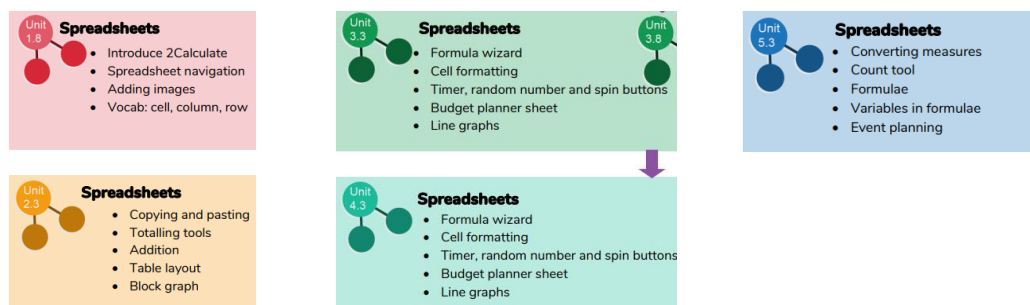


Year 6. Spreadsheets

Prior learning links:



This unit has a strong maths focus throughout, so it is important that teachers are mindful of this and are prepared to support any students who may struggle conceptually with some of the challenges. Probability is the basis of lesson 1, but if this unit has not been covered in maths lessons up to this point, it shouldn't hinder the children's progress for this reason as the lesson introduces these concepts gradually. It should serve as a useful introduction to the concept if it is a new one for the class. Lesson 2 requires an understanding of percentages and how they work, but at this point in KS2 the children should have enough of a grounding to progress as the spreadsheet takes care of the calculating. The remaining lessons will require more independence from the children than we have seen before in previous spreadsheet lessons; they are tasked to budget their own pocket money spending and to plan a school event. Modelled examples are provided for pupils who are less able to work independently, but they should still be encouraged to input their own ideas and data to give them more ownership of their work. Previous skills learnt in their spreadsheet work will be called upon as a matter of course in this unit, such as the ability to format cells, copy and paste data and to refer to their spreadsheets with cell references. All of these skills should be firmly grounded from their previous spreadsheet work, but quick refreshers may be required for some pupils.

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.

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.	

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(2.5) Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	Y6 - IT1 - I am aware of several different search engines and can explain some of their features. Y6 - IT2 - I understand how some results are selected and put in order (ranked) when searched for on the World Wide Web.
(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.	Y6 - IT3 (KPI) - I can select, use and combine a variety of software effectively (including internet services) to meet goals I have been set. Y6 - IT4 - I can combine several sources of information (eg. text, pictures, video, animation, sound) in my work to meet the goal I have been set. Y6 - IT5 - I can use software to collect, present, analyse and evaluate data appropriately (eg using a spreadsheet and/or a database). Y6 - IT6 - I can create and edit a presentation to convey meaning and include nonlinear hyperlinks in it (eg. PowerPoint/Sway/Keynote/Other). Y6 - IT7 - I can present data and information in a way that is easy to understand.
(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	Exploring Probability L.I I can use a spreadsheet to investigate the probability of the results of throwing many dice Y6 – IT1 Y6 – IT2 Y6 – IT3 (KPI) Y6 - IT4 Y6 – IT5 Y6 - IT7	S.C: I can create a spreadsheet to answer a mathematical question relating to probability. I can copy and paste shortcuts. I can problem solve using the count tool.	<u>Key Questions</u> *Prior knowledge* What does ‘probability’ mean? On a dice, do you think it is more likely that certain numbers will be thrown than others? How likely is it that we roll a 4? What patterns do you notice?	Children are shown step by step how to add the dice tool to a spreadsheet, then are shown how to copy and paste it across cells so there is a 5 x 10 grid. Dice generate a random number. Children then use a ‘count’ tool to calculate all the results of each set of dice throws. Children answer questions relating to probability; hopefully a consensus will be reached by the end of the lesson that each number has a 1 in 6 chance of occurring. Children then create an additional spreadsheet to record their results, then create a graph. Extend by asking children to do and record more throws as more results = more reliable data. Support struggling pupils through peer support and one step at a time modelling.
Lesson 2	Creating a Computational Model L.I I can use a spreadsheet to calculate the discount and final prices in a sale. L.I I can create a formula to help work out the prices of items in the sale. Y6 – IT1 Y6 – IT2 Y6 – IT3 (KPI) Y6 - IT4 Y6 – IT5 Y6 - IT7	S.C: I can create a machine to help work out the price of different items in a sale. I can use the formula wizard to create formulae. I can use a spreadsheet to solve a problem.	<u>Key Questions</u> *Prior knowledge* What is meant by modelling? Do you remember this term from your coding lessons? Why might modelling be needed in business when dealing with money? What does our formula need to do? What calculation will need to be used?	Discuss modelling and why it is useful in business and industry. Introduce children to key tools and vocabulary. Children are shown how to set up a spreadsheet to compare ticket prices and discounts for some hypothetical companies. They are given some data to populate it with. Children use formulae to calculate totals and discounts, keeping a running order of the most expensive to the cheapest tickets as new data is entered. Encourage children to create formulae themselves if able. If struggling, they may use the formula wizard to help them. If still struggling, model formulae wizard for them to follow step by step. Extension: Children are given a fresh challenge to see if they can use a spreadsheet to help them calculate discounts at a sofa sale.
Lesson 3	Use a Spreadsheet to Plan Pocket Money Spending L.I I can use a spreadsheet to plan how to spend pocket money and the effect of saving money. Y6 – IT1 Y6 – IT2 Y6 – IT3 (KPI) Y6 - IT4	S.C: I can use a spreadsheet to model a real-life situation and come up with solutions. I can make practical use of a spreadsheet to help plan actions.	<u>Key Questions</u> *Prior knowledge* Why might it be a good idea to save money rather than spend it straight away? How could a spreadsheet help us to plan for this? What calculation do we need to make? What	Vocabulary review of terms that will be used in the lesson. Children are introduced to the challenge; they will be making a real-life model of pocket money calculations. If children don’t receive pocket money, use example data. They are given a structure to base their spreadsheet on. They are shown how to include pictures on their spreadsheet if so wanted. They are challenged to use formulae and calculate how many weeks will be needed to save for each item.

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	Y6 – IT5 Y6 - IT7		formula might we need here?	Extension: Can they calculate an amount per week needed to save? Support struggling students by modelling formulae, but encourage them to use own ideas and data.
Lesson 4 & 5	Planning a School Event L.I I can a spreadsheet to plan a school charity day to maximise the money donated to charity. Y6 – IT1 Y6 – IT2 Y6 – IT3 (KPI) Y6 - IT4 Y6 – IT5 Y6 - IT7	S.C: I can use a spreadsheet to model a real-life situation and come up with solutions that can be applied to real life.	<u>Key Questions</u> *Prior knowledge* How many prizes would be needed? How can you keep it simple? What will happen if we buy too many or too few? What costs will be involved? Could you borrow anything you may need for your stall to save costs?	Vocabulary discussed which will be used in this lesson. Children are told to plan a hypothetical charity event for Purple House School. Activity ideas are presented and discussed with the children – they will need to work with a partner, and select one to work on. Lots of discussion needed and idea sharing about how they could go about researching prices and calculating potential costs. Some children will struggle with how to pursue ideas – consider following one idea through to model a potential spreadsheet for these children, but encourage them to find their own prices and do their own research on the Internet. Extend by giving children another task from the list and consider all aspects of planning – material costs, cheaper prices for buying in bulk, amount of potential sales (minimise waste, minimise overheads) etc.