purple mash

CRASH COURSE

Computing Scheme of Work Year 5 Spreadsheets Crash Course

Foasses in Year 5 who have not used 2Calculate previously

Contents

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 because they are easier for children to use for this purpose.

The Purple Mash spreadsheet tool is 2Calculate. A user guide to can be found at 2Calculate User Guide.

The crash courses have been designed to help classes who haven't completed the spreadsheet units in previous year groups to catch up the essential skills so that they can proceed with the non-crash course in the next year group. For example, a class who did not do the spreadsheet units in years 1 and 2, would do the crash course unit in year 3 and not the standard unit. In year 4, they would do the standard unit. In order to catch up, children will not learn about every tool within 2Calculate but will focus on the core spreadsheet skills that can be applied to other spreadsheets that they will encounter in future learning.

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.

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'.

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.

Medium-Term Plan

Lesson	Title	Success Criteria
1	Introduction to Spreadsheets	• Children can explain what rows and columns are. • Children can enter data into cells. • Children can describe and find a cell location in a spreadsheet using the notation of a letter for the column followed by a number for the row. • Children can create a table of data on a spreadsheet.
2	Formula Wizard and Formatting Cells	• Children can use the number formatting tools within 2Calculate to appropriately format numbers. • Children can use the formula wizard to write a formula for a cell to automatically make a calculation in that cell.
3	Creating Graphs	• Children can create a table of data on a spreadsheet. • Children can use a spreadsheet program to automatically create charts and graphs from data.
4	Conversions of Measurements	• Children can type into the formula bar to create formulae for cells. • Children can create a formula in a spreadsheet to convert m to cm. • Children can apply this to creating a spreadsheet that converts miles to km and vice versa.
5	Using a Spreadsheet to Model a Situation	• Children can make practical use of a spreadsheet to help them plan actions. • Children can use the currency formatting in 2Calculate.
6	Formulae Including the Advanced Mode	• Children can use a spreadsheet to work out the area and perimeter of rectangles. • Children can use these calculations to solve a real-life problem.

Lesson 1 – Introduction to Spreadsheets

Aims

- To understand what a spreadsheet looks like.
- To be able to navigate around a spreadsheet and enter data.
- To learn new vocabulary related to spreadsheets.

Success criteria

- Children can explain what rows and columns are.
- Children can enter data into cells.
- Children can describe and find a cell location in a spreadsheet using the notation of a letter for the column followed by a number for the row.
- Children can create a table of data on a spreadsheet.

Resources

Unless otherwise stated, all resources can be found on the unit main page. From here, they can be set as 2Dos by clicking on the icon. To preview resources linked to here, right-click and '**open in new tab'** so you do not navigate away from this page.

- 2Calculate tool in Purple Mash.
- Advanced Mode example 1.
- Advanced Mode example 3. Set this as a 2Do for the class.
- Ferret Walking example file: set this as a 2Do for the class

Activities

Introduction	Display **slide 2** and outline the lesson aims. Display **slide 3** and outline the success criteria.
Background – What are Spreadsheets?	Display **slide 4** clicking through it to reveal what spreadsheets are. Display **slide 5**. Share screenshot of party spreadsheet. Ask the class - What could also be included on a spreadsheet for a party?
Getting to know 2Calculate	Use **slide 6.** Show children how to open 2Calculate from the Tools area in Purple Mash. For demonstration, you can click on the icon on the slide. Use the prompts on the slide to help children familiarise themselves with 2Calculate when it is opened.

Key Vocabulary	Use **slide 7** in conjunction with 2Calculate to show children the environment and go through key vocabulary. Click to reveal points and then identify them on the image or on 2Calculate.
Creating a Picture	Use **slide 8**. Launch Example 1 from the icon. As a class, create a picture from cell addresses given on sheet.
Activity 1: Treasure Maps	Display **slide 9**. Children should open and complete Example 3 from their 2Dos to complete and save.
Creating a Spreadsheet	Use **slide 10**. Open the example using the icon on the slide to demonstrate if required. Click on the slide to reveal the teaching points.
Calculating Totals	Use **slides 11-13** Talk through the slides and demonstrate.
Activity 2: Calculating Totals	Use **slide 14** to direct the activity. Children might need help with the second stage where they add in daily totals. Stop the class and demonstrate if this is the case. Remind children to save.
Extension	Use **slide 15** to direct the activity. Children could work in small groups to complete this.
Review Success Criteria	Use **slide 16** to evaluate success of meeting success criteria and how well they felt they were able to achieve the 3 activities. A show of hands could be used.

Lesson 2 – Formula Wizard and Formatting Cells

Aims

- To explore how the numbers entered into cells can be set to different formats.
- To explore the use of the display of decimal places.
- To find out how to use the formula wizard to calculate the content of a cell.

Success Criteria

- Children can use the number formatting tools within 2Calculate to appropriately format numbers.
- Children can write a formula for a cell to automatically make a calculation in that cell.

