Progression in Computing at Aston St Mary's school

Spreadsheets

Computing at Aston St. Mary's School is split into three core themes:

1. Computer Science

2. Information and Technology

3. Digital Literacy

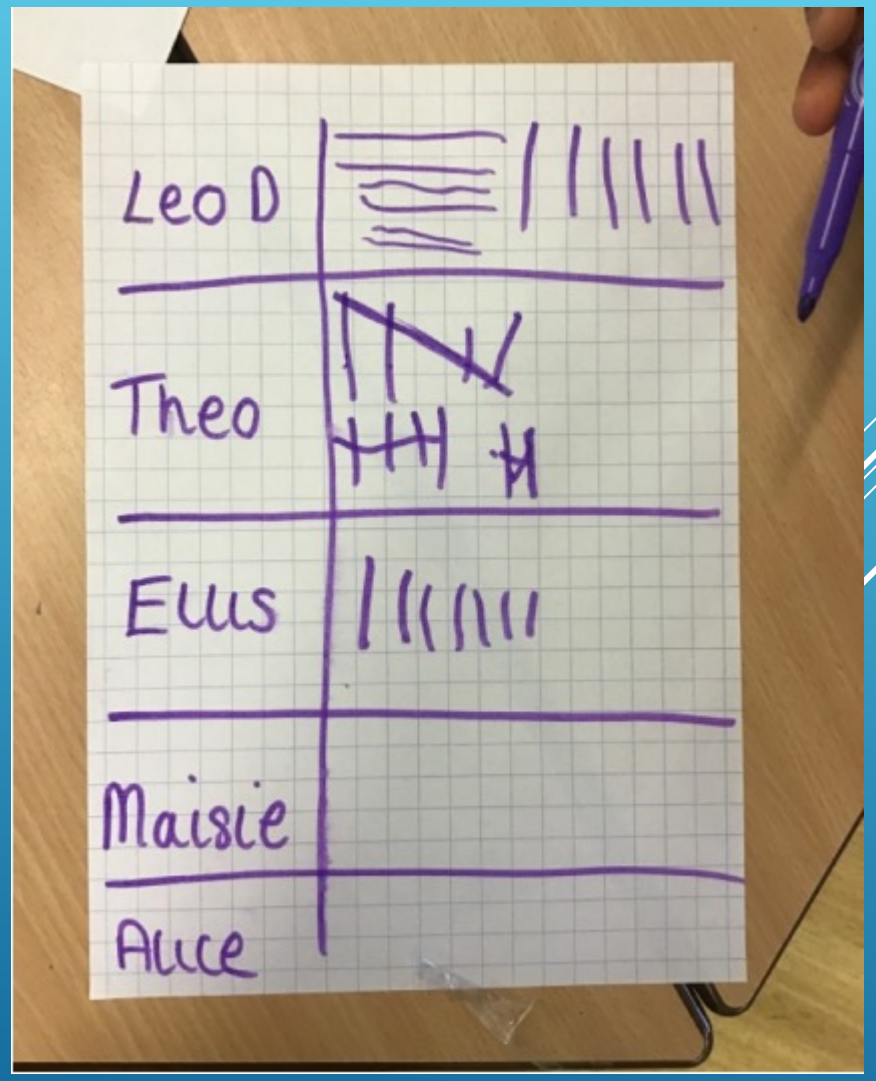
This document outlines the progression within the strand from Year 1 up to Year 6. Amongst many other units within the Information Technology theme, the children study spreadsheets.

The skill of using spreadsheets is built upon throughout Key Stages 1 and 2, and the children use and apply their prior knowledge to help them to progress. Knowledge organisers are used to encourage this use of prior learning and to consolidate new vocabulary and learning.

EYFS

At Aston St Mary's School the EYFS curriculum is carefully planned to cover the 7 areas of learning. Our curriculum document outlines how we teach through adult directed input and tasks, topic-based learning, using the classroom environment and continuous provision, as well as following the interests of the child and taking advantage of all opportunities in the 'hidden curriculum'. Computing knowledge and skills are taught through all of these means in a variety of ways.

Children are encouraged to develop skills of data collection in 'unplugged' activities. A common way that children collect data is through tally charts. They often keep score in games or observe the type and number of birds during their Child Initiated Learning. They are taught to begin to record this information which then feeds into Key Stage One objectives.



