**purple mash**

**Computing**
Scheme of Work

CRASH COURSE

2 + 2
=

# Year 5 Spreadsheets Catch-up

For children in year 5 who haven't used 2Calculate before.

Year Group: 5
Number of Lessons: 5

From **2simple**

# Contents

# Introduction

2Calculate is a simple to use spreadsheet (and more!) for beginners and beyond.

A user guide can be found at 2Calculate User Guide.

The following guide contains a catch-up unit of work forming part of the Computing Scheme of Work for teaching the use of spreadsheets. It is aimed at classes in which the children have not used 2Calculate before.

The lessons assume that children are logged onto Purple Mash with their own individual usernames and passwords, so their work will be saved in their own folders automatically and can be easily reviewed and assessed by the class teacher.

If you are currently using a single login per class or group and would like to set up individual logins yourself, then please see our guide to doing so at Create and Mange Users. Alternatively, please contact support at support@2simple.com or 0208 203 1781.

## Differentiation

If children are not familiar with computer keyboards and mice and are going to be using 2Calculate on computers rather than tablets, then they would benefit from doing some work to familiarise themselves with the keys such as the arrow keys, enter and space.

The use of spreadsheets has a strong link to mathematics.  Some children might have difficulty with the mathematical concepts in some lessons and might need guidance with this aspect. For example, in lessons where spreadsheets are being used to add up prices; children who are not familiar with converting pence (45p) to pounds (£0.45) might need this aspect explained in more details; in lessons dealing with percentages and fractions some children might need extra support for the mathematical concepts.

Where appropriate, guidance has been given on how to simplify tasks within lessons or challenge those who are ready for more stretching tasks.

## Purple Mash Tools used in this Unit

2Calculate

# Medium-Term Plan

| Lesson | Aims | Success Criteria |
|---|---|---|
| 1 | Introduction to spreadsheets | • Children can navigate around a spreadsheet.<br>• Children can explain what rows and columns are.<br>• Children can enter data including text, numbers and images into cells.<br>• Children can use the Move Cell and Lock tools.<br>• Children can enter simple formulae into cells. |
| 2 | Using a spreadsheet to model a real-life situation | • Children can use a spreadsheet to work out the area and perimeter of rectangles.<br>• Children can use these calculations to solve a real-life problem. |
| 3 | Conversions of measurements | • Children can create a formula in a spreadsheet to convert m to cm.<br>• Children can apply this to creating a spreadsheet that converts miles to km and vice versa. |
| 4 | Line graphs | • Children can use a series of data in a spreadsheet to create a line graph.<br>• Children can use a line graph to find out when the temperature in the playground will reach 20°C. |
| 5 | Using a spreadsheet to plan an event | • Children can use a spreadsheet to model a real-life situation and come up with solutions that can be practically applied. |

# Lesson 1 – Introduction to spreadsheets

## Aim

- To know what a spreadsheet looks like.
- To be able to navigate around a spreadsheet and enter data.
- To learn new vocabulary related to spreadsheets.
- To add a variety of data types to a spreadsheet.
- To use the 'move cell' and 'lock' tools.
- To perform simple calculations.

## Success criteria

- Children can navigate around a spreadsheet.
- Children can explain what rows and columns are.
- Children can insert text, numbers and images into cells.
- Children can use the appropriate tools to drag and lock cells.
- Children understand that formulae can be used to perform calculations within a spreadsheet.
- Children can enter data into cells.

## Resources

Unless otherwise stated, all resources can be found on the main unit 5.3 page. From here, click on the icon to set a resource as a 2do for your class. Use the links below to preview the resources; right-click on the link and 'open in new tab' so you don't lose this page.

- 2Calculate prompt sheet to display on the whiteboard.
- Copying and Pasting help sheet – this can be used if children are not familiar with how to copy and paste using keyboard shortcuts or on a tablet.

**Note for teacher:** In this lesson, children are introduced to a variety of tools and time is given to allowing them to try out each in turn. Determine the time spent dependent upon the time that you have available. Alternatively, demonstrate the functions and then display the prompt sheet to help children then explore on their own.

## Activities

1. Explain to the children that we are looking at a type of computer program called a spreadsheet today. Spreadsheets are used for organising information. For example, if you were planning a tea party you could input to the spreadsheet all the things you will need to get for the party and who you were going to invite. Can they think of any other things that could be stored in a spreadsheet for organising a party? (menus, gift list, entertainments).

2. Many people make lists on paper but the advantage of using a spreadsheet is that it can also do calculations for you. Explain what this means e.g. you could enter the cost of the different things that you will need for your party into the spreadsheet and then easily calculate how much money you will need to buy them all.

3. The aim today is to open a spreadsheet program in Purple Mash called 2Calculate and to learn how to enter information and do some simple calculations.

