreadsheet application<br>• Know how to construct a formula in a spreadsheet and how to apply to multiple cells<br>• Know the relevance of a cell's data type<br>• Know that changing inputs changes outputs<br>• Know how to produce a graph<br>• Know when to use a table or graph<br>• Know why we might represent 3D objects on a computer<br>• Know how to select, move, and delete a digital 3D shape<br>• Know how to change the colour, resize and reposition including rotation of a 3D object<br>• Know how to select and duplicate multiple 3D objects<br>• Know how to create digital 3D objects of an appropriate size<br>• Know that a video can include both visual and audio media<br>• Know the benefits of adding audio to a video<br>• Know the names of digital devices that can record video and sound<br>• Know suitable methods of using a digital device to capture a video<br>• Know how to select a suitable device and software to capture video<br>• Know why lighting and angle are important in creating an effective video<br>• Know how to store, retrieve, and export a recording to a computer<br>• Know how to choose which field to sort data by to answer a given question | Data<br>Database<br>Format<br>Cell<br>Spreadsheet<br>Graph<br>Table<br>Field<br>Select/move/delete<br>3D<br>Resize/reposition<br>Duplicate<br>Visual<br>Audio<br>Software<br>Lighting<br>Angles<br>Store<br>Retrieve<br>Export<br>Filter<br>Criteria<br>Chart |

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| | • Know what a 'field' and a 'record' is in a database<br>• Know how to navigate a flat-file database to compare different views of information<br>• Know how to choose multiple criteria to answer a given question<br>• Know how 'AND' and 'OR' can be used to refine data selection<br>• Know how to refine a chart by selecting a particular filter<br>• Know how a vector drawing is different from paper-based drawings<br>• Know the main drawing tools<br>• Know that vector drawings are made using shapes<br>• Know that each element added to a vector drawing is an object<br>• Know how alignment grids and resize handles can be used to improve consistency<br>• Know how to reuse a group of objects to further develop a vector drawing<br>• Know the different types of media used on websites<br>• Know that websites are written in HTML<br>• Know the common features of a web page<br>• Know what is meant by the term 'fair use'<br>• Know how to find copyright-free images and why we should use them<br>• Know how to add content to a web page<br>• Know what a navigation path is and why they are useful<br>• Know how to make multiple web pages and link them using hyperlinks<br>• Know how to create hyperlinks to link to other people's work | Vector<br>HTML<br>Copyright<br>Hyperlink |