Year 1

In Year 1, children are taught how to log into their Purple Mash account and access a blank spreadsheet. They then add information into cells on the spreadsheet. The children then format the cells, to include pictures from the clip art library to make pictograms, and add colour to the cells. Throughout the unit, children are taught to save their work in their designated area of their Purple Mash folder.

What does a spreadsheet look like?

It has a grid of cells.

These are in rows and columns.

The cells can be coloured, and you can type into them.

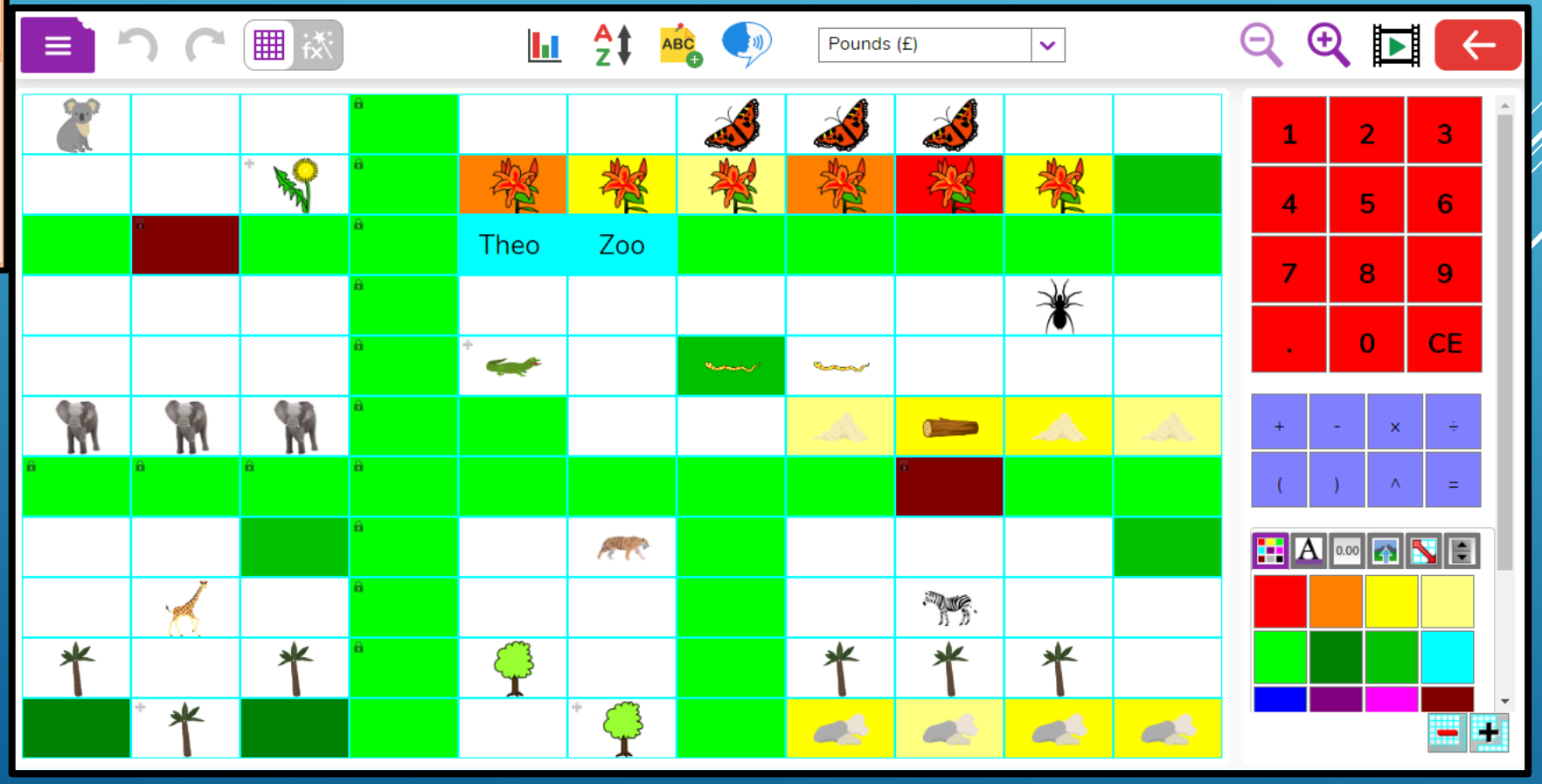
You can use the toolbox to do different things with the data in the cells.

How could you use a spreadsheet to add up values?

You can enter numbers and operators such as +, -, x in the cells. Entering an equals sign in the correct cell will perform calculations.

How could you use the count and speak tools?