4. Open 2Calculate on the whiteboard. Show that when it starts, there is a smaller screen in the middle with different choices. The labels at the top ('Sheet' and 'Lesson') are called tabs. For today we are going to click on the 'Sheet' tab.
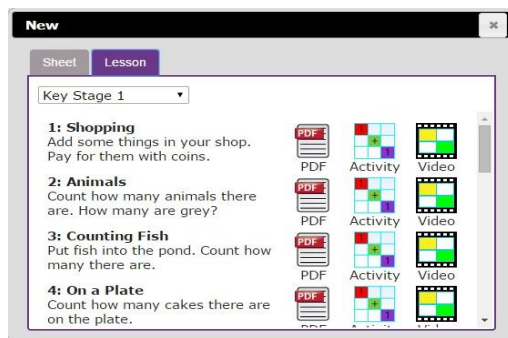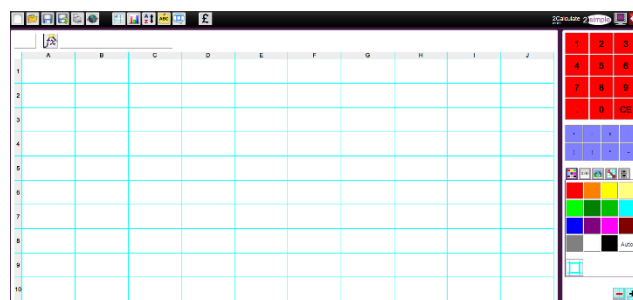


5. Click on the Sheets tab. This also gives a few choices. Click on the third icon: . This opens 2Calculate in advanced mode.
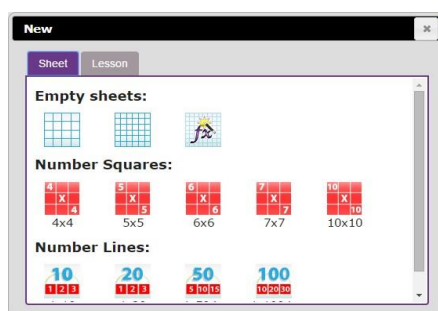


6. Spend some time showing children the following things, emphasising the new vocabulary in bold:



7. The **rows**; these are numbered 1 to 6

8. The **columns**; these are named A, B, C etc. How many are shown?

9. The word '**cells'** is used to describe each box in a spreadsheet.

10. Each cell can contain words, numbers, colours, symbols (such as + - =).

11. To add more cells, click on the  buttons on the bottom right.

12. How to move from cell to cell; this can be done by clicking or tapping in the cell and by using the **arrow keys** on the keyboard. If you press the enter key when in a cell you will move down 1 row.

13. How to type into cells; in 2calculate the writing will get smaller automatically to fit in the words that you type.

14. How to **delete** the contents of a cell; either by using the **backspace key** or the **Delete key**.

15. Let them spend some time experimenting with typing and colouring cells.

16. To colour cells, they first click on the cell, then click on the colour they want in the toolbox on the right-hand side.

17. If they select more than 1 cell by dragging the mouse over a few cells, then they can colour all these cells at once.
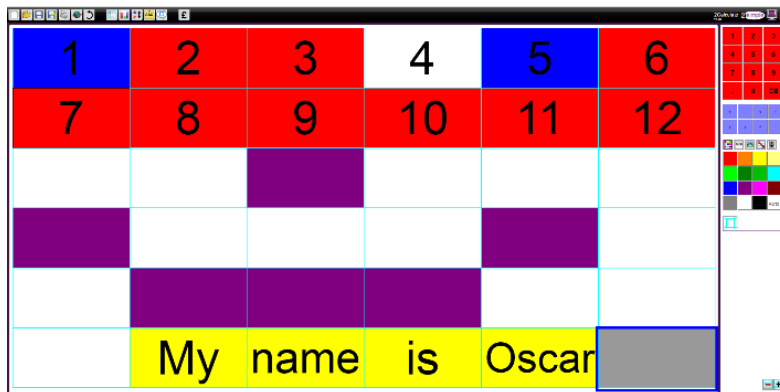
18. Next, show children how to put a simple sum into the cells and let 2Calculate work out the answer. First enter a number then go into the next cell to the right and click the '+' sign button on the right-hand side, then move to the next cell and enter another number. Now put the '=' sign in the next cell and see how 2Calculate works out the answer.

