# Orton Wistow Primary School – Curriculum Plan

| Subject: Computing | Year : 4 | Term : Autumn |
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| | Vocabulary | Knowledge<br>What children will know | | | Understanding<br>What children will understand | | | Skills<br>What children will be able to do | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Define the word and include etymology if useful. | Learning<br>Remembering | Teaching<br>Telling | Assessment<br>Testing | Learning<br>Practising | Teaching<br>Coaching | Assessment<br>Observing | Learning<br>Reflecting | Teaching<br>Facilitating | Assessment<br>Evaluating |

**Computer Science- 2Code**

**Vocabulary:**

**Action** - Types of commands, which are run on an object. They could be used to move an object or change a property.

**Alert** - This is a type of output. It shows a pop-up of text on the screen. Algorithm - a precise step by step set of instructions used to solve a problem or achieve an objective.

**Bug** - A problem in a computer program that stops it working the way it was designed.

**Code Design** – Design what a program will look like and what it will do. Command - A single instruction in a computer program.

**Control** - These commands determine whether parts of the program will run, how often and sometimes, when.

**Debug/Debugging** - Looking for any problems in the code, fixing and testing them.

**Design Mode** - Used to create the look of a 2Code computer program when it is run.

**Event** – Something that causes a block of code to be run.

**Get Input** - This puts the text that a user types into the computer's temporary memory to be used to control the program flow.

**If** - A conditional command. This tests a statement. If the condition is true, then the commands inside the block will be run.

**If/Else** - A conditional command. This tests a statement. If the condition is true, then the commands inside the 'if block' will be run. If the condition is not met, then the commands inside the 'else block' are run.

**Input** - Information going into the computer. Can include moving or clicking the mouse, using the keyboard, swiping and tilting the device.

**Output** - Information that comes out of the computer e.g. sound.

**Knowledge:**
- Children will know the 4 steps to creating a code: design, code, test, debug (repeat)
- Children will know the main coding vocabulary (see vocab column) including: if/else, variable, event, repeat and they will be able to explain what they mean.
- Children will know that a character can repeat commands in a program and that the keyboard can be configured to control the character.
- Children will know that timers and counters can be used in a program
- Children will know that graphics can be changed and manipulated to suit the project aims
- Children will know when to use decomposition and abstraction when creating a code.

**Understanding:**
- Children will understand how code can conform to their program design ideas
- Children will understand the effect of certain blocks on a program, including if/else, variable, event, repeat.
- Children will understand the purpose of a timer or counter, E.g. to countdown for a game, to keep score
- Children will understand that graphics being changed can enhance the look and feel of a program, making it more appealing to the user.
- Children will understand that breaking a code down into manageable chunks (decomposition) and removing unnecessary things (abstraction) helps to simplify the task and results in less problems to debug.

**Skills:**
- Children can use sketching to design a program and reflect upon their design
- Children can set/change the variable values appropriately.
- Children can interpret a flowchart that depicts an if/else flowchart.
- Children can make a character respond to user keyboard input.
- Children can create a timer that prints a new number to the screen every second.
- Children can manipulate graphics in the design view to achieve the desired look for the program.
- Children can make good attempts to break down their aims for a coding task and identify elements that can be removed.

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| **Object** - An element in a computer program that can be changed using actions or properties. In 2Code, buttons, characters and vehicles are types of objects.<br>**Repeat** - This command can be used to make a block of commands run a set number of times or forever. **Selection** - This is a conditional/decision command. When selection is used, a program will choose a different outcome depending on a condition.<br>**Simulation** - A model that represents a real or imaginary situation. Timer - Use this command to run a block of commands after a timed delay or at regular intervals.<br>**Variable** – A named area in computer memory. A variable has a name and a value. The program can change this variable value. | | | | | | | | | |

## Information Technology

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| **Animation** – A process by which still pictures appear to move.<br>**Flipbook** – A book with pictures drawn in a way that makes them appear to move when the pages are flicked. **Frame** – A single image in an animation.<br>**Onion skinning** – A process where the shadow image of the previous frame is present to help you line up the objects of the animation correctly. **Background** – A non-moving image that appears behind the animated images.<br>**Play** – Press this button to make the animation start. Sound – Music or oral effects that can be added to the animation.<br>**Stop motion** – A technique whereby the camera is repeatedly stopped and started, for example to give animated figures the impression of movement. Key Resources Video clip – A short piece of film or animation. | <ul><li>Children will know what an animation film is and that they can be made by hand or on a computer</li><li>Children will know that sounds and backgrounds can be added to animations</li><li>Children will know that animations can be smoother when there are more frames and smaller movements each time</li><li>Children will know what a stop motion animation is and what tools are necessary</li></ul> | | | <ul><li>Children will understand what makes an animation effective</li><li>They will understand which sounds and backgrounds improve animations and why</li><li>Children will understand the impact of large movements or fewer frames would have on an animation</li></ul> | | | <ul><li>Children can create a simple flipbook animation.</li><li>Children can produce a simple animation using 2animate</li><li>Children can use onion skin tool to imporove the quality of their animation</li><li>Children can use backgrounds and sounds to improve their animation</li><li>Children have a go at creating a simple stop motion animation</li></ul> | | |

