

2Calculate User Guide





Contents

| | |
|---|-----------|
| 1. Introduction..... | 3 |
| 2. Getting started..... | 3 |
| The New File screen | 4 |
| Sheet types | 6 |
| Top menu bar | 8 |
| Main drop-down menu | 11 |
| Right-hand side toolbar | 12 |
| The Controls toolbox | 15 |
| 3. Advanced functions..... | 17 |
| Using the Formula Wizard | 17 |
| Entering formulae directly into the Formula bar | 20 |
| 4. Plans and Resources..... | 21 |
| Mathematics | 21 |
| List of 2Calculate pre-made lessons | 22 |
| Computing | 23 |
| Year by year summary of lesson plan content | 25 |



1. Introduction

What is 2Calculate?

2Calculate is as simple to use as a calculator, with the power of a spreadsheet.

2Calculate has multiple uses:

It can be a way of introducing spreadsheets to children.

It can be a Maths resource creator for teachers.

It can be a whiteboard tool for teachers.

It can be a bank of pre-made lessons and resources.

Some example uses of 2Calculate include:

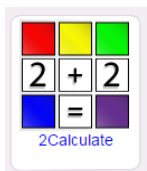
- Teach and learn place value, fractions, decimals
- Explore number sequences and negative numbers
- Teach money, shape and space and data handling
- Use spreadsheets and graphing tools
- Assign values to 500 clipart images
- Use the included videos, lesson plans & activities with a class.

Within this guide you will find general information for using 2Calculate as well as links to [planning resources for using 2Calculate](#) to teach [Mathematical concepts](#) and [Computing](#).

Use the menus to find out how to make use of the many resources within 2Calculate.

2. Getting started

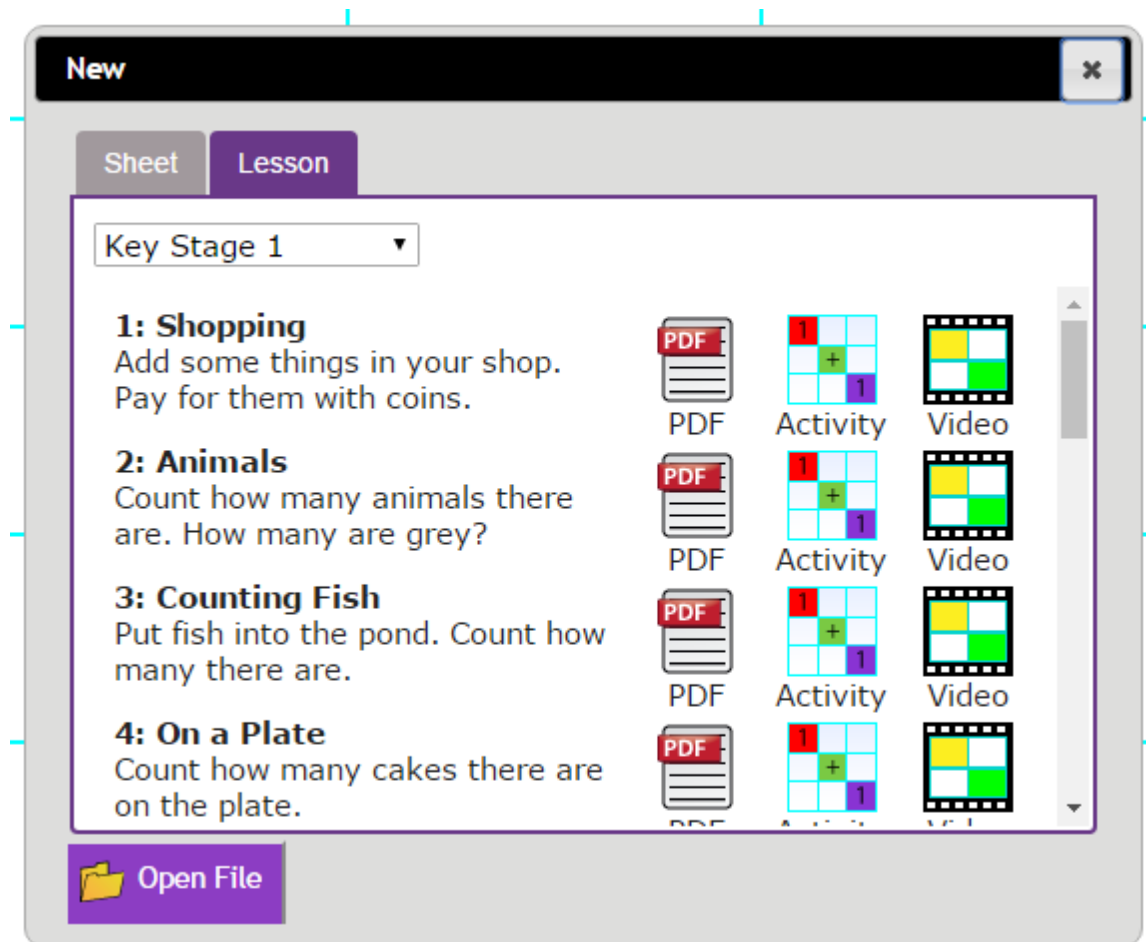
2Calculate can be found in the Tools section of Purple Mash in the Maths and Data Handling section.



Click on the 2Calculate icon to open the tool.