19. Children can spend time experimenting with this and performing calculations.
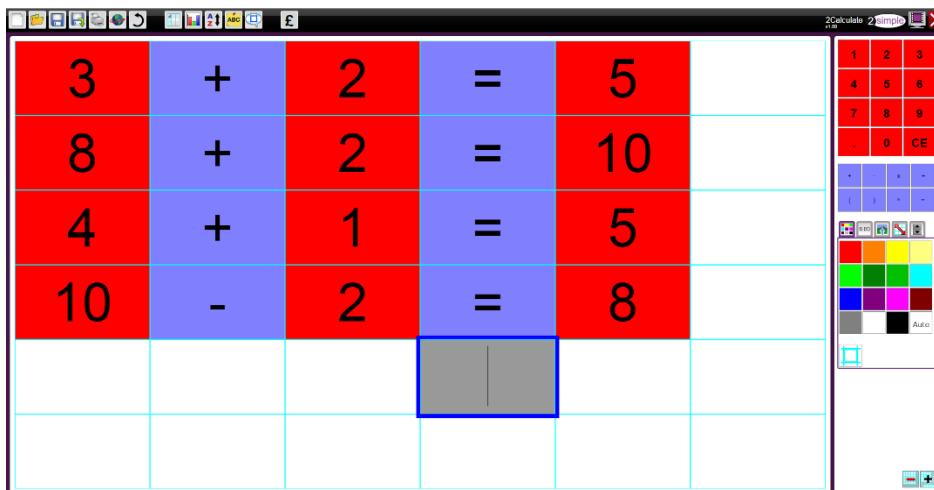
20. Next, show children where the Image toolbox is. They need to click on the images tab on the right-hand side:
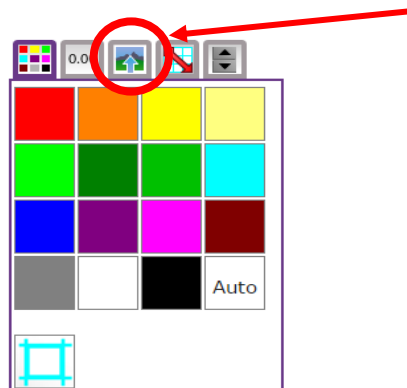
21. You will see a selection of coin images which will be useful later but for now, click on the 'Set Image' button to open the following screen.

22. Click on the clipart button to open the clipart picker. Show the children the different choices of topics and go to the Animals option (children could choose other items if they wish).

23. Select an animal and click on the OK button to add it to the spreadsheet. Add 2 further animals in the same way in different cells. You could show children that if they select more than one cell when adding images then they will get multiple copies of the same image.
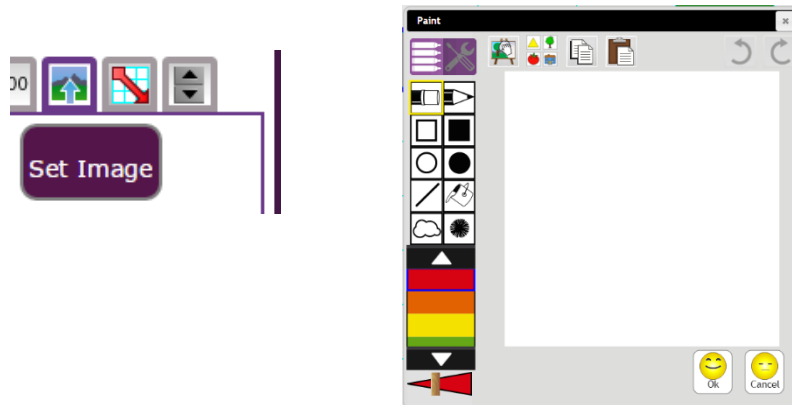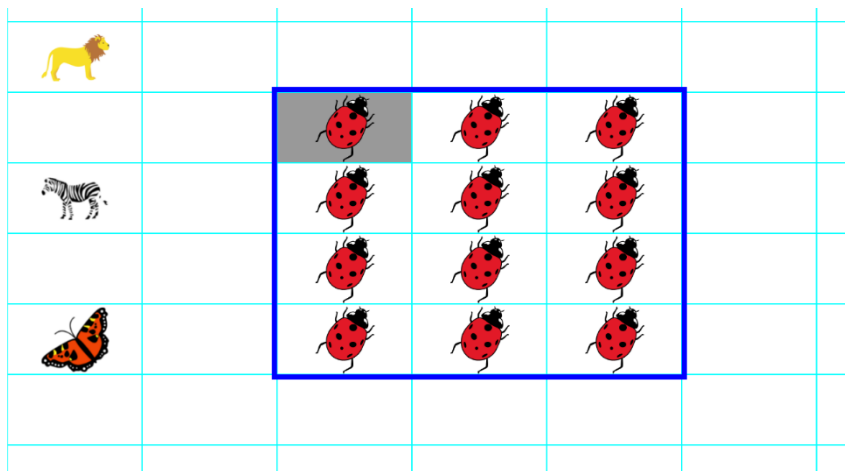
24. Click on one of the animals then click on the Controls toolbox.
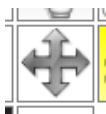
25. Now click on the 'move cell' tool                    . A little symbol will appear in the top right-hand corner of the image to show that it is now moveable. Try dragging it into a different cell.

26. This can also be done with several images selected at once to save doing it many times.

27. Show the children what happens to the ladybirds when the lion is dragged onto them. To prevent this, you can lock the ladybird cells, so they can't be overwritten. To do this click on the cell that you want to lock, then click on the lock cell tool

28. Explain to children that this tool can be useful for other things too; such as when you have numbers or cells that you don't want to be accidently changed.

