

Spreadsheets

Lesson 5 – Planning a Cake Sale

The aim of this lesson is to use a spreadsheet to help you plan an event. This is modelling a real-life situation to come up with practical solutions.

Watch the video and use the instructions below and by the end you should be able to:

- Use a recipe to plan what ingredients to buy so there are enough cakes for everyone.
- Use the spreadsheet to plan how much we should sell the cakes for to maximise
- the profit made.

REMEMBER:

- **Always save your work as you go along using a meaningful name.**
- **Make sure you are saving in to the My Work folder. If you have accidentally selected a different folder you may not be able to save your work.**

1. Your basic cupcake recipe makes 24 cupcakes and requires the following ingredients:

BASIC CUPCAKE RECIPE – makes 24

Cake Ingredients:

- 250g unsalted butter
- 250g caster sugar
- 250g (8oz) self-raising flour
- Pinch of salt
- 4 medium eggs
- 4 tablespoons (60ml) milk
- Cupcake/Muffin cases

Icing Ingredients:

- 140g butter
- 280g icing sugar
- 1-2tbsp (15-30ml) milk
- Few drops of food colouring

We want everyone in the school to buy a cupcake and some parents and staff too.

However, we don't want too many cupcakes as they will be wasted.

You need to decide what is a sensible number. The example is going to use 200, but you can choose a different number if you wish.

2. Open a new spreadsheet by going to Tools, Maths and Data Handling and selecting 2Calculate



Remember to open 2Calculate in advanced mode so you can use the formulae wizard. If you have forgotten how to do this watch the video again.

3. Once your spreadsheet is open list the ingredients you will need to buy. The salt and food colouring are separated from the other ingredients as only a very small quantity is used, and we can assume that one packet will be enough. The muffin cases will also need to be calculated individually as they come in packs with a certain number in each pack.

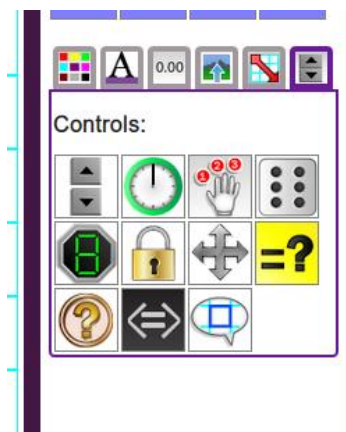
Here is an example of a layout:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1			Mylor Bridge	Amazing	Cupcake Sale		People	=	200					
2														
3		24 cakes	1 cake	Total for cakes for the sale			Costs							
4	butter						butter 250g	£0.95			milk 1.1l	£0.75		
5	caster sugar						butter 500g	£1.80			milk 2.3l	£0.99		
6	flour						caster sugar 2kg	£2.48			icing sugar 1kg	£1.55		
7	eggs						caster sugar 1kg	£1.48			icing sugar 500g	£0.78		
8	milk						caster sugar 500g	£0.99						
9	icing sugar						flour 1.5kg	£0.80			cupcake cases 75	£0.75		
10							flour 500g	£1.50			salt	£0.80		
11	salt						eggs 12	£0.75			food colouring bottles	£1.00		
12	food colouring						eggs 6	£0.89						
13	cupcakes cakes													
14														

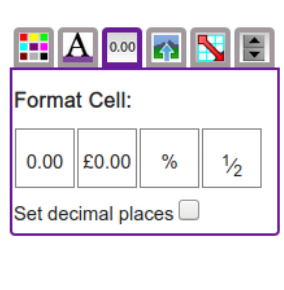
This example also includes the prices for the different ingredients that you should use in your spreadsheet.

To enter these prices you will need to add more cells to your spreadsheet which you can do by clicking on the + sign in the very bottom righthand corner.

You will also need to format cells with prices to display as money, use the controls on the righthand side:



Click on the third tab with the symbol 0.00:




Then choose the second option to format your cell - £0.00. You can format one cell at a time or you can click and drag to select more than one cell and format them all together.

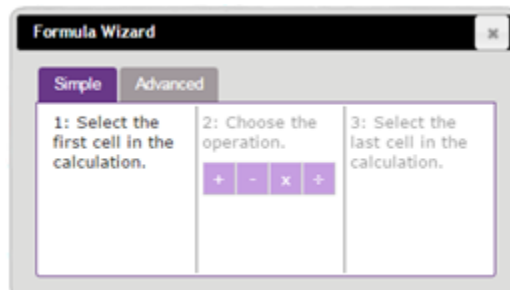
4. Now using the recipe in point 1 above enter the amounts of each ingredient required to make 24 cupcakes in column B. (Just enter numbers not units of measurement like g or l.)
5. The next step is to enter the formulae you need to work out the quantities for each single cupcake in column C.

