




Unit 3.3 – Spreadsheets



Year Group: 3
Number of
Lessons: 3



Contents

Introduction.....	3
Year 3 – Medium Term Plan	4
Differentiation	4
Lesson 1 – Creating Pie Charts and Bar Graphs.....	5
Aim.....	5
Success criteria	5
Resources	5
Activities	5
Lesson 2 – Using the  and Spin Button Tools.....	8
Aim.....	8
Success criteria	8
Resources	8
Activities	8
Lesson 3 – Advanced Mode and Coordinates	11
Aim.....	11
Success criteria	11
Resources	11
Activities	11
Assessment Guidance.....	13



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 Scheme of Work for teaching the use of spreadsheets as part of the Computing curriculum. It uses some content from the lessons within 2Calculate and some 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 should use the crash course lesson plans instead of this unit. 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.

The lessons assume that children are logged on to 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 Manage Users](#). Alternatively, please contact support at support@2simple.com or 0208 203 1781.

If children have not used and logged on to Purple Mash before, then they will need to spend some time learning how to do this before starting these lessons. Young children can be supported by having their printed logon cards (produced using [Create and Manage Users](#)) to hand.

Note: To force links within this document to open in a new tab, right-click on the link and then select 'Open link in new tab'.



Year 3 – Medium Term Plan

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

Differentiation

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 detail. 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.



Lesson 1 – Creating Pie Charts and Bar Graphs

Aim

- To add and edit data in a table layout.
- To find out how spreadsheet programs can automatically create graphs from data.

Success criteria

- Children can create a table of data on a spreadsheet.
- Children can use a spreadsheet program to automatically create charts and graphs from data.

Resources

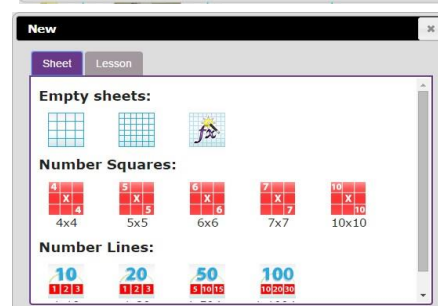
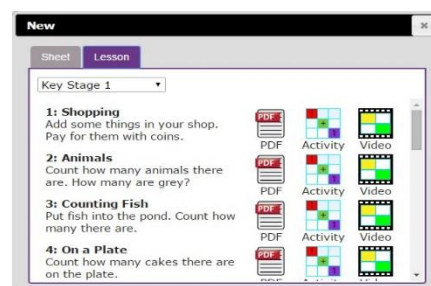
None.

Activities

1. If the children followed the lesson plans for 2Calculate in Year 2, they will be familiar with manually creating a bar chart in 2Calculate.
2. Decide upon a topic to collect data for. Some examples are shown below, but feel free to select a topic that fits in with other class topics or the children's interests.
 - How children get to school in the morning.
 - Children's favourite pets.
 - Favourite foods, ice-cream flavours or drinks.
3. On the whiteboard, open a blank worksheet; the children will have done this many times before if they have been following these plans in previous year groups. The following is a reminder in case the children have forgotten.

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.

Click on the tab. This also gives a few choices, but for today, click on the second one: an empty sheet with small cells.





Purple Mash Computing Scheme of Work Unit 3.5 – Spreadsheets – Lesson 1

4. Collect the data in a way that works best for the way you are working as a class. Here are some suggestions:
5. Each child opens a blank sheet and fills in the data as children provide their answers.
6. Collect all the data as a class on the whiteboard, then children copy the data onto their own worksheets.
7. If the activity is being done by a small group rather than the whole class, then the group members can have a class list and ask each child in the class for their answer, putting the answers into a spreadsheet.
8. You may decide to do a whole-school survey and send different children to different classrooms to collect the data before coming back together to enter it in their spreadsheets.
9. You might decide to provide children with data 'collected earlier' in the form of a tally chart on paper for them to enter into their spreadsheets.