29. At the top of the spread sheet is the formula bar. This only appears in advanced mode. Instruct the children to enter some numbers in columns A and B. They can be any numbers but should end up looking like this:

| | A | B |
|---|---|---|
| 1 | First Number | Second Number |
| 2 | 5 | 2 |
| 3 | 6 | 12 |
| 4 | 78 | 10 |
| 5 | 6765 | 76 |
| 6 | 67 | 33 |
| 7 | 678 | 21 |
| 8 | 102 | 100 |
| 9 | 43 | 4000 |

30. Click on cell C2 and type into the formula bar the following

| C2 | $f_x$ | =A2*B2 |
|---|---|---|

31. Copy cell C2 (see the help sheet for copying and pasting help if needed). Then select the rest of the cells in the column and paste. The formula should automatically update to work out all the products:

| | A | B | C |
|---|---|---|---|
| 1 | First Number | Second Number | Product |
| 2 | 5 | 2 | 10 |
| 3 | 6 | 12 | 72 |
| 4 | 78 | 10 | 780 |
| 5 | 6765 | 76 | 514140 |
| 6 | 67 | 33 | 2211 |
| 7 | 678 | 21 | 14238 |
| 8 | 102 | 100 | 10200 |
| 9 | 43 | 4000 | 172000 |

32. Children should do the same with their spreadsheets and then add a 'Total' cell as follows:

| | A | B | C |
|---|---|---|---|
| 1 | First Number | Second Number | Product |
| 2 | 5 | 2 | 10 |
| 3 | 6 | 12 | 72 |
| 4 | 78 | 10 | 780 |
| 5 | 6765 | 76 | 514140 |
| 6 | 67 | 33 | 2211 |
| 7 | 678 | 21 | 14238 |
| 8 | 102 | 100 | 10200 |
| 9 | 43 | 4000 | 172000 |
| 10 | | Total | |

33. One way to calculate the total would be by typing in the sum in the formula bar using the cell names e.g. '=C2+D2+E2 etc. However, the formula wizard provides a much easier way. Ensure that you have clicked on the cell where the total should go and then click on the formula wizard button (next to the formula bar) $f_x$ .
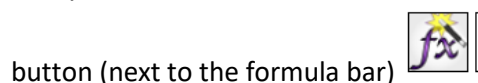
34. Click on the Advanced tab on the pop-up screen and in the 'select function' drop-down, choose 'Total'.

35. Select the cells containing the products; a dotted line should appear around them. The click the OK button on the pop-up screen.

36. Press the enter key and cell C2 should now show the product of the two numbers. Try changing one of the numbers in column A or B, all totals should update automatically.

37. Give children time to experiment with these functions.  Here is a suggested template for them to add formulae to:

| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| 1 | First Number | Second Number | Product | Sum of columns A, B and C | first number divided by second number | Row average | Number in column A subtracted from number in column C |
| 2 | 5 | 2 | 10 | | | | |
| 3 | 6 | 12 | 72 | | | | |
| 4 | 78 | 10 | 780 | | | | |
| 5 | 6765 | 76 | 514140 | | | | |
| 6 | 67 | 33 | 2211 | | | | |
| 7 | 678 | 21 | 14238 | | | | |
| 8 | 102 | 100 | 10200 | | | | |
| 9 | 43 | 4000 | 172000 | | | | |
| 10 | | Total | 713651 | | | | |

# Lesson 2 – Using a spreadsheet to model a real-life situation

## Aim

- To use a spreadsheet to model a real-life problem
- To use formulae to calculate area and perimeter of shapes.

## Success criteria

- Children can use a spreadsheet to work out the area and perimeter of rectangles.
- Children can use these calculations to solve a real-life problem.

## Resources

Unless otherwise stated, all resources can be found on the main unit 5.3 page. From here, click on the icon to set a resource as a 2do for your class. Use the links below to preview the resources; right-click on the link and 'open in new tab' so you don't lose this page.

- Cuboids example

## Activities

1. Modelling in Computing means creating or using a model or simulation of a real life situation, on a computer. For example, we could start by creating a page in 2Calculate which added up how much money we made by selling 3 pizzas for 25p and 2 apples for 10p each in the school tuck shop. We could then use 2Calculate to explore what would happen if we changed parts of the model—by putting up the prices for example. Changing certain values within the page and seeing what happens is what is meant by modelling.

2. Today we are starting by solving a problem for farmer McFlock. She keeps sheep and each



sheep needs at least 1m² of space in the field. Create a spreadsheet to draw fields in like the following example. NB this is not to scale; each cell height or width represents 1m:

3. Can children recreate this model and work out the maximum number of sheep that can be kept with 12m of fence? What if farmer Mc Flock obtains more fencing? Can they think of a way that the spreadsheet could calculate the best answer?

4.  Here is an example solution:

| Length | width | area | perimeter |
|--------|-------|------|-----------|
| 4 | 2 | 8 | 12 |
| 3 | 3 | 9 | 12 |
| 1 | 6 | 6 | 14 |

D9     $f_x$     =B9*C9

E9     $f_x$     =(2*B9)+(2*C9)

5.  The area column uses a formula made using the formula wizard.

6.  The perimeter column uses a formula that was typed into the formula bar.  Can children explain in words what this formula says and how it calculates the perimeter?