2.1 The New File screen

When 2Calculate opens, the New File screen will automatically open:



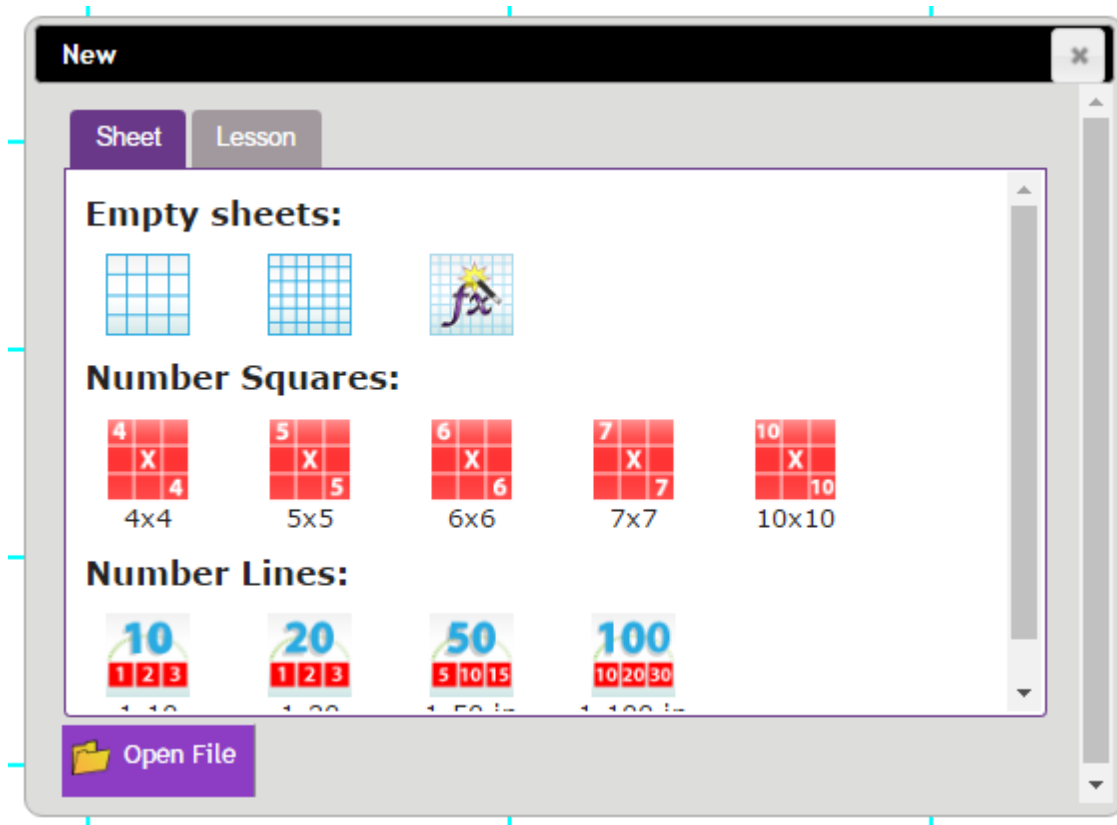
From here you have several choices.

On the **Lesson** tab you can choose from a variety of pre-made lessons that link to objectives for Mathematics. Details of these resources can be found at Maths plans.

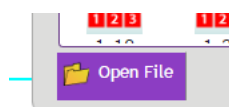
All these lessons have:

- PDF documents that will guide you step by step through the activities;
- activities to work with;
- videos that go through the activities step by step.

On the **Sheet** tab, you can choose a variety of blank spreadsheets to start as well as Number Squares and Number Lines.



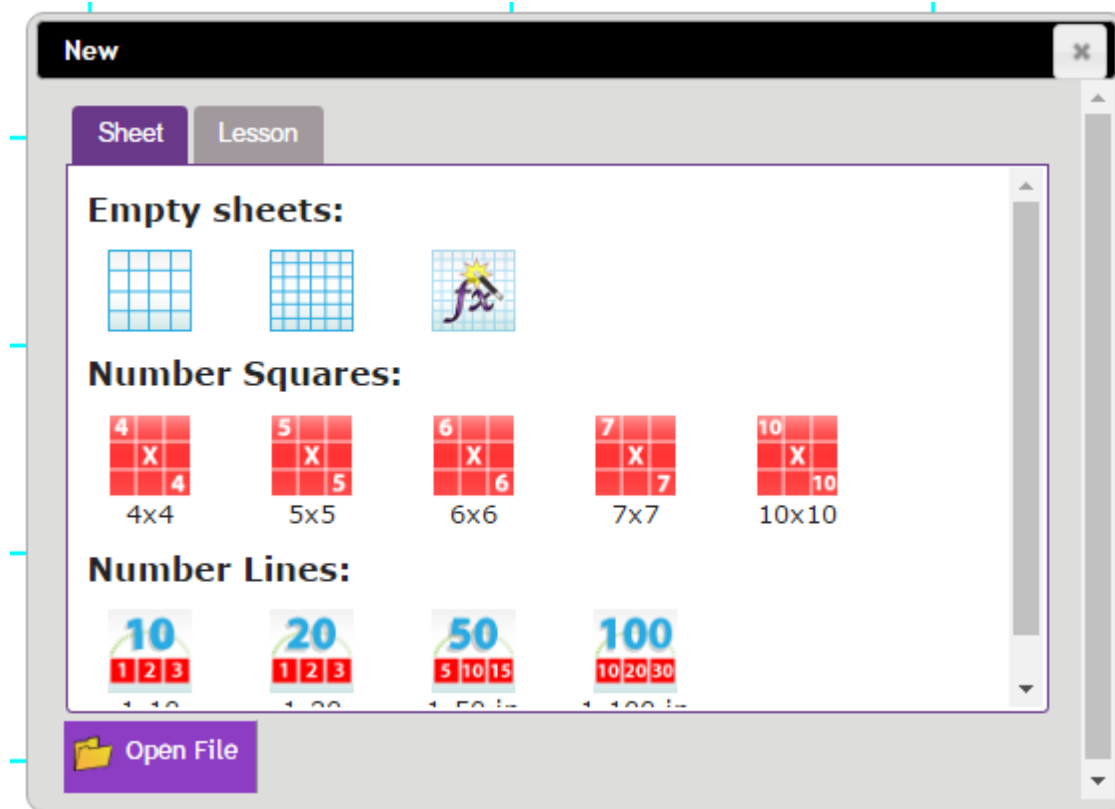
These are described in more detail in Sheet Types.



You can also open an existing file.

You can close the New File screen by clicking on the grey cross in the top right-hand corner and then access the top row of buttons. See [Top Menu bar](#) for details of this.

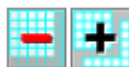
2.2 Sheet types



Within **Sheets** you will find a large simple sheet, a medium-sized simple sheet and an advanced sheet.

