

Computing Scheme of Work

Unit 3.3 –

Spreadsheets



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Introduction

2Calculate is a simple to use spreadsheet 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.

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.

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 plans for earlier years (y2).

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.

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

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



Medium-Term Plan

Lesson	Title	Learning Objectives	Success Criteria
<u>1</u>	Creating Pie Charts and Bar Graphs	- To recap spreadsheet terms and purposes. - To add and edit data in a table layout. - To find out how spreadsheet programs can automatically create graphs from data.	- Children can use the correct terminology for a spreadsheet program. - Children can create a table of data on a spreadsheet. - Children can use a spreadsheet program to automatically create charts and graphs from data.
<u>2</u>	Cell Addresses	- To introduce the Advanced mode of 2Calculate. - To learn about describing cells using their addresses.	- 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.
<u>3</u>	The Formula Bar	- To learn about the formula wizard in 2Calculate Advanced mode. - To learn about the formula bar in 2Calculate Advanced mode. - To use formulae to complete calculations.	- Children can follow the steps of the formula wizard to perform calculations. - Children can enter formulae into the formulae bar. - Children can create formulae to complete calculations.
<u>4</u>	Using and combining tools in 2Calculate	- To explore how tools can be combined to use 2Calculate. - To explore the use of the random number and guess answer tools.	- Children can use the random number and guess answer tools. - Children can combine tools to make ways to explore number.
<u>5</u>	Line Graphs	- To use the line graphing tool in 2Calculate with appropriate data. - To interpret a line graph to estimate values between data readings.	- 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 a certain temperature.
<u>6</u>	Using a Spreadsheet for Budgeting	- To use range notation in 2Calculate. - To use 2Calculate to create a model of a real-life situation. - To create a spreadsheet file with more than one sheet.	- Children can describe a group of cells using range notation. - Children can use a spreadsheet to plan a party budget. - Children can add multiple sheets to a spreadsheet file.



Lesson 1 – Creating Pie Charts and Bar Graphs

Learning Objective

- To recap spreadsheet terms and purposes.
- 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 use the correct terminology for a spreadsheet program.
- 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

All resources can be found on the Purple Mash page for this lesson. From here they can be set as 2Dos for children if required.

- 2Calculate tool: This is found in the Tools area of Purple Mash.
- Bird Data, Cars Data

Preparation

- In advance of the lesson, decide what data to use with the class and how you organise data collection (see slide 10) (collect example data if you wish to use already collected data) edit this slide to adapt it to the data you wish the children to collect.
- Set 2Calculate as a 2Do for pupils to enable easy access so they can then open it directly from their 2Dos.
- For the extension, set Bird Data and Cars Data as 2Dos.
- You can select the following objectives when setting the 2Dos to make future assessment easier:

Year:	Y3	▼
Subject:	Computing	▼
Strand:	IT	▼

Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. ☐

Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. ☒

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Activities

Lesson Objectives	Slide 2	Display and outline the lesson aims.
Success Criteria	Slide 3	Display and outline the success criteria.
Vocabulary	Slide 4	This slide can be used to introduce vocabulary. The new vocabulary is repeated at the end of the lesson where it can be used to review lesson vocabulary
2Calculate	Slide 5	Click to reveal the answers.
Uses of spreadsheets	Slide 6	Click through this slide to aid remembering last year's uses of spreadsheets.
Charts and graphs	Slide 7	Support children in understanding the data table.
Bar graphs	Slide 8	After looking the graph, clicking will reveal in turn: (1) a title, (2) axis labels, (3) horizontal lines to read the numbers better (4) sorting. Ask the children how easy each step would be to change on a hand drawn graph? 1 and 2 would not be too difficult (3) shows how squared paper is best for graph drawing by hand but 4 would require redrawing the graph. What would happen if after completing the graph, some children wanted to change their answer? The whole graph would have to be re-drawn.
Pie Charts	Slide 9	After looking at the graph, clicking will reveal in turn: (1) a title, (2) a key, (3) sorting. Ask the children how easy each step would be to change on a hand drawn graph? 1 and 2 would not be too difficult (3) would require redrawing the graph. What would happen if after completing the graph, some children wanted to change their answer? The whole graph would have to be re-drawn.
Activity 1: Make a data table	Slide 10	In advance of the lesson, edit this slide to adapt it to the data you wish the children to collect.
Activity 2: Creating Charts	Slide 11	Support children in creating charts. The icon for line graphs is shown as it is on 2Calculate, but it is not part of the teaching for this lesson. Children could use the notes tool (post it note icon) to type what the graphs show. Remind children to save.
Activity 3: Changing Data	Slide 12	Encourage children to reflect upon the ease of changing data compared to a hand drawn graph.
Extension	Slide 13	Support children with the extension. The required files will be in their 2Dos if set.