7.  Children should recreate this on their own spread sheets and try to answer the questions of the maximum number of sheep with different lengths of fencing. Or turn the problem around and specify a minimum area for them to calculate the minimum required metres of fencing required.

8.  For children who are ready you can extend this to calculating volumes of cuboids using a spreadsheet.  Can they adapt their field solution to model this situation and work out the volume of the cuboids pictured in the examples file?

# Lesson 3 – Conversions of measurements

## Aim

- To use formulae within a spreadsheet to convert measurements of length and distance.

## Success criteria

- Children can create a formula in a spreadsheet to convert m to cm.
- Children can apply this to creating a spreadsheet that converts miles to km and vice versa.

## Resources

Unless otherwise stated, all resources can be found on the main unit 5.3 page. From here, click on the icon to set a resource as a 2do for your class. Use the links below to preview the resources; right-click on the link and 'open in new tab' so you don't lose this page.

- Conversion example spreadsheet.

**Note for teachers;** in step 13, children use keyboard shortcuts for copying and pasting. If children are using tablets then the method is different, both methods are detailed in the resource file Copying and Pasting that can be displayed on the whiteboard.

## Activities

1. Explain that the children are going to use a spreadsheet to convert measures of lengths. Discuss what this means, why would you want to do this in real life?

2. Show children the example spreadsheet layout. What do you need to do to a measurement in metres to convert it to cm? Show the children how to enter this as a calculation on the sheet.

| m | | | | cm |
|-----|---|-----|---|-------|
| 1 | x | 100 | = | 100 |
| 7 | x | 100 | = | 700 |
| 567 | x | 100 | = | 56700 |

3. Ask children to use the same format to convert from cm to m on their own sheets. (Use the advanced format sheet).

4. Next, children should change their spreadsheet to have the following headings (or open a new sheet and format it like this:

| A | B | C | D | E | F | G |
|---|----|---|----|---|---|-----|
| m | cm | | cm | m | | 100 |
| | | | | | | |

5. Click on cell **B2.** Explain how we want the number in this cell to equal the number in cell A2 x 100.

6.  Click on the formula wizard button  this will open the Formula Wizard screen in simple mode.



7.  Click on cell A2 then choose x as the operator then click on cell G1 (this contains the number 100).



8.  Click OK and then try entering a number in cell A2, the calculation of the conversion to cm should occur automatically.

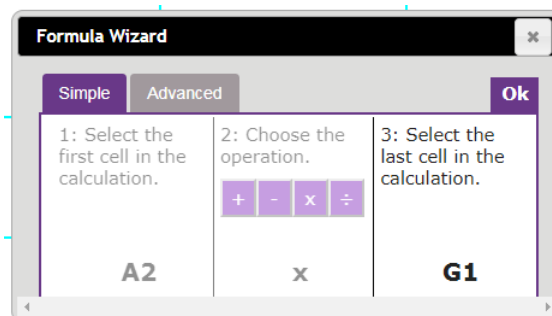9.  Ask children to create a similar formula for the other cells in column B on their own spreadsheets and test it out by entering different values in column A.

10. Now look at the formula bar for one of the formulae e.g. click on cell B2 and look at the formula bar:



To enter formulae, you can type directly into this bar.  At the moment, the formula says that this cell (B2) = whatever is in cell A2 x whatever is in cell G1.

11. Click in the formula bar and change the text 'G1' to the number '100'.

12. Press enter and the resulting number of cm (in cell B2) should not change. The advantage of 'hardcoding' the number 100 in the formula bar is that now the formula can be copied and pasted instead of having to enter it into each cell individually.

13. Copy cell B2 (click on cell B6 then press [Ctrl] + [C]. Now select the rest of column B and then paste [Ctrl] + [V]. This should copy the formula and automatically update it to each row. The rows where column A is empty should initially display zeros. Test this out by entering numbers into the cells in column A.



14. See if children can use this method to create a formula that takes the contents on the cells in column D and divides by 100 to convert from cm to m.

**NB** They will need to use the '/' key for a divide sign.

15. Now see whether the children can apply this knowledge to convert from km to miles and vice versa?

16. Display the following information to assist children and discuss how they would write formulas to convert between the 2?

| 1.6 | Km | ~ | 1 | mile |
|------|-------|---|---|-----------|
| 0.63 | Miles | ~ | 1 | kilometre |

# Lesson 4 – Line Graphs

## Aim

- To use the line graphing tool in 2Calculate with appropriate data.
- To interpret a line graph to estimate values between data readings.

## Success criteria

- Children can use a series of data in a spreadsheet to create a line graph.
- Children can use a line graph to find out when the temperature in the playground will reach 20°C.

## Resources

Unless otherwise stated, all resources can be found on the main unit 5.3 page. From here, click on the icon to set a resource as a 2do for your class. Use the links below to preview the resources; right-click on the link and 'open in new tab' so you don't lose this page.