The advanced sheet includes row numbers and column letters as well as the Formula bar. More details about this can be found in [Advanced functions](#).

Sheets can be resized to add rows and columns or remove rows and columns by using the buttons



at the bottom right.

You will also find several pre-made **Number Squares** and **Number Lines** that can be loaded and used.

Number-square examples:

| | | | | |
|----|----|----|----|----|
| 1 | 2 | 3 | 4 | 5 |
| 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | 13 | 14 | 15 |
| 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 |

5 x 5 Number Square

| | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|-----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |
| 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
| 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 |
| 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |
| 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |

10 x 10 Number Square

Number Line examples:

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|----|

1-10 Number Line

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|

1-20 Number Line

| | | | | | | | | | | |
|---|---|----|----|----|----|----|----|----|----|----|
| 1 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 |
|---|---|----|----|----|----|----|----|----|----|----|

1-50 in fives Number Line

2.3 Top menu bar

Click on the image to see the functions of the buttons in the top menu bar



Additionally:



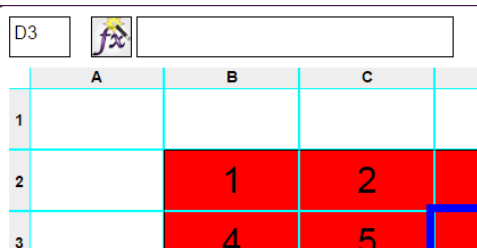
Undo button: this reverses your last action.



Spreadsheet button:

This button switches the spreadsheet between the **Simple** and **Advanced** modes.

The Advanced Mode shows you the Formula bar and the Formula Wizard.



More details on the Formula bar and Formula Wizard can be found in [Advanced functions](#).



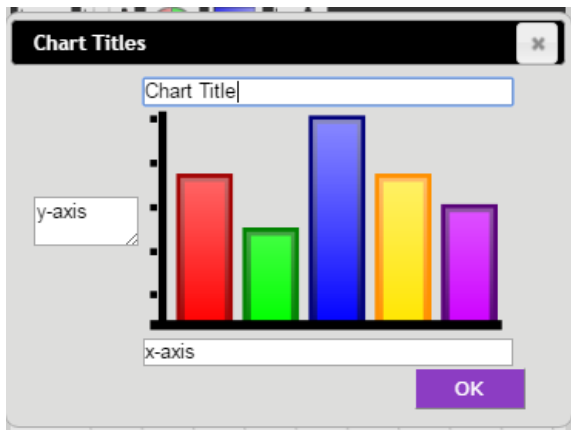
Charts button: this will try to find all the relevant data in your spreadsheet and create a chart using it.

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. Using the buttons within the Chart pop-up screen, you can change your chart to a line graph, pie chart or horizontal bar chart.



The final button in the Chart pop-up screen allows you to give your chart a title, and rename the x and y axes.



Sort button: this can be used to sort the data. Select the data to be sorted, click on the button and select the column to use and how to sort the data.

Here are some examples:

| Unsorted data | Sorting options | Sorted data | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|-----------------|-------------|------|----|-------|-------------|-------|------------|------|---|---|-------------|---------|-----|-------|-----|------|-----|-------|------|--|--|--------|-------|-------|-----|------|-----|-------|-------------|-------|-------------|---------|-----|---------|------|-------|----|------|-------------|------|------------|
| <table><tr><td>1</td></tr><tr><td>6</td></tr><tr><td>45</td></tr><tr><td>89</td></tr><tr><td>2</td></tr><tr><td>0</td></tr><tr><td>1234</td></tr><tr><td>45</td></tr><tr><td>55</td></tr></table> | 1 | 6 | 45 | 89 | 2 | 0 | 1234 | 45 | 55 | <div><div>Sort cells</div><div>Columns: 1</div><div>Order: Smallest to largest</div><div>OkCancel</div></div> | <table><tr><td>1</td></tr><tr><td>0</td></tr><tr><td>2</td></tr><tr><td>6</td></tr><tr><td>45</td></tr><tr><td>45</td></tr><tr><td>55</td></tr><tr><td>89</td></tr><tr><td>1234</td></tr></table> | 1 | 0 | 2 | 6 | 45 | 45 | 55 | 89 | 1234 | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 89 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1234 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 55 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 55 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 89 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1234 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table><tr><th>number</th><th>words</th></tr><tr><td>1234</td><td></td></tr><tr><td>89</td><td>eighty nine</td></tr><tr><td>55</td><td>fifty five</td></tr><tr><td>45</td><td>fourty five</td></tr><tr><td>45</td><td>fourty five</td></tr><tr><td>6</td><td>six</td></tr><tr><td>2</td><td>two</td></tr><tr><td>1</td><td>one</td></tr><tr><td>0</td><td>zero</td></tr></table> | number | words | 1234 | | 89 | eighty nine | 55 | fifty five | 45 | fourty five | 45 | fourty five | 6 | six | 2 | two | 1 | one | 0 | zero | <div><div>Sort cells</div><div>Columns: Number</div><div>Order: Largest to smallest</div><div>OkCancel</div></div> | <table><tr><th>Number</th><th>Words</th></tr><tr><td>1</td><td>one</td></tr><tr><td>6</td><td>six</td></tr><tr><td>45</td><td>fourty five</td></tr><tr><td>89</td><td>eighty nine</td></tr><tr><td>2</td><td>two</td></tr><tr><td>0</td><td>zero</td></tr><tr><td>1234</td><td></td></tr><tr><td>45</td><td>fourty five</td></tr><tr><td>55</td><td>fifty five</td></tr></table> | Number | Words | 1 | one | 6 | six | 45 | fourty five | 89 | eighty nine | 2 | two | 0 | zero | 1234 | | 45 | fourty five | 55 | fifty five |
| number | words | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1234 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 89 | eighty nine | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 55 | fifty five | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45 | fourty five | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45 | fourty five | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | six | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | two | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | one | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | zero | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Number | Words | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | one | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | six | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45 | fourty five | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 89 | eighty nine | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | two | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | zero | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1234 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45 | fourty five | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 55 | fifty five | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table><tr><th>Name</th><th>Score</th></tr><tr><td>Mary</td><td>45</td></tr><tr><td>Daisy</td><td>101</td></tr><tr><td>Brian</td><td>235</td></tr><tr><td>Carl</td><td>4</td></tr><tr><td>Frances</td><td>99</td></tr><tr><td>Hillary</td><td>100</td></tr><tr><td>David</td><td>23</td></tr><tr><td>Lisa</td><td>235</td></tr><tr><td>James</td><td>14</td></tr></table> | Name | Score | Mary | 45 | Daisy | 101 | Brian | 235 | Carl | 4 | Frances | 99 | Hillary | 100 | David | 23 | Lisa | 235 | James | 14 | <div><div>Sort cells</div><div>Columns: Name</div><div>Order: Smallest to largest</div><div>OkCancel</div></div> | <table><tr><th>Name</th><th>Score</th></tr><tr><td>Brian</td><td>235</td></tr><tr><td>Carl</td><td>4</td></tr><tr><td>Daisy</td><td>101</td></tr><tr><td>David</td><td>23</td></tr><tr><td>Frances</td><td>99</td></tr><tr><td>Hillary</td><td>100</td></tr><tr><td>James</td><td>14</td></tr><tr><td>Lisa</td><td>235</td></tr><tr><td>Mary</td><td>45</td></tr></table> | Name | Score | Brian | 235 | Carl | 4 | Daisy | 101 | David | 23 | Frances | 99 | Hillary | 100 | James | 14 | Lisa | 235 | Mary | 45 |
| Name | Score | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mary | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Daisy | 101 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Brian | 235 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Carl | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Frances | 99 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hillary | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| David | 23 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lisa | 235 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| James | 14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Name | Score | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Brian | 235 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Carl | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Daisy | 101 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| David | 23 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Frances | 99 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hillary | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| James | 14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lisa | 235 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mary | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Name | Score |
|---------|-------|
| Mary | 45 |
| Daisy | 101 |
| Brian | 235 |
| Carl | 4 |
| Frances | 99 |
| Hillary | 100 |
| David | 23 |
| Lisa | 235 |
| James | 14 |