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Vocabulary Overview	Slide 14	The slide can be used to review new vocabulary encountered in the lesson. Click on the words to reveal the definitions.
Review Success Criteria	Slide 15	Review the success criteria. Children could rate how well they achieved this using a show of hands.



Lesson 2 – Cell Addresses

Learning Objective

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

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

All resources can be found on the Purple Mash page for this lesson. From here they can be set as 2Dos for children if required.

- Cell Address Example (see slide 6) used as a whole class activity.
- Cell Pictures,
- Treasure Map

Preparation

- Set Cell Pictures and Treasure Map as 2Dos for the class. You can select the following objectives when setting the 2Dos to make future assessment easier:

Year:	Y3	▼
Subject:	Computing	▼
Strand:	IT	▼
Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.		☐
Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.		☒

Activities

Lesson Objectives	Slide 2	Display and outline the lesson aims.
Success Criteria	Slide 3	Display and outline the success criteria.
Vocabulary	Slide 4	This slide can be used to introduce vocabulary. The new vocabulary is repeated at the end of the lesson where it can be used to review lesson vocabulary

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Advanced Mode	Slide 5	Launch a blank spread sheet (launcher top right of slide). Click on a few cells to demonstrate cell addresses. Ask children to click on specific cells on the whiteboard.
Activity 1: Creating a Picture	Slide 6	Complete the activity on the Cell Address example spreadsheet as a class. Children should complete the Cell Picture sheet by opening from their 2Dos.
Activity 2: Treasure Maps	Slide 7	Children should open Treasure Map from their 2Dos. They must enter the correct cell locations for items on the map.
Extension	Slide 8	Children must add more items to the map with cell addresses. Children are expected to use the quiz tool.
Vocabulary Overview	Slide 9	The slide can be used to review new vocabulary encountered in the lesson. Click on the words to reveal the definitions.
Review Success Criteria	Slide 10	Review the success criteria. Children could rate how well they achieved this using a show of hands.



Lesson 3 – The Formula Bar

Learning Objective

- To learn about the formula wizard in 2Calculate Advanced mode.
- To learn about the formula bar in 2Calculate Advanced mode.
- To use formulae to complete calculations.

Success Criteria

- Children can follow the steps of the formula wizard to perform calculations.
- Children can enter formulae into the formulae bar.
- Children can create formulae to complete calculations.

Resources

All resources can be found on the Purple Mash page for this lesson. From here they can be set as 2Dos for children if required.

- Lesson 3 example 1; used for the teacher to demonstrate (see slide 8)
 - Wizard Starter and Formula Bar Starter.
- Set Wizard Starter and Formula Bar starter as 2Dos for the class. You can select the following objectives when setting the 2Dos to make future assessment easier:

Year:	Y3	▼
Subject:	Computing	▼
Strand:	IT	▼

Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. ☐

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Activities

Lesson Objectives	Slide 2	Display and outline the lesson aims.
Success Criteria	Slide 3	Display and outline the success criteria.
Vocabulary	Slide 4	This slide can be used to introduce vocabulary. The new vocabulary is repeated at the end of the lesson where it can be used to review lesson vocabulary
Advanced Mode	Slide 5	Launch a blank spread sheet (launcher top right of slide) to demonstrate. Draw children's attention to the way that