- Line Graph Example Data photo; the lesson uses example data; you could collect similar real data in advance of the lesson to make the activity more relevant to the children.
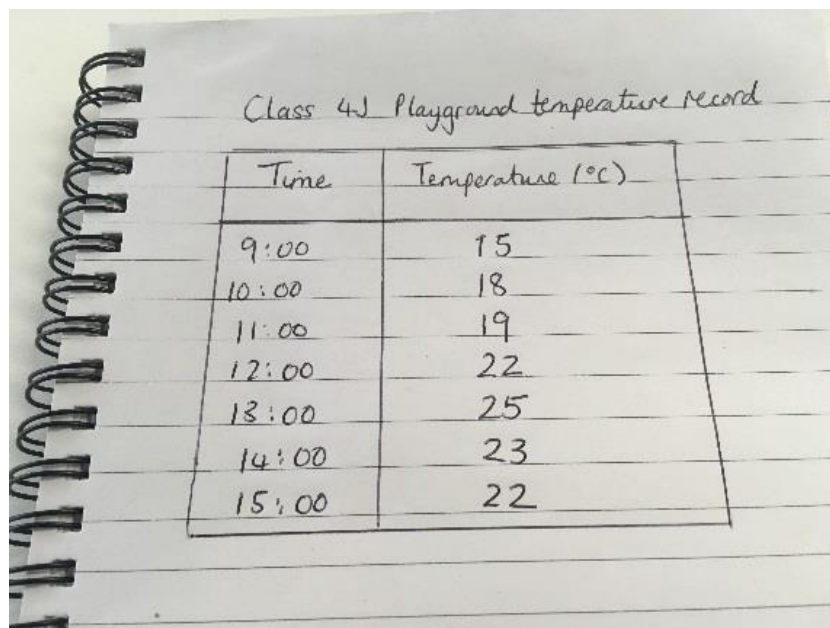
## Activities

1. Create a blank worksheet by clicking on the new page icon at the top left of the screen.

   You will probably have to resize the spreadsheet using the [−] [+] buttons to fit in the data.  These buttons can be pressed at any time if you are running out of space and then the data can be copied and pasted into different cells if necessary.

   Class 4J collected data on the daytime temperature in the school playground.  They recorded the temperature each hour during the day.

   Here is their record of the data (this photo is linked to above for displaying on a whiteboard):

Ask the class to put the data into a spreadsheet and then review what children have done. The expected outcome is like this:

| Time | Temperature |
|------|-------------|
| 9:00 | 15 |
| 10:00 | 18 |
| 11:00 | 19 |
| 12:00 | 22 |
| 13:00 | 25 |
| 14:00 | 23 |
| 15:00 | 22 |

Now we are going to create a line graph to help us figure out what time the playground reached 20°C.

Click on the Charts button in the top menu bar [chart icon].  This button will try to find all the relevant data in your spreadsheet and create a chart using it.

If the tool does not find all your data, you can drag the dotted lines (that will appear) to select the data that you want to include in your chart.

The default chart is a bar chart.  Use the buttons within the chart pop-up screen to change to a line graph.

The final button in the chart pop-up screen allows you to give your chart a title and rename the x and y axes.
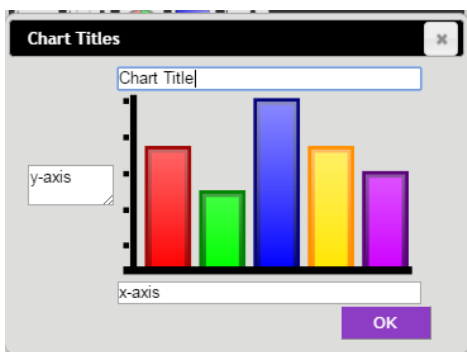
Children should make their own graphs.

Can they work out at which time the playground was 20°C? What other questions can the line graph answer.  Why is it better than a bar chart for this type of data?

Can they think of other data that could be collected and put into a line graph? Some of the information in the examples below could be researched on the Internet and plotted in a line graph such as average temperatures through the year in different countries.

Some examples;

- Age and height of a person or average height for a group of people and their age;
- Months of the year and average temperature;
- Car valuations over years since new
- Sales of TVs/mobile phones/radios over the decades.

# Using a spreadsheet to plan an event

## Aim

- To use a spreadsheet to help plan a school cake sale.

## Success criteria

- Children can use a spreadsheet to model a real-life situation and come up with solutions that can be practically applied.

## Resources

Unless otherwise stated, all resources can be found on the main unit 5.3 page. From here, click on the icon to set a resource as a 2do for your class. Use the links below to preview the resources; right-click on the link and 'open in new tab' so you don't lose this page.

- Example cupcake recipe . You could add variety by using additional recipes for children to work in small groups to plan e.g. some children could work with an egg or milk free recipe to cater for those with allergies, some could plan chocolate cupcakes or different decorations such as fruit.  They could even design their cupcakes beforehand and research their own recipes to make the lesson more relevant to real life and combine with design and technology learning objectives.
- Lesson 5, example 1 uses example prices but you might want to show children how to look up real prices for their local supermarket.