Sort cells ✕

Columns: Score

Order: Largest to smallest

Ok
Cancel

| Name | Score |
|---------|-------|
| Lisa | 235 |
| Brian | 235 |
| Daisy | 101 |
| Hillary | 100 |
| Frances | 99 |
| Mary | 45 |
| David | 23 |
| James | 14 |
| Carl | 4 |



Sticky Notes button: this adds a **sticky note** to your spreadsheet.

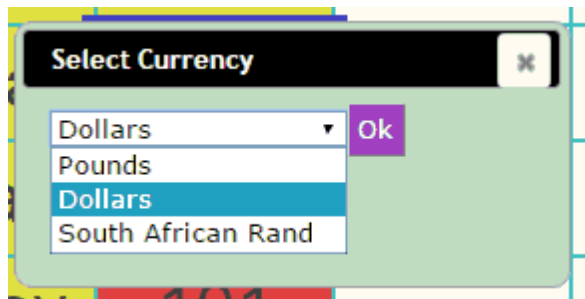
These are particularly useful for writing instructions on example worksheets, adding notes or giving feedback when checking pupils' work.



Speak Cell button: this will **vocalise** the selected cell.

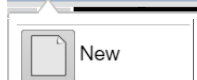


Set Currency button: this sets the currency for the spreadsheet and is useful when doing work about money.

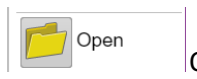


2.3.1 Main drop-down menu

The Main drop-down menu is the same for all Purple Mash tools.



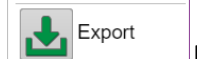
Open a new blank file. This will give you two options; Lessons and Sheets.



Open existing file.



Save the file to Purple Mash online folders or device.

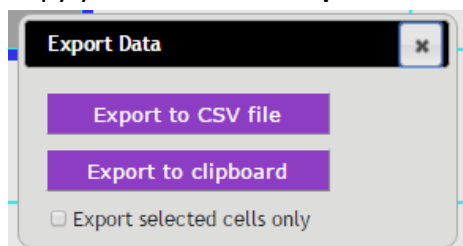


Export your data as an CSV file.

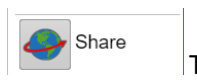
You can choose to export only the cells that you have selected by checking the box.

Only values will be exported. Images and formulae will not be exported.

Copy your data to the **clipboard** and then paste it into a program on your device.



Generate a PDF that can be printed.

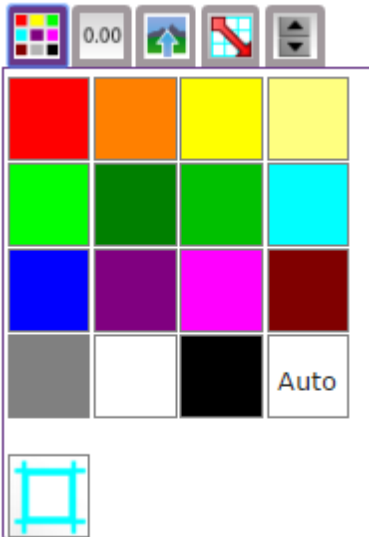


This will give you various options for sharing the file. See the manual; Sharing Purple Mash for further details.

2.4 Right-hand side toolbar

The toolbar on the bottom right contains a variety of toolboxes that can be used to perform different functions on the spreadsheet. They are detailed below.

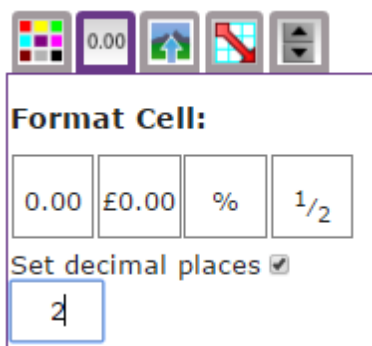
Colours and borders toolbar



Select either one or several cells and click on the desired colour to colour the cell(s).