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| **Effective Searching (Unit: 4.7 – purple mash)** | | | | | | | | | |
| **Easter egg** – An unexpected or undocumented feature in a piece of computer software or on a DVD, included as a joke or a bonus.<br>**Internet** – A global computer network providing a variety of information and communication facilities.<br>**Internet browser** – A software application used to locate and display Web pages.<br>**Search** – To look for information. In this case on the Internet.<br>**Search engine** – A program that searches for and identifies items in a database. Used especially for finding sites on the World Wide Web.<br>**Spoof website** – Website spoofing is the act of creating a website, as a hoax, with the intention of misleading readers that the website has been created by a different person or organisation. **Website** – A set of related web pages located under a single domain name. | • Children will know that a search engine can be used to find specific information<br><br>• Children will know that searches on Google can include weather forecasts, postcodes, answers to calculations, spellings, definitions and sports results<br><br>• Children will know that it is not necessary to use capital letters and punctuation.<br><br>• Children will know that the internet and search engines can also be used for fun (Easter Eggs) | | | • Children will understand that information on the internet needs to be checked as it can be untrue.<br><br>• Children will understand that keywords can be used in a search engine, simplifying and speeding up the search process. | | | • Children will know how to locate information on the search results page.<br><br>• Children will know how to use search effectively to find out information.<br><br>• Children will know how to assess whether an information source is true and reliable. | | |

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| **Average** – Symbols used to represent comparing two values<br>**Advance mode** – A mode of 2Calculate in which the cells have references and can include formulae. **Copy and Paste** – A way to copy information from the screen into the computer's memory and paste it elsewhere without re-typing.<br>**Columns** – Vertical reference points for the cells in a spreadsheet.<br>**Cells** – An individual section of a spreadsheet grid. It contains data or calculations.<br>**Charts** – Use this button to create a variety of graph types for the data in the spreadsheet.<br>**Equals tool** – tests whether the entered calculation in the cells to the left of the tool has the correct answer in the cell to the right of the tool.<br>**Formula** – Use the formula wizard or type into the formula bar to create a formula in a cell, this will calculate the value for the cells based upon the value of other cells in the spreadsheet.<br>**Formula Wizard** – The wizard guides you in creating a variety of formulae for a cell such as calculations, totals, averages, minimum and maximum for the selected cells.<br>**Move cell tool** – This tool makes a cell's contents moveable by drag-and-drop methods. | • Children will know that using a formula can automatically calculate cell totals/answers<br><br>• Children will know that data in a spreadsheet can be used to create a graph, representing the information in a visual way.<br><br>• Children will know that there are many tools in spreadsheet software that can save time and make the program more effective. Such as copying, pasting and cutting.<br><br>• Children will know that numbers and images can be used in some spreadsheet software. | | | • Children will understand that spreadsheets can be used to plan, for example, creating a budget.<br><br>• Children will understand that line graphs, created from a spreadsheet can then be used to estimate values.<br><br>• Children will understand that the data inputted into a spreadsheet needs to be accurate and formulas used, checked so the data is reliable. | | | • Children will be able to can use the number formatting tools within 2Calculate to appropriately format numbers.<br><br>• Children will be able to can combine tools (timer/random number/spin button) to make fun ways to explore number.<br><br>• Children will be able to use a series of data in a spreadsheet to create a line graph.<br><br>• Children will be able to make practical use of a spreadsheet to help them plan actions. | | |

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| **Random tool** – Click to give a random value between 0 and 9 to the cell. **Rows** - Vertical reference points for the cells in a spreadsheet.<br>**Spin Tool** – Adds or subtracts 1 from the value of the cell to its right. **Spreadsheet** - A computer program that represents information in a grid of rows and columns. Any cell in the grid may contain either data or a formula that describes the value to be inserted based on the values in other cells.<br>**Timer** – When placed in the spreadsheet, click the timer to add 1 to the value of the cell to its right every second until it is clicked again. | | | | | | | | | |