The count tool will count the number of cells containing the same value or colour as it. The speak tool will say this number each time you click on the cell or the number changes.



Year 2

- In Year 2, children consolidate their formatting skills and begin to employ calculation skills, inputting the appropriate operation. They also use pictograms to interpret data and answer a question (e.g What is our class's favourite flavour of ice cream?). Throughout the unit, children are taught to save and retrieve their work.

Why would you copy and paste when using a spreadsheet?

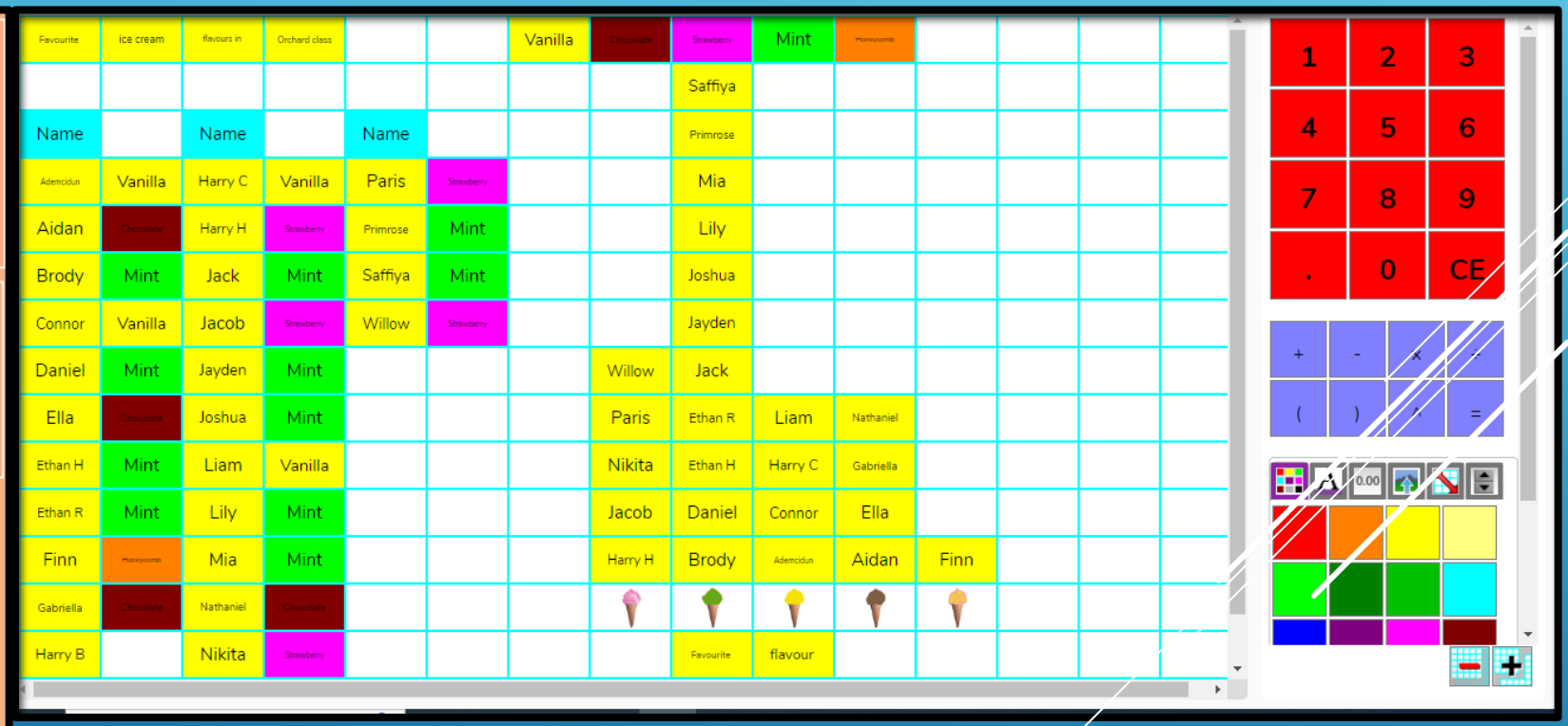
You might want to rearrange the information in the spreadsheet.

It will save you entering the same information many times if you want to repeat things in different cells.

How could a spreadsheet help you when you are planning some shopping?