## Activities

1.     Today we are going to use a spreadsheet to plan our next cake sale.

2.    The tasks for today are

- Using a recipe to plan what ingredients to buy so there are enough cakes for everyone.

- Using the spreadsheet to plan how much we should sell the cakes for to maximise the profit made.

3.    Show the children the recipe, this makes 24 cupcakes; enough for 24 children.

- We want everyone in the school to be able to buy a cupcake and some parents and some staff.

- We don't want too many cupcakes because they will go stale and get wasted.

- Not all children will buy a cupcake and not all parents or staff.

- Decide as a class, a sensible number of cupcakes to make for your school and use this figure in place of the example figure used.

4.    Children should start by making a spreadsheet of the things that they will need to buy.  It should look like the following example:

5.    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.

6. Now add in the amounts needed for 24 people (just enter numbers not measures g or tblsp) and use a formula to work out how much would be needed for 1 person. There are 2 alternative methods below depending upon the ability of your class to understand formulae typed into the formula bar.



**NB** In reality, a person wouldn't do this step when making a recipe for lots of people, they would just work out how many sets of the original recipies needed making e.g. if you were catering for 230 people you would multiply the recipie ingredients by 10 to make the correct quantity. However from a teaching point of view, this step provides more practice and requires thinking skills.

7. Now calculate the quantity of ingriedients needed for the desired number of people. The example uses 400.

8. Set a variable called 'people' equal to the desired number and then use a formula to calculate the amount of each ingredient required. This means that you can update the people cell and

the recipe will automatically recalculate. The screen shot below shows the formula for the selected cell in the formula bar.

9.  Now we know the quantities required, we need to find out how much it will cost to buy them. Look up the prices or use the example prices below.

10. When looking up prices remind children to use sensible quantities e.g. it might be better value to buy big packs of ingredients; some websites will list prices per 100g for items so children can compare.

11. The level of realism you wish to introduce will come down to the children's ability and time available. In the example below, best value for caster sugar would be to buy 2 2kg bags and a 500g bag but this idea might be too complex for many children.

12. The spreadsheet can be expanded to store this information somewhere on the sheet. Prices can be formatted as currency for clear display.

13. Now either expand the current spreadsheet or open a new one and copy and paste the prices in.

| | A | B | C | D | E | F | G | H | I | J | K |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | people | = | 400 | | | |
| 2 | | 5L | Amazing | Cake Sale | | | | | | | |
| 3 | | | | | | Costs | | | | | |
| 4 | | 24 people | 1 person | total | | butter 250g | £0.95 | | milk 1.1l | £0.75 | |
| 5 | butter | 390 | 16.25 | 6500 | | butter 500g | £1.80 | | milk 2.3l | £0.99 | |
| 6 | caster sugar | 250 | 10.42 | 4166.67 | | caster sugar 2kg | £2.45 | | icing sugar 1kg | £1.55 | |
| 7 | flour | 250 | 10.42 | 4166.67 | | caster sugar 1kg | £1.48 | | icing sugar 500g | £0.78 | |
| 8 | eggs | 4 | 0.17 | 66.67 | | caster sugar 500g | £0.99 | | cup cake cases 75 | £0.75 | |
| 9 | milk | 6 | 0.25 | 100 | | flour 1.5kg | £0.80 | | salt | £0.80 | |
| 10 | icing sugar | 280 | 11.67 | 4666.67 | | flour 500g | £0.50 | | food colouring per bottle | £1.00 | |
| 11 | muffin cases | 24 | 1 | 400 | | eggs 12 | £1.75 | | | | |
| 12 | salt | | | | | eggs 6 | £0.89 | | 1 tablespoon | = | 15ml |
| 13 | food colouring | | | | | | | | | | |

| | A | B |
|---|---|---|
| 1 | Ingredient | Price |
| 2 | butter 250g | £0.95 |
| 3 | butter 500g | £1.80 |
| 4 | caster sugar 2kg | £2.45 |
| 5 | caster sugar 1kg | £1.48 |
| 6 | caster sugar 500g | £0.99 |
| 7 | flour 1.5kg | £0.80 |
| 8 | flour 500g | £0.50 |
| 9 | eggs 12 | £1.75 |
| 10 | eggs 6 | £0.89 |
| 11 | milk 1.1l | £0.75 |
| 12 | milk 2.3l | £0.99 |
| 13 | icing sugar 1kg | £1.55 |
| 14 | icing sugar 500g | £0.78 |
| 15 | cup cake cases 75 | £0.75 |
| 16 | salt | £0.80 |
| 17 | food colouring per bottle | £1.00 |

**NB** Children can open Purple Mash in another Internet explorer tab and navigate to 2Calculate so they can have both spreadsheets open at once.

14. They should then decide how many of each thing to buy and use formulae to calculate the cost for each item and then the total cost.