Choose whichever method works best for the way that you are working.

The aim is to collect data in the following format in a spreadsheet; the example here uses favourite ice-cream flavours:

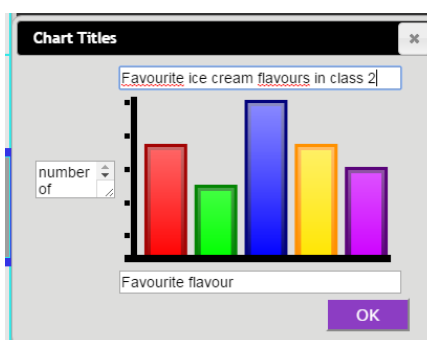
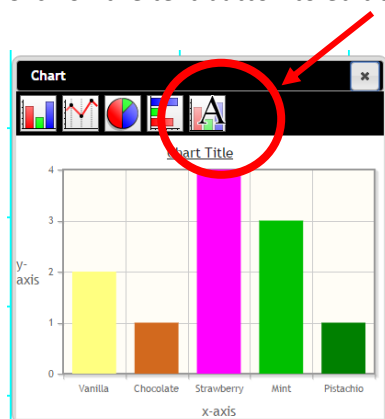
Vanilla	2
Chocolate	1
Strawberry	4
Mint	3
Pistachio	1

NB The spreadsheet should not contain any other information.

Now click on the Chart icon in the top toolbar



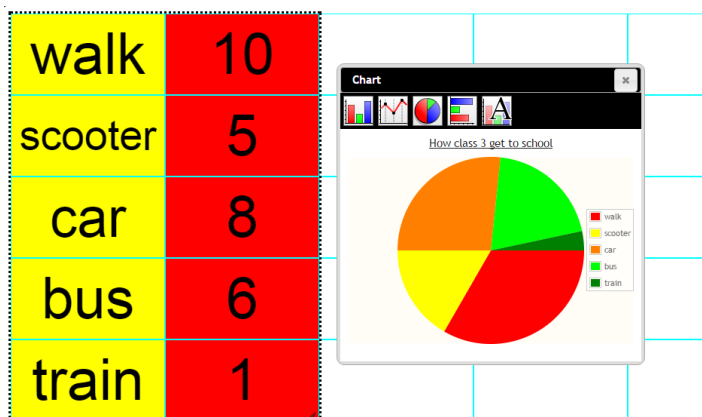
A chart will be created automatically. Click on the buttons at the top to decide upon the most suitable type of chart. Click on the text button to edit the headers and axis labels.



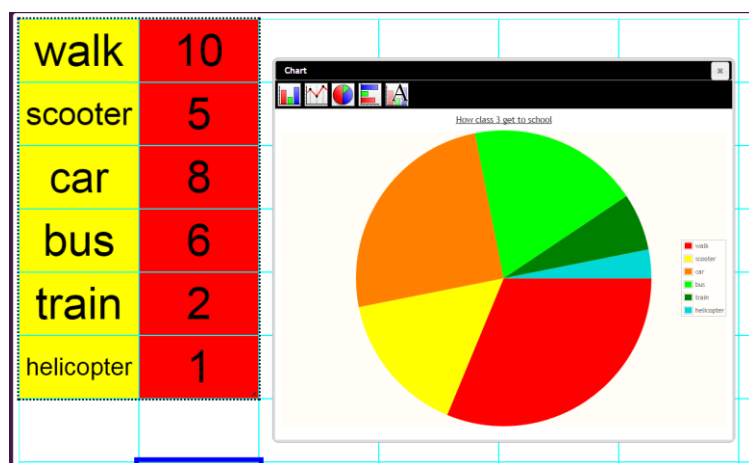


Purple Mash Computing Scheme of Work Unit 3.5 – Spreadsheets – Lesson 1

Here is an example of data that would suit a pie chart:



The data can be changed in the spreadsheet and the chart will update. You can drag the black dotted lines that enclose the data to add more rows. You can also drag the corner of the chart window out to make the chart display bigger:





Lesson 2 – Using the ⇔ and Spin Button Tools

Aim

- To introduce the 'more than', 'less than' and 'equals' tools.
- To introduce the 'spin' tool and show how it can be used to count through times tables.

