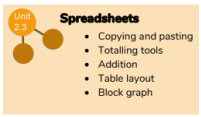
Year 4 Spreadsheets

Year 4. Spreadsheets (following Unit 3.3)

Prior learning links:



From their work in Year 2 on spreadsheets, the children should be familiar with terms such as *rows* and *columns,* but they may need reminding. They should also be able to save, edit and open spreadsheets (unit 2.3). They should be familiar with how to add images from the toolbox and should be able to use the count tool to help them count items. They have previously used spreadsheets to automatically total rows and columns and have also used them to add amounts using coins (unit 2.3). They have also used spreadsheets to create tables of data, and have created manual block graphs by colouring cells, moving on to creating automatically generated bar charts, using the charts tool (unit 2.3). In Year 4, pupils will begin the unit by being reminded of how to create graphs using data in a spreadsheet, looking at creating pie charts and line graphs. They will then be introduced to the 'Advanced mode' of Purple Mash, learning how to refer to cells by their grid references. They are introduced to the idea of using a spreadsheet to create number games (for instance, times tables machines), and are shown how to generate random values, include timers, use the spin tool, quiz tool and equal to tool. This unit then takes their existing skills and provides them with more in-depth real-world planning scenarios. They will be introduced to the idea of budgeting, and they are challenged to plan a fictional party using a set price list.

Adaptive teaching – Recommended tried and tested practise in these lessons:

Due to the nature of Computing lessons and the common 'firefighting' required in lessons with technical issues or children who are individually confused over what may be considered small stumbling blocks, it is recommended that teachers put time and effort into reinforcing the use of school-wide learning ethos and systems (for example, the use of the 4B's – brain, board, buddy, boss) to encourage children to try to solve their problems in the right way rather than going straight to the teacher, or lessons will quickly become unmanageable. It is also recommended to follow our school's use of the Rosenshine model of mastery teaching strategy and teach lessons in a series of stages, with short, simple tasks being set, and children who finish early can be given encouragement to support and 'lifeguard' other students. This has twofold benefits; the process of teaching others cements and secures pupils' own mastery as well as ensuring the teacher isn't overwhelmed with personal requests for help. If one-to-one support is unavailable for high need children, it is a good idea to make sure these children are sat next to or near a higher ability student who may act as peer support for them, and these children are monitored carefully throughout lessons to ensure they stay on task and understand each objective given. Ensure that any hardware support that is required for individual's SEND requirements are adjusted appropriately and are tied to those students' individual log ins (e.g. Zoom tools or screen tints for students with visual impairments etc). Teachers should have a knowledge of Pupil Premium children, particularly those who have been seen to struggle in Computing lessons, and these children should be monitored alongside those with SEND during lesson time to help ensure they access lessons along with the rest of the class.

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Knowledge covered:

NC	Ladders Objectives
(2.1) Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts	
(2.2) Use sequence, selection, and repetition in programs; work with variables and various forms of input and output	
(2.3) Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	
(2.4) 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.	
(2.5) Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	Y**4 - IT4 (KPI)** - I can use an appropriate search engine effectively and judge if the information is useful to me.
(2.6) 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.	Y4 - IT1 - I can use some of the more advanced features of applications (not just change font) to present my ideas and work clearly. Y4 - IT2 - I can combine more than one sources of information (eg text, picture, video, animation, sound) in my work. Y4 - IT3 - I can evaluate my digital work to see if it has met the target or goal set for me. Y4 - IT5 - I can use software to collect, present and analyse data appropriately (e.g. to make a chart). Y4 - IT6 - I can create a presentation to convey meaning and edit it if necessary (e.g. on PowerPoint/Sway/Keynote/Other).
(2.7) Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	

Medium Term Lesson Plan:

Lesson 1	Formula Wizard and Formatting Cells L.I I can explore how the numbers entered into cells can be set to either currency or decimal. L.I I can explore the use of the display of decimal places. L.I I can find out how to add formulae to a cell. Y4 – IT1 Y4 – IT2 Y4 – IT3 **Y4 – IT4 (KPI)** Y4 – IT5 Y4 - IT6	S.C: I can use the number formatting tools within 2Calculate to appropriately format numbers. I can add a formula to a cell to automatically make a calculation in that cell.	<u>Key Questions</u> *Prior knowledge* What does percentage mean? What is meant by the phrase 'decimal places'? What is the least/most you can get as a percentage? What is an 'average score'? Why would this information be useful to know?	Children are to format cells to illustrate the spread of data on a spellings test. Whilst 2calculate will do all the calculating needed for the children in this lesson, some children will have less maths confidence and vocabulary at their disposal. They will be able to follow this one step at a time, but lots of discussion is needed so they may better understand what they are doing and how the information they are generating is useful.
Lesson 2	Using the Timer and Spin Buttons L.I I can explore how tools can be combined to use 2Calculate to make number games. L.I I can explore the use of the timer, random number and spin button tools. Y4 – IT1 Y4 – IT2 Y4 – IT3 **Y4 – IT4 (KPI)** Y4 – IT5 Y4 - IT6	S.C: I can use the timer, random number and spin button tools. I can combine tools to make fun ways to explore number.	<u>Key Questions</u> *Prior knowledge* Have you played maths games before? When? Did you know you could create maths games using a spreadsheet? Look carefully at this game. How does it work? Is it just a times tables game? What does the user have to input? How does this formula work?	Children begin by exploring a pre-made maths game on a spreadsheet. The children will assume it is a times tables game at first, but it actually uses times tables facts to create number bonds challenges. Children then re-make the game using two digit numbers.
Lesson 3	Line Graphs	S.C: I can use a series of data in a spreadsheet to create a line graph.	<u>Key Questions</u> *Prior knowledge*	Children will create a line graph in a spreadsheet using a set of data, then use the line

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	L.I To use the line graphing tool in 2Calculate with appropriate data. L.I To interpret a line graph to estimate values between data readings. Y4 – IT1 Y4 – IT2 Y4 – IT3 **Y4 – IT4 (KPI)** Y4 – IT5 Y4 - IT6	I can use a line graph to find out when the temperature in the playground will reach 20°C.	What types of grahs and charts have you worked with before? (Last year, they created bar charts and pie charts from a set of data in their spreadsheet work). Why are graphical illustrations of data sometimes more helpful than looking at data alone?	graph to find an accurate estimate. More data will be added in order to encourage them to reflect further and update their charts.
Lesson 4	Using a spreadsheet for budgeting L.I I can use the currency formatting tool in 2Calculate. L.I I can use 2Calculate to create a model of a real-life situation. Y4 – IT1 Y4 – IT2 Y4 – IT3 **Y4 – IT4 (KPI)** Y4 – IT5 Y4 - IT6	S.C: I can make practical use of a spreadsheet to help them plan actions. I can use the currency formatting in 2Calculate.	<u>Key Questions</u> *Prior knowledge* What is a budget? Why is it important to have one when planning an event? Would all of your guests enjoy that item, or should you offer an alternative as well? Is there a cheaper option that would still make guests happy? Check your most expensive items; which of those could you manage without?	Children are given a fictional spreadsheet of prices to refer to in order to help them plan a party. They are initially given a very large budget, and they will select items from the list with an auto-calculating total so they can keep track of costs. Later, their budget is trimmed down, encouraging to make judgements about which items to remove from their list.
Lesson 5	Exploring place value with a spreadsheet L.I I can allocate value to an image in 2Calculate to make a place value resource Y4 – IT1 Y4 – IT2 Y4 – IT3 **Y4 – IT4 (KPI)** Y4 – IT5 Y4 - IT6	S.C: I can allocate values to images and use these to explore place value. I can use a spreadsheet made in 2Calculate to check their understanding of a mathematical concept.	<u>Key Questions</u> *Prior knowledge*	Children are given a pre-made place value game. First, they are given time to explore it and try to understand how it works. They then use it to complete some challenges they set for themselves. They then are asked to replicate the resource for themselves. They will need to pay particular attention to assigning the correct value to their images. Children are given the extension challenge of seeing if they can develop the game further to include either a 10,000 place value column or a tenth.