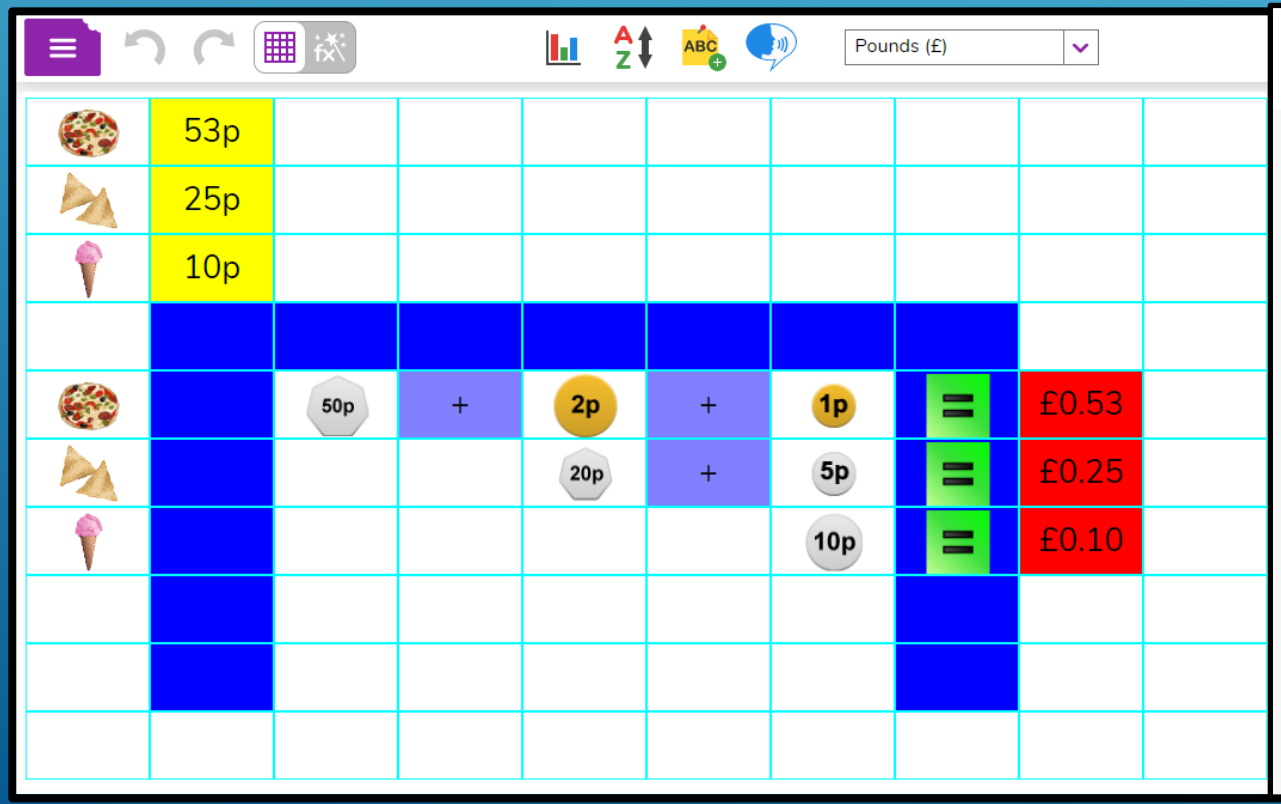
Yes, you could use it to store the process and work out how much it would cost to buy the things that you wanted.

Look at the graph made in 2Calculate showing the class' favourite pets. Which is the most popular?



Year 3

- In Year 3, spreadsheets are used to answer a range of calculations. Children begin to explore formulae for calculation and using the formula wizard to solve problems involving money. They also learn the different numerical formats that can be used in Purple Mash, differentiating between currency and quantity.



Key Questions

Explain how you would collect data to find out children's favourite school subjects. What sort of graph would you create?

Label one column 'Subject' and list the subjects in this column. In the cells to the right put in the number of children who like this subject. Use the chart button to automatically create a chart. A pie chart would be a suitable choice.

