

Barefoot

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Recommended for
ages 9–11

Unit: Pizza Party

Lesson 2 of 5 Pizza Party Planning

Activity Duration: **60 mins**

Principal partners



Computing at School

Concepts and approaches covered



Decomposition



Abstraction



Logic



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Overview

In this lesson pupils start to prepare for their pizza party. As they choose their pizza toppings they are introduced to data attributes, collection of data values and spreadsheets.

Note – the Pizza Planning spreadsheet which accompanies this lesson has a variety of pizza toppings added, however you may choose to alter or add to these depending on what toppings you envisage using for your pizzas. If you do add more toppings into the spreadsheet then please ensure you use the =SUM() function in row 38, as this has been included for the other toppings.

Learning objectives

- ✓ To decompose the task of planning a pizza party
- ✓ To collect and enter data values into a spreadsheet
- ✓ To use the '=SUM()' function
- ✓ To explain how spreadsheets can help with collecting and analysing data to solve problems

Computing concepts and approaches

- Pupils **decompose** the task of planning a pizza party
- To solve a problem or complete a task, pupils:
 - **abstract** the problem to work out what data attributes are needed
 - collect the data
 - enter the data into a data structure (in this case the data structure is a simple table (array) in a spreadsheet)
 - use **logical reasoning** to analyse the data
 - use the data to solve the problem
- Pupils use **logical reasoning** as they are introduced to the =SUM() function and basic spreadsheet features

Resources

- ✓ Lesson presentation
- ✓ Pizza Planning spreadsheet

Introduction

- Maintain the Italian theme from the first lesson as you recap what pupils discovered about Italy. Can they guess what particular Italian food you'll be focusing on today? Pizza!
- Introduce the learning objectives for this lesson (slide 2) and the idea of holding an Italian pizza party. Ask pupils to think-pair-share two lists: what they need for this party and what they need to do/prepare. Make two lists on the board and save to use later. Highlight that pupils have just used **decomposition** for this process (slide 3) – i.e. They've broken down the problem of organising a party into smaller, more manageable steps and created a list of what is needed

Main activities

Pizza planning – what topping would you like?

- Watch **this short video clip** to find out how to make a Roman pizza (complete with Italian words). Make a list on the board of the pizza ingredients you'll need and their Italian translation
- Explain to pupils that they should listen out for unfamiliar vocabulary in the following discussion and think about what these words might mean based on their context – add that this will be discussed to check everyone's understanding
- Explain to pupils we are going to **collect data** to determine what toppings everyone would like on their pizza and that we need to think carefully about what data we need to collect, known as our **data attributes**, to answer this problem. Ask pupils to think-pair-share what **data attributes** we need if we are to determine what pizza toppings everyone would like?
- Lead a class discussion to create a list of **data attributes**. If required, explain a top tip in determining data attributes is to think of a list of nouns describing the data we need. In this case, we will need an attribute of '**pupil name**' and attributes to indicate pupil selections of each topping type e.g. '**cheese selected**', '**mushroom selected**'.

The data values for pupil name will be a data type of text e.g. Jenny, Jane, Jonathan and the data values for the topping's selected attributes will be 1 for yes and 0 for no.

- Use slide 4 to check pupils' understanding of the new terminology introduced

Spreadsheet exploration (groups)

- Organise pupils into groups (number depending on available computers) and model to pupils how to open the 'Pizza Planning spreadsheet' in their groups
- Explain that the Barefoot team have already created a template spreadsheet. Highlight that the spreadsheet includes the **data attributes** we had identified as a class – e.g. pupil name, topping selected
- Invite a pupil to demonstrate how to add their name to your spreadsheet and select their three toppings by entering the number one in each relevant cell (two example entries, Jenny and Jane, are already included). Explain that in doing so we are adding the **data values** to the **data attributes (slide 4)**
- Give groups time to add their names and topping choices (data values) into the spreadsheet. Do pupils notice what is happening in row 38 as they do this? How do they think this is happening? What happens as more members of their group add their selections? What happens if they change their mind about a topping?
- Once pupils have had time to add their names and topping choices, lead a discussion to explore what pupils noticed as each pupil entered their data. Explain the program they are using is a spreadsheet and it can help us to record the data that is collected and analyse the data that has been entered. Spreadsheets help us make informed decisions from the data we have collected by automatically performing calculations, such as working out totals as is the case here (slide 5)
- They can easily see how many pupils want cheese or want ham for example, so this will help with buying the right ingredients

Spreadsheet summary

- Show pupils the formula in the cells finding the total for each topping (in row 38). Click into the cell to illustrate it is adding up all the figures using the 'SUM' (total) of the columns. Highlight this is the =SUM() function (a special pre-defined formula) and explore this by adding different values and asking pupils to predict what will happen before trying this out in the spreadsheet as a class or in their groups.
- Introduce pupils to columns and rows and cells by showing how each cell is referenced and highlighted – e.g. Pepperoni is in cell H4. Select different cells and ask pupils to give you the cell references to get them used to reading the layout (you could run this as a quick-fire competition)
- Explain you'll be using the groups' spreadsheet to help plan the pizza party so they need to make sure they've got their correct toppings saved! Ensure each group saves their spreadsheet to a location that you can retrieve from for use in lesson 4

Plenary

- Invite pupils to think-pair-share to create a list of everything they have learnt in this lesson
- Recap the main learning concepts using slides 6-8

Differentiation

Support:

- Ensure less confident pupils are supported by peers in their groups
- Pupils may need additional explanation and opportunity to practise cell references, using the =SUM() function and understanding formulae

Stretch & challenge:

- Give pupils their own version of the spreadsheet and ask them to **tinker** with it and share what else they can discover
- Ask pupils to change the spreadsheet to get it to calculate the number of packets of cheese required if each packet can make three pizzas for example? This will lead into the following lesson's objectives

Assessment suggestions

Teacher observation:

- Can pupils decompose the process of the pizza party into steps?
- Do pupils show an understanding of how the spreadsheet can help to collect and analyse data?
- Can pupils identify cells by their reference?
- Are pupils able to explain what the =SUM() function is doing?

Informal assessment of data entry

- Are pupils able to enter the data into the spreadsheet?
- Do pupils seem confident to explore the software, or do they need more support?

Examples of questions to assess understanding:

- What is meant by the term 'data collection', 'data attribute' and 'data value'?
- What is this cell reference? How do you know?
- How is this formula working?
- Why do you think spreadsheets can be helpful for collecting and analysing data?

Extension ideas

You could deepen pupils' understanding of using spreadsheet formulae by using them to solve other simple maths problems. This could be linked to your current maths objectives. For example introduce the average function.

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