



Computing Scheme of Work

Unit 2.3 – Spreadsheets



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Introduction

These spreadsheet lessons have been designed to be used on a range of devices including tablets. We advise when you are dealing with larger spreadsheet data sets then laptops or desktops are the preferred devices.

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. Childs who have not used 2Calculate before will benefit by doing with the crash course unit instead. 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 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.

If children have not used and logged onto Purple Mash before then they will need to spend some time before starting these lessons, learning how to do this. 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 then select 'Open link in new tab'.

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Medium-Term Plan

Lesson	Title	Success Criteria
<u>1</u>	Reviewing The Use of Spreadsheets	<ul style="list-style-type: none"> Children can explain what rows and columns are in a spreadsheet. Children can open, save and edit a spreadsheet. Children can add images from the image toolbox and allocate them a value. Children can add the count tool to count items.
<u>2</u>	Copying, Cutting, Pasting and Totals	<ul style="list-style-type: none"> Children can use copying, cutting and pasting to help make spreadsheets. Children can use tools in a spreadsheet to automatically total rows and columns. Children can use a spreadsheet to solve a mathematical puzzle.
<u>3</u>	Using a Spreadsheet to Add Amounts	<ul style="list-style-type: none"> Children can use images in a spreadsheet. Children can work out how much they need to pay using coins by using a spreadsheet to help calculate.
<u>4</u>	Creating a Table and Block Graph	<ul style="list-style-type: none"> Children can create a table of data on a spreadsheet. Children can use the data to create a block graph manually.

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.

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Lesson 1 – Reviewing the Use of Spreadsheets

Aims

- To review the work done in 2Calculate in year 1.
- To revise spreadsheet related vocabulary.
- To use some 2Calculate tools that were introduced in year 1.

Success Criteria

- Children can explain what rows and columns are in a spreadsheet.
- Children can open, save and edit a spreadsheet.
- Children can include images from the image toolbox and allocate them a value.
- Children can use the count tool to count items.

Resources

Unless otherwise stated, all resources can be found on the [main unit 2.3 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.

- [Finished counting machine spreadsheet](#) : The children made these in year 1; this is to remind them what they have done before in 2Calculate.
- [Lesson 1 Example - Pencil Sharing](#).

Activities

Introduction	<p>Display slide 2 and outline the lesson aims.</p> <p>Display slide 3 and outline the success criteria.</p> <p>*Children should be encouraged to open, save and edit files during this lesson.</p>
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Recap on spreadsheets & Key Vocab.	<p>Display slide 4 clicking through it to reveal what spreadsheets are and what they are used for.</p> <p>Display slide 5. Click through the slide to reveal the key areas of the spreadsheet. Alternatively, demonstrate by clicking the icon to open the example in 2Calculate and reviewing the same vocabulary.</p>
Activity 1: Recap on Colouring Cells	<p>Use slide 6 – Open the example linked to on slide 5 to demonstrate.</p> <p>Click for hints.</p> <p>Children can open this from their 2dos to have a go.</p>
Activity 2: Images	<p>Use slides 7-8 to recap adding images, making cell contents draggable and setting values for images. Children can try this.</p>
Counting Machine	<p>Use slides 9-10. Recap how counting machines work.</p> <p>Slide 10 contains some things for children to try.</p>
Activity 3: Make a Counting Machine	<p>Use slide 11 to launch example of 'Pencils Counting Machine.' Children create their own counting machine; they might want to adapt the example (Launcher top right of slide).</p>
Extension	<p>Slide 12 – Extend children by getting them to add four groups to sort various numbers. Children could add to existing spreadsheet.</p>
Review Success Criteria	<p>Use slide 13 to evaluate success of meeting success criteria and how well they felt they were able to achieve the 3 activities.</p>



Lesson 2 – Copying, Cutting and Pasting Totals

Aims

- To use copying, cutting and pasting shortcuts in 2Calculate.
- To use 2Calculate totalling tools.
- To use 2Calculate to solve a simple puzzle.