15. Remind them that they can use the spreadsheet to do calculations for them to work out how much to get of the different ingredients e.g. 1 tablespoon of milk equals 15ml, they will need to do a calculation to work out how many ml they need? They will need to calculate how many packs of cupcake cases to get.

16. Now the cost per cupcake can be calculated by dividing the total cost by the number of cupcakes.  See if children can make a sensible calculation for what to charge per cupcake.  They might like to consider the cost of electricity and time spent making them as well.  How does the cost compare to commercially bought cupcakes? Have a look online.

| | A | B | C | D | E | F | G | H | I |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Ingredient | Price | Quantity required | cost | | | | | |
| 2 | butter 250g | £0.95 | 1 | £0.95 | | | | | |
| 3 | butter 500g | £1.80 | 12 | £21.60 | | Total cost for 400 cupcakes | £57.38 | | |
| 4 | caster sugar 2kg | £2.45 | 2 | £4.90 | | cost each | £0.14 | | |
| 5 | caster sugar 1kg | £1.48 | 0 | £0.00 | | | | | |
| 6 | caster sugar 500g | £0.99 | 1 | £0.99 | | | | | |
| 7 | flour 1.5kg | £0.80 | 3 | £2.40 | | lowest to | charge for a | cupcake is | £0.20 |
| 8 | flour 500g | £0.50 | 0 | £0.00 | | | | | |
| 9 | eggs 12 | £1.75 | 6 | £10.50 | | | | | |
| 10 | eggs 6 | £0.89 | 0 | £0.00 | | | | | |
| 11 | milk 1.1l | £0.75 | 0 | £0.00 | | | | | |
| 12 | milk 2.3l | £0.99 | 1 | £0.99 | | | | | |
| 13 | icing sugar 1kg | £1.55 | 5 | £7.75 | | | | | |
| 14 | icing sugar 500g | £0.78 | 0 | £0.00 | | | | | |
| 15 | cup cake cases 75 | £0.75 | 6 | £4.50 | | | | | |
| 16 | salt | £0.80 | 1 | £0.80 | | | | | |
| 17 | food colouring per bottle | £1.00 | 2 | £2.00 | | | | | |
| 18 | | | Total cost | £57.38 | | | | | |

17. You could also pose some questions that might change the costs. Supposing you get the ingredients much cheaper from a commercial supplier and butter is now half the price that it was, how does this affect the cost per cupcake? What about using fancier cup cake cases? Or adding different decorations?

# Assessment Guidance

The unit overview for year 5 contains details of national curricula mapped to the Purple Mash Units. The following information is an exemplar of what a child at an expected level would be able to demonstrate when completing this unit with additional exemplars to demonstrate how this would vary for a child with emerging or exceeding achievements.

| Assessment Guidance | |
|---|---|
| Emerging | With support, children can save and open sheets (Lesson 1), enter simple data into cells (Lesson 1. Point 10), manipulate data using the 'move cell' tool (Lesson 1. Point 25) and use the image toolbox to add clipart (Lesson 1. Point 21). |
| | Children can find specific cell locations within a spreadsheet (lesson 1). |
| | Children can use the totalling tools (lesson 1) but they will need support when deciding where to use them and what the information shows. |
| | With support throughout, children will use 2Calculate and a limited data set to design a simple graph to solve a mathematical problem (Lesson 4). |
| | With support throughout, children can create a simple formula that converts metres into centimetres (Lesson 3). |
| Expected | Children can enter data into cells (Lesson 1), manipulate data using the 'move cell' tool (Lesson 1) and use the image toolbox to add clipart (Lesson 1). |
| | Children can locate cells using their cell reference in advanced mode (lesson 1) |
| | Children can create a formula using 2Calculate that converts metres into centimetres (Lesson 3). |
| | Children will use 2Calculate to design a graph to solve a mathematical problem (Lesson 4). Children will present, format and analyse their data and information in a variety of ways and use their spreadsheets to solve and check mathematical problems and concepts (Lessons 2 & 2). |
| | Children can add a formula to a cell to automatically make a calculation in that cell using the 'formula wizard' (Lessons 2, 3 & 5). |
| | Children can use spreadsheets to collate data and extract information from it to answer questions e.g. children can create line graphs and can use it to identify when something will happen using 2Calculate (Lesson 4). |
| | Throughout this unit, children will be tasked with creating spreadsheets which are contextualised and evaluating them. Most children can use suitable layouts and content (and explain this) which achieve a specific goal, such as creating a spreadsheet to work out the area and perimeter of rectangles Their layouts and contents will be fit for purpose for their intended audience. |
| Exceeding | Children demonstrating greater depth will explore more complex functioning of the 2Calculate tools to create their own spreadsheets to explore number and interpret their own data. |

## Assessment Guidance

They will intuitively grasp the concept of using a spreadsheet to model a real-life situation and calculate solutions (lesson 5).

Children demonstrating greater depth can use their understanding of converting metres into centimetres and apply this to other mathematical conversions (Lesson 3. Point 14 onwards) Furthermore, they choose the most appropriate way to convert and represent their data and can give their reasons behind this choice.