Success criteria

- Children can use the 'more than', 'less than' and 'equals' tools to compare different numbers and help to work out solutions to calculations.
- Children can use the 'spin' tool to count through times tables.

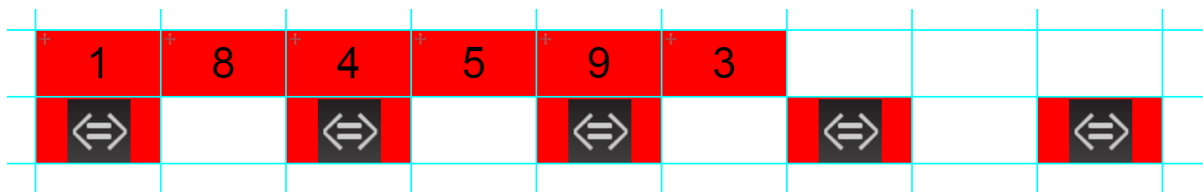
Resources

Unless otherwise stated, all resources can be found on the [main unit 3.3 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.

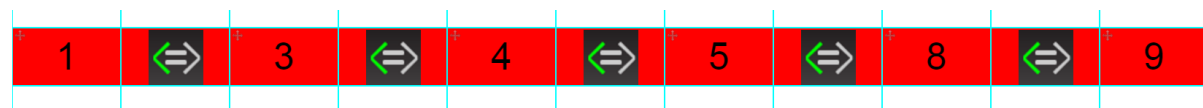
- [Tool Example 1](#)
- [Tool Example 2](#)

Activities

1. Open the Example 1 file and show children the first number line. Ask them if they recognise any of the symbols below the number line and discuss the meaning of $<$, $>$ and $=$.



2. Show how dragging the red numbers affects the display of the tool. Put the numbers in ascending order and see how the tool makes it clear that they are correctly located. What about descending order?



3. Show children how to insert the 'more than', 'less than' and 'equal' tools into a cell by clicking on one of the empty blue cells and then clicking the tool in the controls toolbox.
4. Also, remind children how to make the numbers movable (by highlighting the blue numbers and then clicking on the 'move cell' tool).



numbers




Purple Mash Computing Scheme of Work Unit 3.5 – Spreadsheets – Lesson 2

- Can children recreate a number line in their own spreadsheet? Children should be encouraged to create number lines that stretch their ability, using, for example, negative numbers or decimals to provide an extra challenge.
- Once children have had time to try this out, bring them back together and open the second example file.


	Can you	make all	of the	signs show	=	?
98	x	8	↔			
12	x	66	↔			
14	x	23	↔			
135	x	898	↔			

- The challenge here is to use estimation and the indications from the tool to work out the correct answers. Feel free to alter the numbers if they are too hard/easy for your class.

For example, children could suggest that, as 98 is nearly 100, then the answer to the first question


should be a bit less than 800. Try entering 750 and the  will indicate that the answer is higher than the entered answer, so try a number between 750 and 800 and continue to use the tool until the equals sign is highlighted, meaning the answer is correct.

- The rest of this activity could be completed as a class or by children copying the calculations and using the tool to work out the answer. Emphasise that children should make educated estimations, in the first instance.
- Once children have had time to explore this tool, bring them back together to introduce the 'spin' tool. Click on a free cell on the left-hand side of the spreadsheet, then click on the 'spin' tool from the

controls toolbox on the right-hand side . Enter the number 1 in the cell to the immediate right of it. Show how clicking on the up and down arrows increases or decreases the number by 1.

- Can children think of a way to use the spin button to display the numbers in the 2 X table?