Success Criteria

- Children can use copying, cutting and pasting to help make spreadsheets.
- Children can use tools in a spreadsheet to automatically total rows and columns.
- Children can use a spreadsheet to solve a mathematical puzzle.

Resources

Unless otherwise stated, all resources can be found on the [main unit 2.3 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.

- [Examples of completed magic square puzzles](#) (Solutions).
- [Magic Square Example File](#).

Activities

Introduction	Display slide 2 and outline the lesson aims. Display slide 3 and outline the success criteria. *Children should be encouraged to open, save and edit files during this lesson.
Magic Squares	Use slide 4 , remind children how to launch a 2Calculate blank file. Use the slide to explain what a magic square is.
Activity 1: Create a Pattern	Use slide 5 to explain to children they need to create the pattern they see on the slide and how to make numbers in cells moveable.

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Activity 2: Cutting and Pasting	<p>Display slide 6. Explain we need a gap of 3 columns to provide space to perform calculations on rows and columns. Children can move the numbers to provide space by using cut and copy.</p> <p>Note: if using an iPad, copy X and Paste V cannot be used. The content of each cell can be moved individually by tapping and dragging one cell at a time.</p>
Activity 3: Adding Totals	<p>Use slide 7 to model using the totalling tool to add up the numbers in rows and columns. Children should have a go at inserting the totalling tools next to each row and column (Launch example file top right of slide).</p>
Activity 4: Bigger Magic Squares	<p>Use slide 8 to model making a larger square. Children should use copy and paste to make larger squares.</p> <p>*Note: for iPads, the content of each cell can be moved individually by tapping and dragging one cell at a time.</p>
Extension	<p>Use slide 9 to extend some children. Children can create a repeated addition machine by using a total at the end of 5 or so columns. In each column before the total, they test typing a 5 in and watch what the total does.</p>
Review Success Criteria	<p>Use slide 10 to evaluate success of the children meeting success criteria and how well they felt they were able to achieve the activities. Launch example with possible solutions.</p>



Lesson 3 – Using a Spreadsheet to Add Amounts

Aim

- To explore the capabilities of a spreadsheet in adding up coins to match the prices of objects.

Success Criteria

- Children can use images in a spreadsheet.
- Children can work out how much they need to pay using coins by using a spreadsheet to help calculate.

Resources

Unless otherwise stated, all resources can be found on the [main unit 2.3 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.

- Examples of coins. It would be useful if the children are familiar with how pence and pounds are written e.g., 17p is the same as £0.17 as the spreadsheet will automatically display as £s.
- [Yr2Lesson3Shop1file.](#)
- [Yr2Lesson3Shop2 file.](#)

Activities

Introduction	Display slide 2 and outline the lesson aims. Display slide 3 and outline the success criteria. *Children should be encouraged to open, save and edit files during this lesson.
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Activity 1: Building a Shop (adding images)	Display slide 4 and Launch 2 Calculate from top right of slide. Use the slide to support children in inserting food images into their own spreadsheet and including simple prices. *Specify price format re knowledge of decimals.
Activity 2: Building a Shop (colouring cells)	Display slide 5 . Children colour multiple cells and the same food images to make a shop front.
Activity 3: Totalling Coin Values	Display slide 6 . Demonstrate how to check which coins are needed to pay for an item (Launch example spreadsheet top right of the slide). Display slide 7 . Children should test coins that make given amounts for items of food. Deepen understanding of the tools by using the 'equals tool' (Launch example spreadsheet top right of the slide). *Be aware of decimal understanding when representing monetary value.
Extension	Use slide 8 to explain an extension. Children explore the fewest (least) number of coins needed to make amounts up to 30p using 2Calculate.
Review Success Criteria	Use slide 9 to evaluate success of meeting success criteria and how well the children felt they were able to achieve the activities.



Lesson 4 – Creating a Table and Block Graph

Aims

- To add and edit data in a table layout.
- To use the data to manually create a block graph.