Resources

Unless otherwise stated, all resources can be found on the main unit 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 do not lose this page.

- Sample file - French Test Scores; set this as a 2Do for your class.

Activities

Introduction	Display **slide 2** and outline the lesson aims. Display **slide 3** and outline the success criteria.
Review Spreadsheet vocabulary	Display **slide 4.** Click the ? To reveal the words. Children will not have heard the term 'toolbox' yet. Alternatively, demonstrate by clicking the icon to open 2Calculate and review the same vocabulary.
Mathematical Vocabulary	Display **slide 5.** Reveal with the children the key mathematical vocabulary for this lesson. You might need to adapt mathematical terms to suit ability of children within the class or provide a simple explanation without full mathematical depth.
Creating a Spreadsheet	Use **slide 6**. Open the example using the icon on the slide to demonstrate if required. Click on the slide to reveal the teaching points.
Percentage scores	Use **slide 7** to clarify children's understanding of percentages.

Formatting Cells (%)	**Note**: Slides 8-11 take you through the steps with a demonstration. Children can then complete using slide 12 as a guide. If preferred, children could repeat steps on their own devices one step at a time. Click on the icon to open the example file. Display **slide 8**. Demonstrate the steps using the example file.
Calculating Percentages using the Formula Wizard	Display **slide 9**. Demonstrate the steps using the example file.
Decimal Places (d.p.)	Use **Slide 10:** As a class, see whether children can guide you to complete the steps to calculate cells G4 and H4? ***You might choose to look at different numbers of decimal places.**
Copying and Pasting Formulae.	Use **slide 11**. demonstrate copying and pasting formulae to complete the percentages. Be aware copy and pasting of formula is only possible one column at a time. Do children understand that the formula shows a division calculation and that it gets formatted as a percentage as they have formatted the cells for this? ***iPads - This is possible using a tablet (iPad) if you press and hold a cell until a blue border appears around the cell, press on the bottom blue border and then drag down through the column.**
Activity 1: Formatting cells	Use **slide 12** to guide the activity. Children might need to refer back to previous slides. The solution to the challenge is on the next slide for children to complete.
Challenge Solution	Use **slide 13**. Children should complete this on their own copy. Clarify how working out the average of the three percentages will give the overall percentage.
Activity 2: Sorting Data	The activity on **slide 14** could be done as a class together.
Extension	**Slide 15** is an extension activity.
Review Success Criteria	Display **slide 16.** Review the success criteria from **slide 3.** Children could rate how well they achieved this using a show of hands.

Lesson 3 – Creating Graphs

Aim

- To find out how spreadsheet programs can automatically create graphs from data.
- To use the graphing tool in 2Calculate to create a variety of graphs with appropriate data.
- To interpret a line graph to estimate values between data readings.

Success criteria

- Children can use a spreadsheet program to automatically create charts and graphs from data.
- Children can use a series of data in a spreadsheet to create a pie chart, a bar chart and a line graph.

Resources

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

***You need to have collected data already or decide what data to use with the class and how you organise data collection. Some example data is provided; you could collect similar real data in advance of the lesson to make the activity more relevant to the children.**

- Set the tool 2Calculate as a 2Do. If children open from here, the resultant work will all be saved in your 2Dos for easier assessment.

Activities

Introduction	Display **slide 2** and outline the lesson aims. Display **slide 3** and outline the success criteria.
Vocabulary	Use **slides 4-5** to introduce key vocabulary for the session. Click to reveal the information.
Using Spreadsheets to create charts and Graphs	Use **slide 6**, click for further information.
Collecting Data into a Table	For **slides 7-10**, Children can watch a teacher demonstration and then use **slide 10** to direct their own activity or complete the steps in stages with each slide. Use **slide 7** to guide children in entering the data for the theme you have decided upon into a 2-column table on their devices.
Creating Charts	Display **slide 8**. Demonstrate creating a chart.

Changing Data	Display **slide 9**. Go through the actions as they are revealed, prompting the children to observe what happens to the chart when data in the table is changed and increasing chart range by adding further rows.
Activity 1:	Use **slide 10** to direct the activity.
Data that Changes Over Time	Use **slide 11**, ask children to direct you in inputting the data, click and check that they have included required details and formatting.
Creating a Line Graph	Use **slide 12.** Demonstrate and then ask children to complete the activity and answer the questions revealed on the slide.
Including Another Data Set	Use **slide 13** Demonstrate adding another data set. Children should attempt to answer the questions revealed on the slide.
Activity 2: A Line Graph	Use **slide 14** to direct the activity.
Review Success Criteria	Display **slide 15.** Review the success criteria from **slide 3.** Children could rate how well they achieved this using a show of hands.

Lesson 4 – Conversions of Measurements

Aim

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

Success Criteria

- Children can type into the formula bar to create formulae for cells.
- Children can create a formula in a spreadsheet to convert m to cm.
- Children can apply this to creating a spreadsheet that converts miles to km and vice versa.