Here is a suggestion:

	2 X table	machine			
	3	x	2	=	6



Purple Mash Computing Scheme of Work Unit 3.5 – Spreadsheets – Lesson 2

11. See if children can use the 'spin' tool to create table machines for the other times tables. Remind them about using copy and paste (Y2, Lesson 1). How quickly can they work out answers to questions using their tables tools?

	Times	Table	Machines											
	2 X table	machine							8 X table	machine				
▲▼	3	x	2	=	6			▲▼	3	x	8	=	24	
	3 X table	machine							9 X table	machine				
▲▼	3	x	3	=	9			▲▼	7	x	9	=	63	
	4 X table	machine							10 X table	machine				
▲▼	10	x	4	=	40			▲▼	6	x	10	=	60	
	5 X table	machine							11 X table	machine				
▲▼	4	x	5	=	20			▲▼	11	x	11	=	121	
	6 X table	machine							12 X table	machine				
▲▼	5	x	6	=	30			▲▼	7	x	12	=	84	
	7 X table	machine												
▲▼	2	x	7	=	14									



Lesson 3 – Advanced Mode and Coordinates

Aim

- To introduce the Advanced mode of 2Calculate.
- To learn about describing cells using their coordinates.

Success criteria

- Children can describe a cell location in a spreadsheet using the notation of a letter for the column followed by a number for the row.
- Children can find specified locations in a spreadsheet.

Resources

Unless otherwise stated, all resources can be found on the [main unit 3.3 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.

- [Advanced Mode example 1](#).
- [Advanced Mode example 2](#); you will need to save this as a 2Do for your class.
- [Advanced Mode example 3](#). Set this as a 2Do for the class.

Activities

1. Show children how to switch to the Advanced mode of 2Calculate by clicking on the mode switch button at the top of the screen:



2. Notice that in Advanced mode, the rows are numbered and the columns have letters to label them.
3. Spend a few minutes asking children to tell you which cell you have clicked on, clicking on a different cell each time.
4. Open the first example spreadsheet. On this sheet, the key to the right-hand side shows which cells should be which colour. As a class, colour the cells; you should end up with a picture of a tree.
5. Children can now open example 2; make sure that they are in Advanced mode and try to work out what the image is.
6. Any children who finish quickly could try making their own key to an image and seeing if a friend can solve it.
7. When children have had time to finish, bring the class back together and open the Treasure Map example file. Children have to click on the Quiz tool cells and enter the coordinates of the item. If they enter correctly, their answer will replace the Quiz tool.
8. Children can complete the activity at their computers and then create their own treasure maps to swap with a partner using the Quiz tool to hide the locations.



Purple Mash Computing Scheme of Work Unit 3.5 – Spreadsheets – Lesson 3

- Alternatively, they could fill in the map key with the objects and locations and their partner should put the correct items in the correct locations. They can use copy and paste to do this (Ctrl + C to copy, Ctrl + V to paste).

Treasure Map example file

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1														Key	
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															



Assessment Guidance

The unit overview for year 3 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	<p>Children know that they can use a spreadsheet to present their collected data as a chart or graph (lesson 1). With support, they can create and begin to interpret graphs of simple data.</p> <p>They are beginning to understand the use of symbols to represent more than, less than and equals to and use the spreadsheet tools to explore the outcome of comparing numbers and calculations (lesson 2).</p> <p>Children can find specific cell locations within a spreadsheet (lesson 3).</p>
Expected	<p>Most children can create a table of data on a spreadsheet and can use this to automatically create charts/graphs from data. Children will be able to select the most suitable type of chart to use for their data, edit headers and apply axis labels (Unit 3.3. Lesson 1 Point 9). Children can create their own number lines within 2Calculate including 'more than', 'less than' and 'equal' tools (Unit 3.3. Lesson 2 Points 3 and 5).</p> <p>Children can collect and enter data within 2Calculate, they are able to use the graphing tool to create suitable graphical representations of the data they have within a table (Unit 3.3. Lesson 1).</p>
Exceeding	<p>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.</p>