Select either one or several cells and click on the border button at the bottom left to put a border outside the selected cells(s).

Format Cell toolbox.

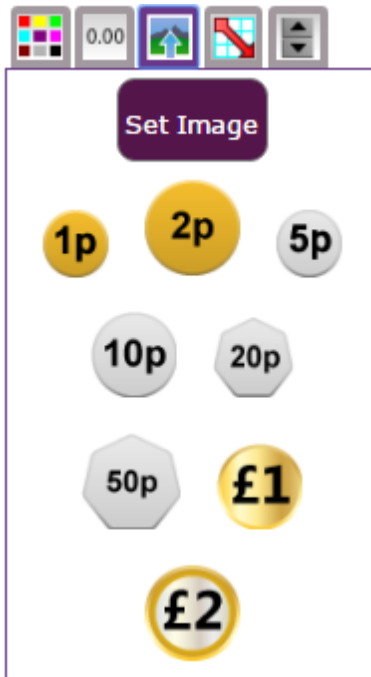


Here you can format cells to show as decimals, currency, percentages or fractions.

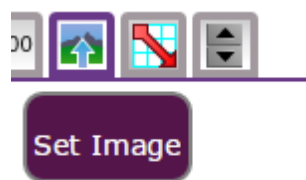
When typing amounts into cells formatted as percentages or fractions, you should type the amount as a decimal in order for it to show correctly.

You can also set the number of decimal places you would like to be shown. The default is 2.

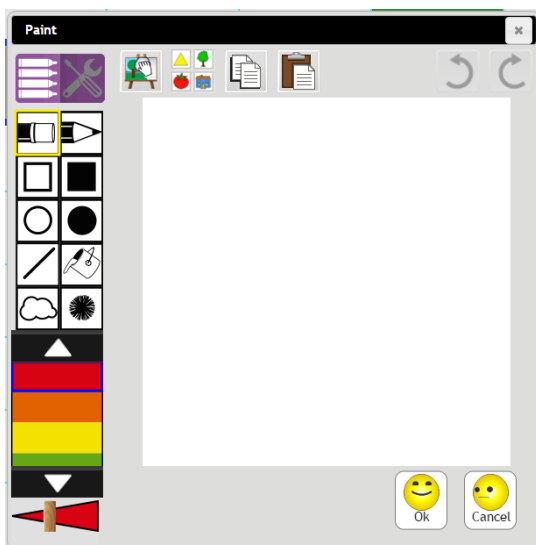
Image toolbox



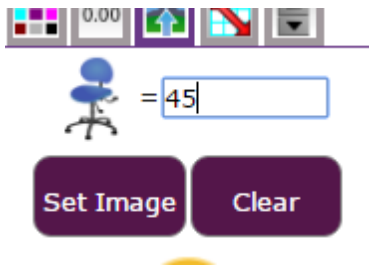
On this toolbox you will, initially, see several coins that can be used in the spreadsheet. These coins have numerical values and can therefore be used in sums instead of numbers.



You can also use the “Set Image” button to insert clipart, upload an image or insert an image that you have created using the inbuilt Paint pop-up box.

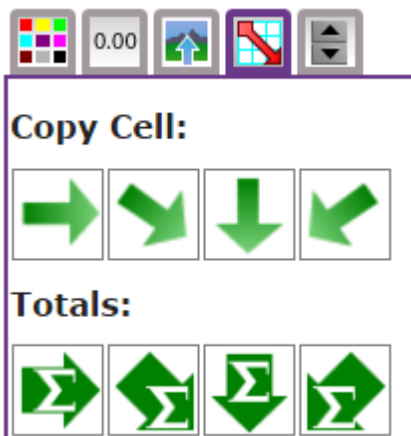


All images that you insert can have a numerical value applied to them.



Copy and Totals toolbox

The Copy and Totals toolbox contains two sets of tools.



The Copy tools will copy the contents of a cell over to another cell.

The Totals tools will add up all the cells before it and present you with a total.

The Controls toolbox

The Controls toolbox contains the biggest variety of tools. Click on the image to find details about a particular tool or see the next section for details of all tools.


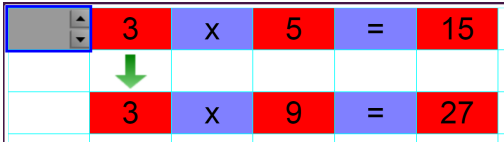

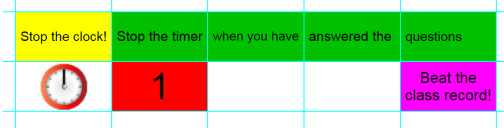

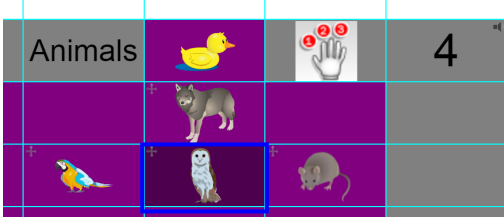









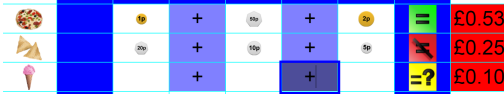







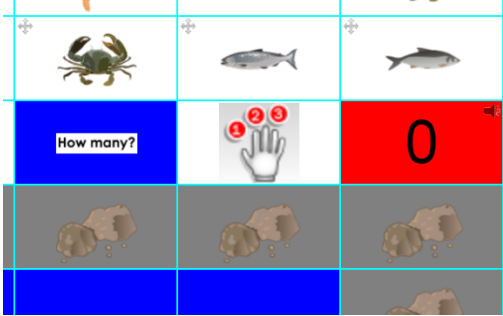
Using these tools you can enhance your 2Calculate experience and go beyond the capabilities of simple

spreadsheet programs.