Enter the number 24 in cell F4 as you will need to divide by this number to work out quantities for single cupcakes.

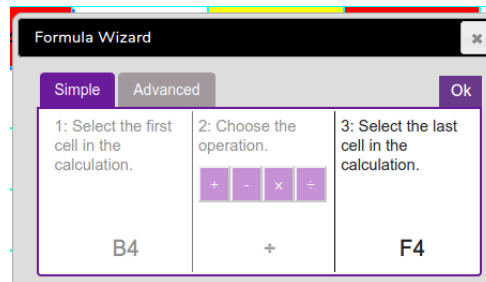
Make sure you have selected cell C4 before you use the formula

wizard button  as this is where you want the result of your formula to appear. If you have not selected this cell first you may well get an #Error message.

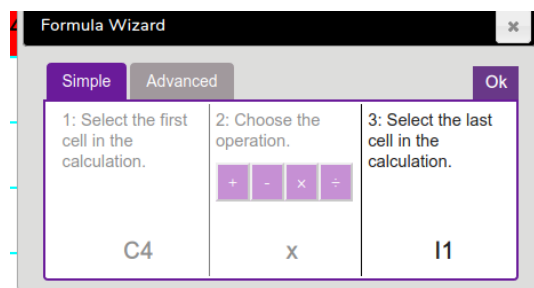
6. Click on the formula wizard button. This will open the formula wizard in simple mode:



- Click on cell B4 then choose divide as the operation and finally click on cell F4 (this contains the number 24). Your formula wizard should now look like this:




- Click OK. Now repeat this for Cells C5 through to C9 plus cell C13. Make sure you have selected the cell where the result of the calculation is to appear before you start to use the formula wizard.
- To calculate the quantity of ingredients needed for the desired number of people use the variable which we set in cell I1 of 200 for the number of people we have chosen to cater for. Setting the number in a cell like this means that if you change your mind about the number you can update that single cell and the spreadsheet will automatically recalculate the amount of each ingredient required.
- Now you can calculate the total amount of each ingredient required in column D by using column C and multiplying the amount required for each ingredient for a single cupcake by the number of people we have set in cell I1.
- Make sure you have selected cell D4 and then use the formula wizard to multiply cell C4 by Cell I1:



12. Now repeat this for Cells D5 through to D9 plus cell D13. Make sure you have selected the cell where the result of the calculation is to appear before you start to use the formula wizard.

13. Columns A to F of your spreadsheet should now look like this:



	A	B	C	D	E	F
1			Myler Bridge	Amazing	Cupcake Sale	
2						
3		24 cakes	1 cake	Total for cakes for the sale		
4	butter	390	16.25	3250		24
5	caster sugar	250	10.42	2083.33		
6	flour	250	10.42	2083.33		
7	eggs	4	0.17	33.33		
8	milk	90	3.75	750		
9	icing sugar	280	11.67	2333.33		
10						
11	salt					
12	food colouring					
13	cupcakes cases	24	1	200		
14						

Try changing the number in cell I1 and see what happens, but make sure you set it back to 200 before continuing

14. Enter the two new headings in cells I3, J3, M3 and N3 – these are the headings for the total amounts of each ingredient and how much that will cost for your cake sale.

15. Cell D4 shows that we need 3,250g of butter. I can choose whether to buy butter in packs of 250g or 500g. If I choose to use packs of 500g to calculate how many packs that will be and how much that will cost I need to enter two formulae.

18. Now work out how much that will cost. Enter a formula in Cell J5 by selecting that cell and then entering the formula in the formula bar to calculate the cost of buying 7 packs of butter. Multiply cell H5 by 7 - =H5*7. You have to buy 7 as you cannot buy half a pack. Remember from last week that the multiplication symbol on your keyboard is the * above the 8 – use shift to get it. The answer of 12.6 will display in cell J5 which you can then format to appear as money as you did in step 3 above.