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		calculations are done in simple mode using the number pad to display and answer the calculation. The answer to the last question is that a screen pops up called content assist which will mean nothing to the children at present.
	Slide 6	Click to reveal the formula bar and formula wizard areas in advanced mode. For the steps in this lesson choose whether you wish children to try out each tool as it is demonstrated or if you wish to demonstrate for the class. If children are to try each step, they should open 2Calculate in Advanced mode on their devices and try out each step as you go by creating their own example sheets.
The Formula Wizard	Slide 7	Discuss how the word 'total' indicates an addition sum, so cell C2 should say 22.
	Slide 8	Click on the linked file to demonstrate. Discuss how the word 'total' indicates an addition sum, so cell C2 should say 22.
	Slide 9	Ensure that children notice how the total updates.
Activity 1: Using the wizard	Slide 10	Support children in completing the spreadsheet.
The formula bar	Slide 11	Demonstrate using the tools in 2Calculate, children could follow along on their own devices.
Activity 2: Using the formula bar	Slide 12	Explain that formulae is the plural of formula.
Vocabulary Overview	Slide 13	The slide can be used to review new vocabulary encountered in the lesson. Click on the words to reveal the definitions.
Review Success Criteria	Slide 14	Review the success criteria. Children could rate how well they achieved this using a show of hands.



Lesson 4 – Using and combining tools in 2Calculate

Learning Objective

- To explore how tools can be combined to use 2Calculate.
- To explore the use of the random number and guess answer tools.

Success Criteria

- Children can use the random number and guess answer tools.
- Children can combine tools to make ways to explore number.

Resources

All resources can be found on the Purple Mash page for this lesson. From here they can be set as 2Dos for children if required.

- Goals Scored.

Preparation

- Set Goals Scored as 2Do for the class. You can select the following objectives when setting the 2Dos to make future assessment easier:

Year:	Y3	▼
Subject:	Computing	▼
Strand:	IT	▼

Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. ☐

Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. ☒

Activities

Lesson Objectives	Slide 2	Display and outline the lesson aims.
Success Criteria	Slide 3	Display and outline the success criteria.
Vocabulary	Slide 4	This slide can be used to introduce vocabulary. The new vocabulary is repeated at the end of the lesson where it can be used to review lesson vocabulary

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The Random Number tool	Slide 5	The method of opening 2Calculate described will allow children to explore 2Calculate to use as a tool whenever they wish instead of simply opening 2Dos. It may also encourage them to explore the other tools in Purple Mash. Demonstrate the skills being introduced, children could follow along on their own devices.
The Guess Answer tool	Slide 6	Ensure that children know how to type +, - * and / on their keyboard and what each symbol represents (particularly * and /).
Activity 1: Using the tools in a spreadsheet	Slide 7	Support children in completing the activity.
Extension	Slide 8	Children attempt to make their own times table test spreadsheet. .
Vocabulary Overview	Slide 9	The slide can be used to review new vocabulary encountered in the lesson. Click on the words to reveal the definitions.
Review Success Criteria	Slide 10	Review the success criteria. Children could rate how well they achieved this using a show of hands.



Lesson 5 – Line Graphs

Learning Objective

- 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 a certain temperature.

Resources

All resources can be found on the Purple Mash page for this lesson. From here they can be set as 2Dos for children if required.

- 2Calculate tool

Preparation

- Set 2Calculate as a 2Do for the class. You can select the following objectives when setting the 2Dos to make future assessment easier:

Year:	Y3	▼
Subject:	Computing	▼
Strand:	IT	▼

Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. ☐

Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. ☒

Activities

Lesson Objectives	Slide 2	Display and outline the lesson aims.
Success Criteria	Slide 3	Display and outline the success criteria.
Vocabulary	Slide 4	This slide can be used to introduce vocabulary. The new vocabulary is repeated at the end of the lesson where it can be used to review lesson vocabulary
Using the formatting menu	Slide 5	Show the children how to add °C to their 2Calculate spreadsheet.