2.4.1 The Controls toolbox

The Controls

| Tool | Title | Description | Example |
|---|---------------|--|--|
|  | Spin | This tool counts up and down by 1 when you press the arrows. The result is displayed in the cell to the immediate right of the tool. You can type in the start number. |  |
|  | Timer | This tool starts counting up by 1 every second when you click on it. It will stop when you click on it again. |  |
|  | Count | This tool counts how many of a variable there are in a spreadsheet. |  |
|  | Dice | This tool inserts a die into the selected cell and rolls it randomly when you click on it. |  |
|  | Random number | This tool generates a random number between 0 and 9. |  |
|  | Lock cell | This tool locks a cell so that it cannot be changed. |  |
|  | Move cell | This tool allows you to drag and drop a cell within the spreadsheet. |  |
|  | Is equal to | This tool can be used instead of the equals sign. It will show you whether your answer is correct or not. |  |

| | | | |
|---|--------------------------------------|---|---|
|  | <p>Quiz</p> | <p>This tool can be used after the equals sign or instead of a number in a sum. When you input the correct answer it will change to a number.</p> |  |
|  | <p>More than/Less than/ Equal to</p> | <p>This tool shows you whether a number is more than, less than or equal to another number.</p> |  |
|  | <p>Speak cell</p> | <p>This tool will speak the contents of a cell.</p> |  |

3. Advanced functions



Advanced mode is accessed by clicking on the Spreadsheet Mode button in the top toolbar






The Advanced mode view looks like this:



3.1 Using the Formula Wizard

Simple mode

The following spreadsheet is from the pre-made lessons for Upper Key Stage 2. It is Activity 10: '25% off'.

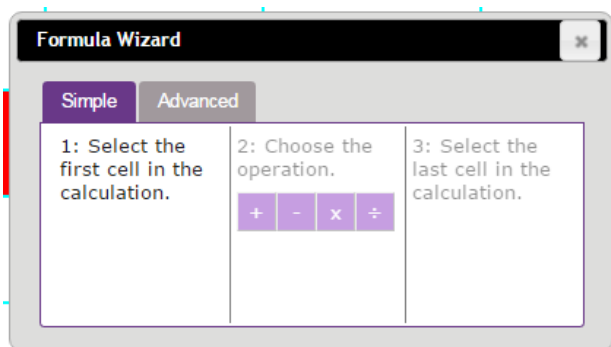
| | A | B | C | D | E | F |
|---|------------------|---|---|---|---|---|
| 1 | Item |  |  |  |  |  |
| 2 | Original Price | £1.00 | £0.50 | £2.15 | £3.99 | £1.40 |
| 3 | Quantity | 2 | 6 | 2 | 3 | 1 |
| 4 | Total Price | £2.00 | | | | |
| 5 | Reduction | 25% | 25% | 25% | 25% | 25% |
| 6 | Price reduced by | £0.50 | | | | |
| 7 | New Price | £1.50 | | | | |

To enter a formula to work out the Total Price cells:

- Click in the cell where you want the answer, e.g. C4.



- Click on the Formula Wizard button this will open the Formula Wizard screen.



- Ensure that tab Simple is selected (it will be purple).
- Click in the cell containing the price per item, then choose the operation 'x', then click in the cell with the number of items. You will see the formula build on the Formula Wizard screen using the cell references, e.g. C2 x C3.
- Click 'OK' on the Formula Wizard screen. The correct answer should appear in the cell.
- You can copy and paste the answer cell into the other cells in the row and the formula will automatically update and show the correct answer for that column.
- Repeat the same sequence for Rows 6 and 7 using the appropriate operations.

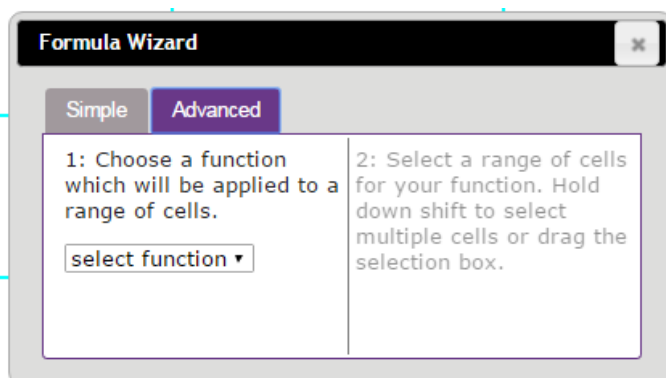
Note: In the above example, Row 5 is formatted as a percentage so it will automatically multiply by 0.25, not 25.

Advanced mode

In this example the Formula Wizard can be used to calculate the average time and the fastest and slowest laps.

| | A | B | C | D | E |
|---|----------------------|-----------------|---|-------------|---|
| 1 | Lap | Time in seconds | | | |
| 2 | 1 | 34 | | Fastest lap | |
| 3 | 2 | 21 | | Slowest lap | |
| 4 | 3 | 25 | | | |
| 5 | 4 | 27 | | | |
| 6 | 5 | 30 | | | |
| 7 | Average time per lap | | | | |

Click on the Answer cell, then on the Formula Wizard button. Now click on the Advanced tab:



The wizard can perform a number of functions including: Total, Average, Minimum and Maximum. Click on the average function, then select cells B2 to B6. Click OK and the answer will be calculated.

The Advanced function can also calculate the fastest and slowest laps using minimum and maximum.


To remove a formula from a cell, click on the cell and then delete the formula from the Formula bar at the top of the screen and press Enter.

3.2 Entering formulae directly into the Formula bar

You can type formulae directly into the Formula bar using the cell references.

The following example shows a formula to calculate the perimeter of a rectangle using its length and width.

It is important to type the equals sign '=' in the formula bar to show that you are entering a formula. Use the keyboard to enter the operators (*, +, -, /)

| | | | |
|----|---|-------------------------|-----------|
| C2 |  | $= (2 * A2) + (2 * B2)$ | |
| | A | B | C |
| 1 | Length | Width | Perimeter |
| 2 | 5 | 2 | 14 |
| 3 | 7 | 4 | 22 |
| 4 | 18 | 25 | 86 |

Once the formula has been calculated for one cell, it can be copied and pasted into others that use the same formula and row references will automatically update.