Success Criteria

- Children can create a table of data on a spreadsheet.
- Children can use the data to create a block graph manually.

Resources

Unless otherwise stated, all resources can be found on the [main unit 2.3 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.

- [Ice Cream Choice example file.](#)
- [Challenge files 1 \(School / TV\).](#)
- [Challenge files 2 \(School/TV\).](#)

Activities

Introduction	Display slide 2 and outline the lesson aims. Display slide 3 and outline the success criteria. *Children should be encouraged to open, save and edit files during this lesson.
Background: Create a Table and Block Graph	Use slide 4 to explain today's task 'collecting data to create a table and block graph' and share the Key Vocabulary and definitions.
Activity 1: Create a Title	Use slide 5 to demonstrate creating a title (Launch 2Calculate blank file top right of slide). *Select either desktop or iPad icon to go to the relevant next slides.
Activity 2: Creating Labelled Columns and Entering Data	Use slide 6 (slide 8 iPads) to support children in creating labelled columns and entering data (Launch example file top right of slide).

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Activity 3: Making the Graph	Use slide 7 (slide 9 iPads) to show children how to insert images and manipulate them in order to show different flavours. Children should add labels and colour code cells to match flavours.
Extension	Display slide 10 . Explain to children that they should attempt to collect data using the two tables given and convert into block graph (Launch the example files on the slide) .
Review Success Criteria	Use slide 11 to evaluate success of meeting success criteria and how well the children felt they were able to achieve the activities.



Assessment Guidance

The unit overview for year 2 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 open, edit and save sheets in 2Calculate (Throughout Unit 2.3). Children can enter a small set of data into cells (Throughout Unit 2.3). With support, they can allocate a value to an image (Unit 2.3 Lesson 1) and manipulate data using copying, cutting and pasting allowing them to solve puzzles (Unit 2.3 Lesson 2) - support in the form of a visual prompt may be given here to aid children in using keyboard short cuts). Children use images and can present data in a variety of ways (Unit 2.3 Lesson 4).
Expected	<p>Using the 2Calculate spreadsheet, children can open, edit and save sheets (Throughout Unit 2.3). Children can enter data into cells (Throughout Unit 2.3), allocate a value to an image (Unit 2.3 Lesson 1) and manipulate data using copying, cutting and pasting allowing them to solve puzzles (Unit 2.3 Lesson 2). Children use images and can present data in a variety of ways (Unit 2.3 Lesson 4).</p> <p>Most children will be able to create a spreadsheet which includes a graph based on simple data collected. Their planned spreadsheet and graph are likely to contain pre-compiled shared data. They can add colour and appropriate labels to their spreadsheet and graph respectively (Unit 2.3. Lesson 4).</p> <p>Most children will be able to produce a spreadsheet which can help them solve simple mathematical puzzles, calculate how many coins are required to pay for an amount and present data graphically. Using spreadsheets, the children can model an idea through them (Unit 2.3.). Children can utilise spreadsheets both own and pre-made to manipulate data e.g., create a manual graph from a table, produce desired calculations on numerical data e.g., simple addition calculations (Unit 2.3. Lesson 3). Children can answer questions on data e.g., the most and least popular flavours (Unit 2.3. Lesson 4).</p> <p>Most children will be able to use 2Calculate to record collected data into a table and use this data to create a block graph manually (Unit 2.3. Lesson 4).</p>
Exceeding	Using the 2Calculate spreadsheet, children can independently open, edit and save sheets and support others in doing this (Throughout Unit 2.3). Children can enter a wider amount data into cells (Throughout Unit 2.3), allocate a value to an image (Unit 2.3 Lesson 1) and manipulate data seamlessly using keyboard short cuts for copying, cutting and pasting, allowing them to solve puzzles (Unit 2.3 Lesson 2). Children use images and can present data in a variety of ways (Unit 2.3 Lesson 4). Children will demonstrate greater depth by explaining the data and summarising this into simple statements (Unit 2.3 Lesson 4).

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