Resources

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

- 2Calculate – found in the Maths tools section of Purple Mash.
- Conversion example spreadsheet: Set this as a 2Do, children can add the further conversion tools to this spreadsheet during the lesson.

Activities

Introduction	***Be aware of children's mathematical understanding of converting between measures. You might need to adapt for some children or provide pre-teaching.** Display **slide 2** and outline the lesson aims. Display **slide 3** and outline the success criteria.
Introduction: Converting Measures	Display **slide 4.** Explain that we will be using a spreadsheet to convert measures of lengths and distance. Discuss why we would need to convert in real-life and reveal possible ideas.
Example Spreadsheet	Show **slide 5**. Open the example spreadsheet to show the class and ask them to open on their devices too. Discuss calculation needed to convert between cm and m and click reveal to show the answers. Children then practise on their devices. ***When entering (=) in a cell, children must press enter key.**
Activity 1: Length Conversions	Use **slide 6** to direct the activity. Once children have attempted the task, use the hints if necessary.
Activity 2: Converting	Use **slide 7** to show children the relationship between miles and kilometres. Children should attempt to create a spreadsheet that converts between these units. Click to reveal a hint if required.

between km and miles	
Activity 3: Temperature Conversions	Use **slide 8** to explain the activity.
Review Success Criteria	Display **slide 9.** Review the success criteria from **slide 3.** Children could rate how well they achieved this using a show of hands.

Lesson 5 – Using a Spreadsheet to Model a Situation

Aims

- To use the currency formatting tool in 2Calculate.
- To use 2Calculate to create a model of a real-life situation.

Success Criteria

- Children can make practical use of a spreadsheet to help them plan actions.
- Children can use the currency formatting in 2Calculate.

Resources

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

- Party items price list file. Or PDF version
- Example budget sheets; budget sheet no formulae and budget sheet with formulae there are 2 versions of this sheet. The simpler version (budget spreadsheet no formulae) does not use formulae. The more advanced version (budget spreadsheet with formulae) uses formulae. If children are familiar with the formula wizard from previous lessons, they can use the formula version, but some children might find the simpler version enhances their understanding of the process.

Activities

Introduction	Display **slide 2** and outline the lesson aims. Display **slide 3** and outline the success criteria.
Background: Planning a Party	Display **slide 4.** Share with the class the model they will be creating for this lesson.
Party Price List	Display **slide 5**. Launch the Party Price List file for children to see to get an idea of what they would include for their party. Explain that cells with prices in are formatted as currency using the format cell toolbox.
Exploring an Example Budget Sheet	Display **slide 6.** Launch the example budget sheet and point out the features from the slide. Children look at their copies and explore the layout, content and use of the total tool. ***There are two budget sheet versions which you need to decide upon to share – No formula and with formula.**

Activity 1: Making a Budget Sheet	Display **slide 7**. Ask children to make their own budget sheet using the key requirements revealed on the slide. ***To save time, you could let the children adapt the example budget spreadsheet shown on slide 6 rather than start from scratch.**
Activity 2: Making Changes	Display **slide 8**. Go through the sudden changes shown on the slide and ask children to modify their budget spreadsheets to accommodate these changes.
Activity 3: Extension	Display **slide 9** to introduce an extension activity. Tell the children the budget has gone down to £100. Ask them to consider the changes they will make and justify why.
Review Success Criteria	Display **slide 10.** Review the success criteria from **slide 3.** Children could rate how well they achieved this using a show of hands.

Lesson 6 – Formulae Including the Advanced Mode

Aims

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

Success Criteria

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

Resources

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

- 2Calculate – found in the Maths tools section of Purple Mash.
- Cuboids Example - Extension

Activities

Introduction	Display **slide 2** and outline the lesson aims. Display **slide 3** and outline the success criteria.
Introduction: Modelling	Display **slide 4** Click to reveal questions and answers to clarify children's understanding.
Vocabulary	Display **slide 5.** Share the key vocabulary needed for the lesson. ***Be aware of children's mathematical understanding of area and perimeter. You might need to spend a little time reminding them about what they are and how they are calculated on simple 2D shapes.**
Activity 1: Helping Farmer McFlock – Manual Method	Display **slide 6**. Explain the farmer's problem and discuss with the children. Use the slide to direct the activity.
Activity 2: Helping Farmer McFlock – Using Formulae	Display **slide 8**. Can children answer the questions before the next click reveals the answer? Children should follow the steps on their own spreadsheet. See if the children can find the best configuration.

Activity 3: Modelling Changes	Display **slide 9**. Remind children to save their file before continuing. Explain you want the children to add to their existing table as shown on the slide. Children should copy and paste the formulae for area and perimeter in the respective columns and find the best length and width configurations for the new fence lengths given on the slide.
Extension	Display **slide 10** to introduce an extension activity where children calculate volume of cuboids shown on example file.
Review Success Criteria	Display **slide 11.** Review the success criteria from **slide 3.** Children could rate how well they achieved this using a show of hands.