4. Plans and Resources

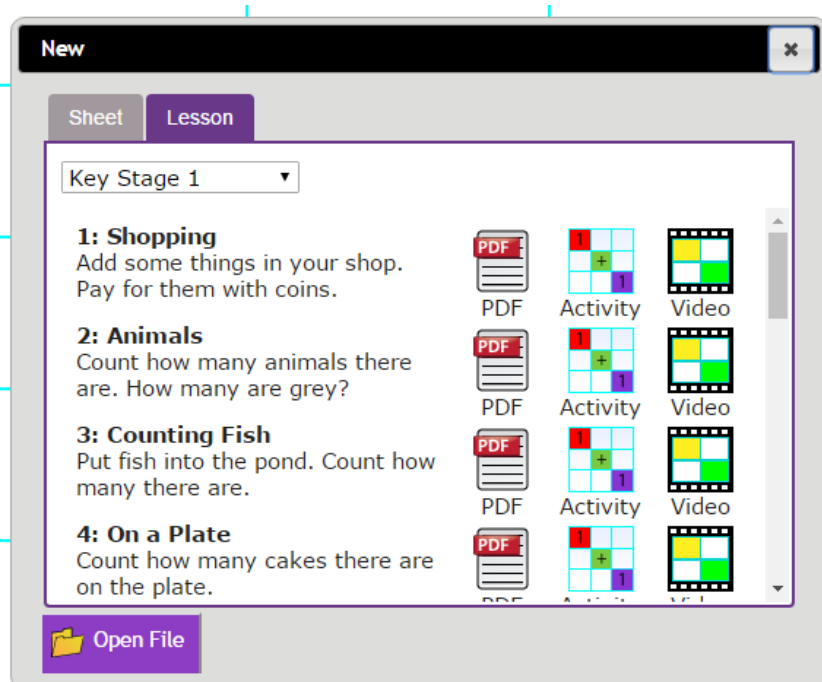
2Calculate contains in-built Maths resources. For more details see [Maths resources](#).

There is also a Computing Scheme of Work that uses 2Calculate to teach spreadsheets. Details can be found in Computing.

4.1 Mathematics

The maths lessons are built into the 2Calculate software. They can be found at [2Calculate Resources](#).

When 2Calculate is opened, the New file screen displays the maths lessons. There is a drop down box at the top to choose the key stage and then a scrollable list of activities.



These lessons have:

- PDF documents that will guide you step by step through the activities;
- activities to work with;
- videos that go through the activities step by step.

Details of the links to the Curriculum of England, Scotland and Wales and lesson ideas using these pre-made resources can be found at [2Calculate Pre-Made Lessons](#).

4.1.1 List of 2Calculate pre-made lessons

For further details of these lessons go to [2Calculate Resources](#)

| Lesson | FS2 | Yr 1 | Yr 2 |
|-------------------|-----|------|------|
| 1. Shopping | ✓ | ✓ | |
| 2. Animals | ✓ | ✓ | ✓ |
| 3. Counting Fish | ✓ | ✓ | ✓ |
| 4. On a Plate | ✓ | ✓ | ✓ |
| 5. 10, 20, 30 | ✓ | ✓ | |
| 6. Magic 12 | | ✓ | |
| 7. 1p and 2p | | ✓ | |
| 8. Going Shopping | | ✓ | |

| Lesson | FS2 | Yr 1 | Yr 2 |
|-------------------------|-----|------|------|
| 9. Nice Ices | | | ✓ |
| 10. That's My Favourite | | | ✓ |
| 11. Special Offers | | ✓ | ✓ |
| 12. Block Chart | | | ✓ |
| 13. Bar Chart | | | ✓ |
| 14. 2Pattern | | ✓ | |
| 15. 4 Squares | | | ✓ |

Lower Key Stage 2

| Lesson | Yr 3 | Yr 4 |
|---------------------|------|------|
| 1. Two Number Test | ✓ | |
| 2. Even Numbers | ✓ | |
| 3. Counting Machine | ✓ | ✓ |
| 4. Sequences | ✓ | ✓ |
| 5. Frequency Tables | ✓ | ✓ |

| Lesson | Yr 3 | Yr 4 |
|---------------------------|------|------|
| 6. Making Patterns | ✓ | ✓ |
| 7. Counting Machines 2 | ✓ | ✓ |
| 8. Magic Squares | | ✓ |
| 9. Sheep Shapes | ✓ | ✓ |
| 10. Centimetres to Metres | | ✓ |

Upper Key Stage 2

| Lesson | Yr 5 | Yr 6 |
|------------------------|------|------|
| 1. Common Letters | ✓ | ✓ |
| 2. Intermediate Points | ✓ | ✓ |
| 3. Making Rectangles | ✓ | ✓ |
| 4. Making Money | ✓ | ✓ |
| 5. Area | ✓ | ✓ |
| 6. Throw a 4 | | ✓ |

| Lesson | Yr 5 | Yr 6 |
|-------------------------|------|------|
| 7. Mean Class Sizes | ✓ | ✓ |
| 8. Number Stories | ✓ | ✓ |
| 9. Making Formulae | | ✓ |
| 10. 25% off | | ✓ |
| 11. Miles to Kilometres | ✓ | ✓ |

4.2 Computing

There is a Scheme of Work for teaching the use of spreadsheets as part of the Computing curriculum. It uses some content from the inbuilt lessons within 2Calculate as well as new content.

The lessons show a progression of knowledge and skills from lesson to lesson and year to year.

Children who have not used 2Calculate before will benefit by starting on lessons aimed at younger children. Teachers who are not familiar with the tools in 2Calculate might find reviewing the lessons for younger children helpful to build up their own knowledge.

Lesson map for all year groups:

The detailed lesson plans and resources can be found by year group at Computing Scheme of Work - Spreadsheets

The following table gives an overview of the lesson themes from year 1 to year 6. Children who have not used spreadsheets before will benefit from looking at the lessons with similar themes from previous year groups to help build up their knowledge.