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Activity 1: Make a data table	Slide 6	Support children to enter the data from the slide into a table and add the °C to the temperature column.
Activity 2: Creating line graph	Slide 7	Support children in creating the line graph and answering the questions.
Activity 3: Adding another dataset	Slide 8	Support children in entering the second set of data and then creating the two line graphs. Discuss with the children what information the graphs show. Remind them to save their work.
Vocabulary Overview	Slide 9	The slide can be used to review new vocabulary encountered in the lesson. Click on the words to reveal the definitions.
Review Success Criteria	Slide 10	Review the success criteria. Children could rate how well they achieved this using a show of hands.



Lesson 6 – Using a Spreadsheet for Budgeting

Learning Objective

- To use range notation in 2Calculate.
- To use 2Calculate to create a model of a real-life situation.
- To create a spreadsheet file with more than one sheet.

Success Criteria

- Children can describe a group of cells using range notation.
- Children can use a spreadsheet to plan a party budget.
- Children can add multiple sheets to a spreadsheet file.

Resources

All resources can be found on the Purple Mash page for this lesson. From here they can be set as 2Dos for children if required.

- Range Addition
- Party Budget

Preparation

- Set Range Addition and Party Budget as a 2Do for children. You can select the following objectives when setting the 2Dos to make future assessment easier:

Year:	Y3	▼
Subject:	Computing	▼
Strand:	IT	▼
Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.		☐
Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.		☒

Activities

Lesson Objectives	Slide 2	Display and outline the lesson aims.
Success Criteria	Slide 3	Display and outline the success criteria.
Vocabulary	Slide 4	This slide can be used to introduce vocabulary. The new vocabulary is repeated at the end of the lesson where it can be used to review lesson vocabulary

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A range of cells	Slide 5	Explain how to use the colon for a range of cells and that it is much quicker than typing or clicking on each cell..
A range of cells	Slide 6	Show how to use the Sum feature. Stress the need to put brackets around the cell range.
Activity 1: Using SUM and range to add cells	Slide 7	Support the children with the activity.
Planning a party	Slide 8	Can children suggest items? Click to reveal suggestions, check that children understand each of the terms.
Planning a party	Slide 9	Go through the some of the different things needed for a good party.
Using more than one sheet in a spreadsheet	Slide 10	Show children how to add a sheet and switch between the different sheets.
Laying out the Budget sheet	Slide 11	Look at the content in the different sheets by clicking on the tabs.
Laying out the Budget sheet	Slide 12	Look at how to work out the cost of each item in the budget sheet and change the cell show the amount is shown as currency.
Laying out the Budget sheet	Slide 13	Look at how to work out the total party in the budget sheet by using the sum and range they covered earlier in the lesson.
Activity 2: Making a Budget Sheet	Slide 14	Support the children with the activity.
Extension: Changes to the data	Slide 15	Support the children with the activity. The final cost appears on click
Vocabulary Overview	Slide 16	The slide can be used to review new vocabulary encountered in the lesson. Click on the words to reveal the definitions.
Review Success Criteria	Slide 17	Review the success criteria. Children could rate how well they achieved this using a show of hands.



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	Children know that they can use a spreadsheet to present their collected data as a chart or graph (lessons 1 & 5). With support, they can create and begin to interpret graphs of simple data. Children can find specific cell locations within a spreadsheet (lesson 2). With support, they can enter formulae (lesson 3) They are beginning to understand the use of the spreadsheet tools to manipulate data (lesson 4).
Expected	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 (lessons 1 & 5). Children can find specific cell locations within a spreadsheet (lesson 2). They can enter formulae using both the formula wizard and the formula bar (lesson 3) and understand why formulae are used rather than 'hardcoding' calculations. Children can combine the use of tools in 2Calculate to manipulate and analyse data (lessons 4 & 6).
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.

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