[illegible]

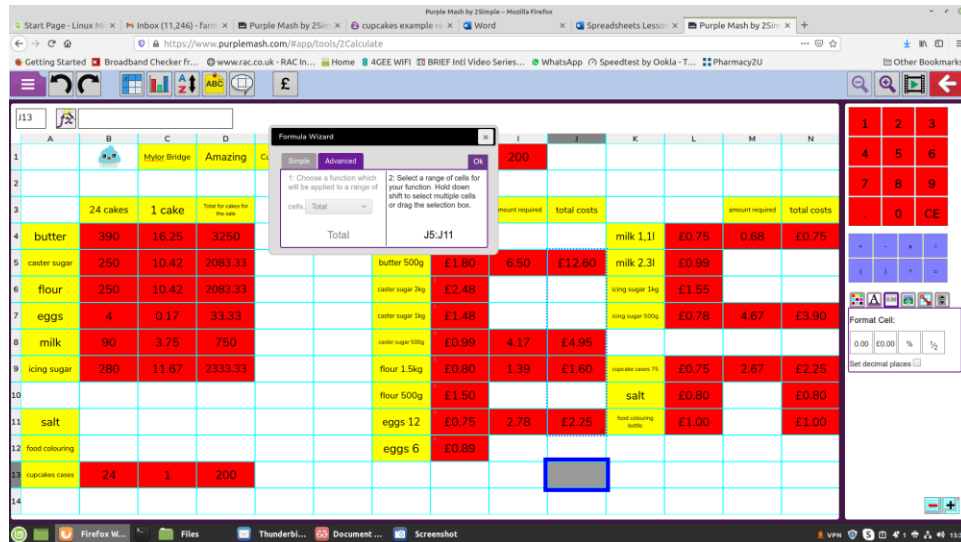
Ingredient	Quantity	Unit Price	Total Cost
butter	390	16.25	3250
caster sugar	250	10.42	2083.33
flour	250	10.42	0.05
eggs	4	0.17	33.33
milk	90	3.75	750
icing sugar	280	11.67	2333.33
salt			
food colouring			
cupcake cases	24	1	200

19. Now repeat these steps to find a price for all the ingredients. In the example shown below, I have decided to buy caster sugar in 500g bags and flour in 1.5kg bags. **NOTE:** This means that when I calculate the number of bags required I can divide by 500 for the sugar but have to divide by 1500 for the flour as we are working in grammes. As I am buying 1.1l of milk I need to divide

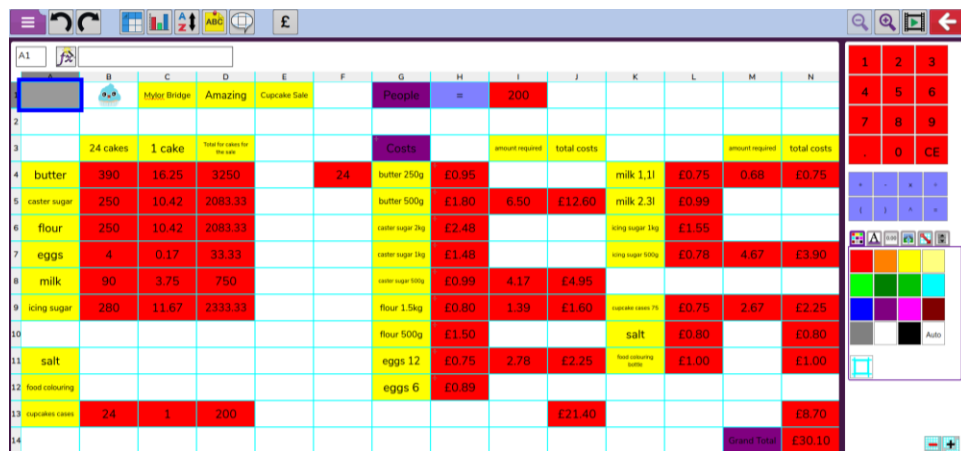
20. My spreadsheet now looks as below. Yours may be different if you have chosen to use smaller or larger bags of flour, sugar, butter, etc.

Ingredient	Quantity	Unit Price	Total Cost
butter	390	16.25	3250
caster sugar	250	10.42	2083.33
flour	250	10.42	2083.33
eggs	4	0.17	33.33
milk	90	3.75	750
icing sugar	280	11.67	2333.33
salt			
food colouring			
cupcake cases	24	1	200

21. Finally, we need to total the costs of the ingredients. You can use the formulae wizard advanced function:



Total the costs in column N as well and then add the two totals into a grand total:



You can find this final version in your 2dos.

If you find you are stuck you can open it and click on any cell to see the formulae that have been used.

Don't forget to save your own final version in you're my Work folder.

CHALLENGES:

1. How much should you sell your cupcakes for to cover your costs and make a profit? Remember to use your spreadsheet to perform these calculations.

2. My total cost is £30.10. If you use larger or smaller bags of flour and sugar can you reduce this total cost?
3. Is there a better way of laying out all these different calculations? Would it be clearer to use two separate spreadsheets?