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.

| Year | Lesson 1 | Lesson 2 | Lesson 3 | Lesson 4 | Lesson 5 |
|------|------------------------------|--|--|----------|----------|
| 1 | Introduction to spreadsheets | Adding images to a spreadsheet and using the image toolbox | Using the 'speak' and 'count' tools in 2Calculate to count items | | |
| 2 | Copying and Pasting, | Using a spreadsheet to | Creating a table and block | | |

| Year | Lesson 1 | Lesson 2 | Lesson 3 | Lesson 4 | Lesson 5 |
|------|--|--|---|--|--|
| | Totalling tools | add amounts | graph | | |
| 3 | Creating pie charts and bar graphs | More than, less than equals tool | Introducing the Advanced mode of 2Calculate and using coordinates | | |
| 4 | Using the formula wizard in the advanced mode to add formulae and explore formatting cells | Timer and spin button | Line graphs | Using a spreadsheet for budgeting | Exploring Place Value with a spreadsheet |
| 5 | Conversions of measurements | Novel use of the count tool | Formulae including the advanced mode | Using text variables to perform calculations | Using a spreadsheet to plan an event |
| 6 | Exploring Probability | Use of spreadsheets in 'real life' Creating a computational model | Use a spreadsheet to plan pocket money spending | Planning a school event | |

The tables on the following pages show the lessons in each year group.

4.2.1 Year by year summary of lesson plan content

Year 1

| Lesson | Aims | Success Criteria |
|--------|--|---|
| 1 | Introduction to spreadsheets | <ul style="list-style-type: none"> I can navigate around a spreadsheet I can explain what rows and columns are. I can save and open sheets. I can enter data into cells. |
| 2 | Adding images to a spreadsheet and using the image toolbox | <ul style="list-style-type: none"> I can open the Image toolbox and find and add clipart. I can use the 'move cell' tool so that images can be dragged around the spreadsheet. To use the 'lock' tool to prevent changes to cells. |
| 3 | Using the 'speak' and 'count' tools in 2Calculate to count items | <ul style="list-style-type: none"> I can give images a value that the spreadsheet can use to count them I can add the count tool to count items I can add the speak tool so that the items are counted out loud I can use a spreadsheet to help me work out a fair way to share items |

Year 2

| Lesson | Aims | Success Criteria |
|--------|--|--|
| 1 | Copying and Pasting Totalling tools | <ul style="list-style-type: none"> I can use copying a pasting to help me make my spreadsheets. I can use tools in a spreadsheet to automatically total rows and columns. I can use a spreadsheet to solve a mathematical puzzle. |
| 2 | Using a spreadsheet to add amounts | <ul style="list-style-type: none"> I can use images in my spreadsheet. I can work out how much I need to pay using coins by using a spreadsheet to help me calculate. |
| 3 | Creating a table and block graph | <ul style="list-style-type: none"> I can create a table of data on a spreadsheet I can use the data to create a block graph manually |

Year 3

| Lesson | Aims | Success Criteria |
|--------|---|---|
| 1 | Creating pie charts and bar graphs | <ul style="list-style-type: none"> I can create a table of data on a spreadsheet I can use a spreadsheet program to automatically create charts and graphs from data. |
| 2 | More than, less than equals tool | <ul style="list-style-type: none"> I can use the 'more than', 'less than' and 'equals' tools to compare different numbers and help me to work out solutions to sums. I can use the spin tool to count through times tables. |
| 3 | Introducing the Advanced mode of 2Calculate and using coordinates | <ul style="list-style-type: none"> I can describe a cell location in a spreadsheet using the notation of a letter for the column followed by a number for the row. I can find specified locations in a spreadsheet. |

Year 4

| Lesson | Aims | Success Criteria |
|--------|--|---|
| 1 | Using the formula wizard in the advanced mode to add formulae and explore formatting cells | <ul style="list-style-type: none"> 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. |
| 2 | Timer and spin button | <ul style="list-style-type: none"> I can use the timer, random number and spin button tools. I can combine tools to make fun ways to explore number. |
| 3 | Line graphs | <ul style="list-style-type: none"> I can use a series of data in a spreadsheet to create a line graph I can use a line graph to find out when the temperature in the playground will reach 20° C. |
| 4 | Using a spreadsheet for budgeting | <ul style="list-style-type: none"> I can make practical use of a spreadsheet to help me plan my actions I can use the currency formatting in 2Calculate |
| 5 | Exploring Place Value with a spreadsheet | <ul style="list-style-type: none"> I can allocate values to images and use these to explore place value I can use a spreadsheet made in 2Calculate to check my understanding of a mathematical concept. |

Year 5

| Lesson | Aims | Success Criteria |
|--------|---|---|
| 1 | Conversions of measurements | <ul style="list-style-type: none"> I can create a formula in a spreadsheet to convert m to cm. I can apply this to creating a spreadsheet that converts miles to km and vice versa. |
| 2 | Novel use of the count tool | <ul style="list-style-type: none"> I can use a spreadsheet to work out which letters appear most often. I can use the 'how many' tool. |
| 3 | Formulae including the advanced mode | <ul style="list-style-type: none"> I can use a spreadsheet to work out the area and perimeter of rectangles. I can use these calculations to solve a real life problem. |
| 4 | Using text variable to perform calculations | <ul style="list-style-type: none"> I can create simple formulae that use different variables I can create a formula that will work out how many days there are in x number of weeks or years. |
| 5 | Using a spreadsheet to plan an event | <ul style="list-style-type: none"> I can use a spreadsheet to model a real life situation and come up with solutions that can be applied to real life. |

Year 6

| Lesson | Aims | Success Criteria |
|--------|---|--|
| 1 | Exploring Probability | <ul style="list-style-type: none"> I can create a spreadsheet to answer a mathematical questions relating to probability. I can take copy and paste shortcuts. I can problem solve using the count tool. |
| 2 | Use of spreadsheets in 'real life' Creating a computational model | <ul style="list-style-type: none"> I can create a machine to help me work out 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 |
| 3 | Use a spreadsheet to plan pocket money spending | <ul style="list-style-type: none"> 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 me plan my actions |
| 4 & 5 | Planning a school event | <ul style="list-style-type: none"> 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 me plan my actions |