# Lunchbox

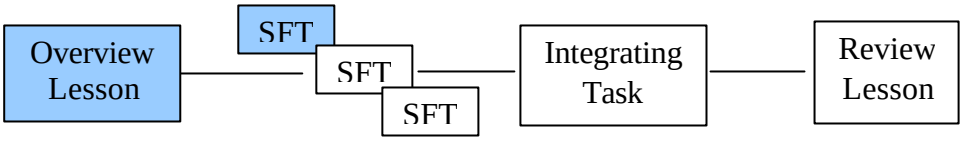
**Developing Ideas** Year 5

*Learning objective:* ***I can……..***

*change variables in a pre-written spreadsheet.*

**PoS 2b, 3d**

QCA Ref: 5d




## Resources

A grid (drawn on the board or even distributed as photocopies to the children) laid out in the following fashion:

| Packed Lunches | | | | |
|---|---|---|---|---|
| 9 | packets of crisps | at 29 p each | will cost | £2.61 |
| 6 | bottles of cola | at 47 p each | will cost | £2.82 |
| 4 | apples | at 38 p each | will cost | £1.52 |
| 8 | packets of starburst | at 30 p each | will cost | £2.40 |
| 0 | cheese sandwiches | at 55 p each | will cost | £0.00 |
| 7 | Penguin biscuits | at 17 p each | will cost | £1.19 |
| | | | Altogether I will spend → | £10.54 |

**Software you could use:**
Excel / Number Magic / Number box
Support File(s): lunch.xls, lunch.nb2, lunchbox handout.doc, mysterybox.xls
**URL:**

## Introduction/context: (15 mins)

In this unit the children will gain experience of using a spreadsheet as a "function machine"
If you have a large piece of accountancy paper, this is a good visual aid to reflect on how people used to calculate such problems.

***Away from the computer***
Paper and pen exercise:
Work out a simple calculation based on pricing a packed lunch with varying amounts of each foodstuff.
This is also modelled on the board using a layout similar to that of a spreadsheet.
Can they work out a lunch for the class that costs under £50?

Stop them after 5 minutes and share some of their thinking by demonstrating it on the board. Increase the quantity of items for several of the categories until the mental calculation becomes rather more difficult. Point out that we either have to keep crossing out/rubbing out figures each time we re-calculate or else start the table again.

Obtaining an answer is immaterial at the moment but do not be tempted to skip this part, it is important to establish the process and justify the use of a spreadsheet. Once the awkwardness of the task is established move onto introducing the spreadsheet program.

***At the computer***
Switch on monitor to reveal the spreadsheet of the packed lunch.
A spreadsheet is a program which is useful for calculations.
It can allow us to change our minds and try out different numbers.
It can carry out calculations much faster than a human would.
Note similarities with paper spreadsheet.
(At this point there is no need to dwell on cell references although you should point out that these boxes in the grid are called cells)
The difference is that when we make changes to the amount of things we want to buy, the spreadsheet can instantly calculate the total.

***Vocabulary/functions:***
Cell, grid, automatic, spreadsheet

## Short Focused Task: (10 mins per child)
Children make changes to the packed lunch and record the amended totals they arrive at.
(To keep things simple to begin with) children should navigate up and down the column containing the quantities just using the up and down cursor keys.
Can they now devise a packed lunch for the class that is not only under £50, but uses as much as possible?

***Teaching Points:***
Numbers are not entered until the return or enter key is pressed. Moving away from the cell with the cursor keys has the same effect. Watch out for children entering large numbers that result in error messages as the columns are too narrow to display the result. The point of the spreadsheet is that it has allowed them to work out a higher order problem as opposed to merely automating the process or "keeping the numbers tidy".
For children who find the prior mental calculation hard, round the numbers and prices up to multiples of 10.
To extend those who do solve the problem, ask them to keep the figures and estimates reasonable.

## Review / Assessment (10 mins)
Do they know what a spreadsheet is and what use it might serve?

***Key Questions:***
*Was using a spreadsheet quicker?*
*Would you use a spreadsheet to calculate a single, difficult sum or a calculator?*
*How many different ideas did you try out?*

***What comes next:***
*Learning to create a spreadsheet from scratch with simple cell formulae.*

## Consolidation Opportunity:
Create some mystery function boxes for maths. Children enter one number and another appears at the end. What does the function box do? Keep changing the inputs to help you find out.

| | A | B | C | D | E |
|---|---|---|---|---|---|
| 1 | | | | | |
| 2 | | **IN** | | **OUT** | |
| 3 | | 25 | ?? Box A ?? | 50 | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | **IN** | | **OUT** | |
| 7 | | 25 | ?? Box A ?? | 53 | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | **IN** | | **OUT** | |
| 11 | | 25 | ?? Box A ?? | 14.5 | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | **IN** | | **OUT** | |
| 15 | | 25 | ?? Box A ?? | 33 | |
| 16 | | | | | |