How can you make a 3 times table machine using the spin tool? Could you use the equals tool to check your answer

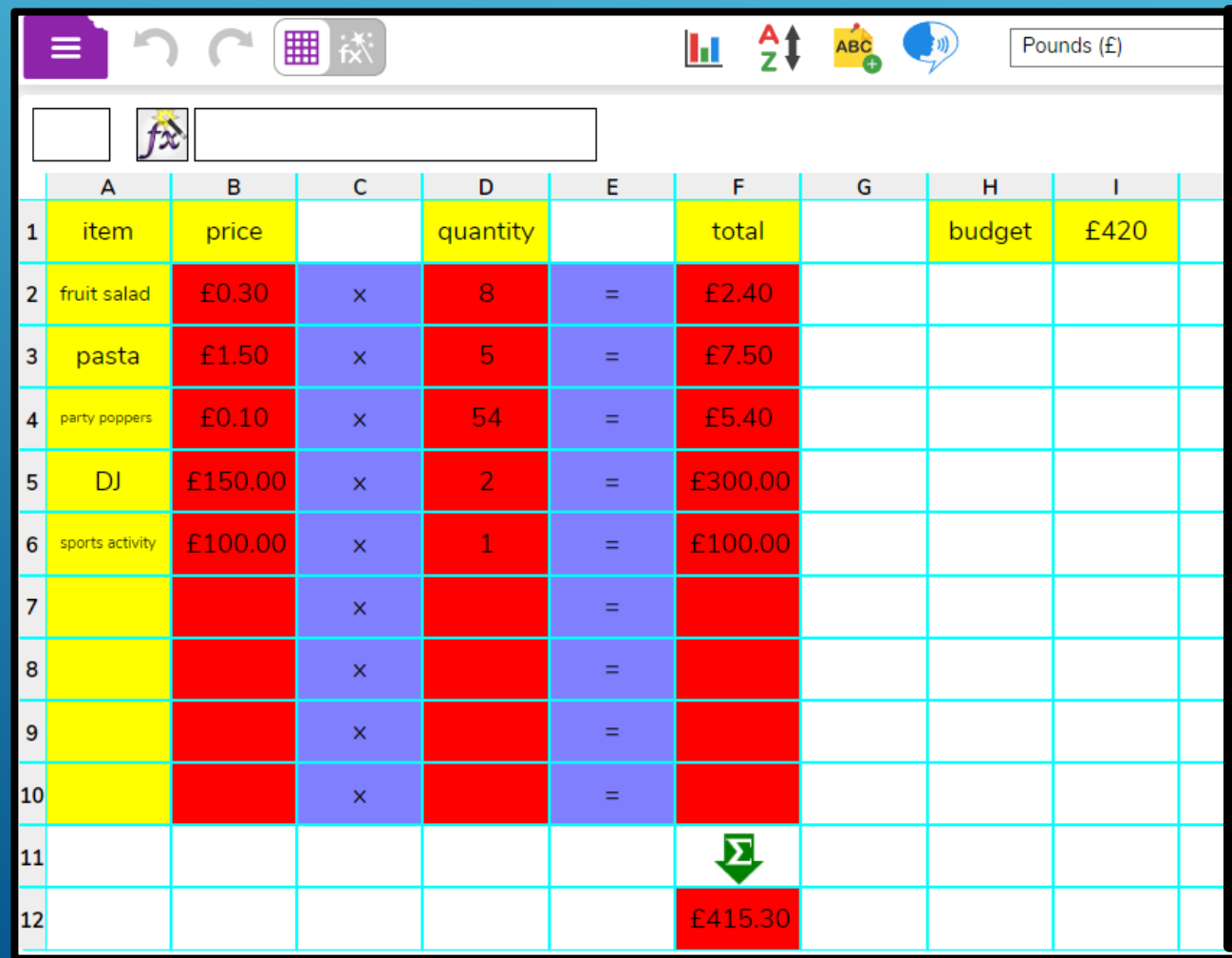
Put the spin tool in the left most cell of a row. Type 0 x 3 in the next three cells. Put an equals tool in the next cell in the row. When you spin the spin tool, the question will change. Enter the answer and the equals tool will tell you if it is

Explain how you would locate a cell in the advanced mode?

Cells in advanced mode have rows labelled with numbers, and columns labelled with letters. So, each cell has a number and letter. For example, A1 or D7.

Year 4

In Year 4, the use of spreadsheets builds on skills from year 3 and includes working to a given budget, with more open-ended tasks in which the children formulate the layout of their spreadsheet.



	A	B	C	D	E	F	G	H	I
1	item	price		quantity		total		budget	£420
2	fruit salad	£0.30	×	8	=	£2.40			
3	pasta	£1.50	×	5	=	£7.50			
4	party poppers	£0.10	×	54	=	£5.40			
5	DJ	£150.00	×	2	=	£300.00			
6	sports activity	£100.00	×	1	=	£100.00			
7			×		=				
8			×		=				
9			×		=				
10			×		=				
11									
12						£415.30			

Key Vocabulary

Formula Wizard
The wizard guides you in creating a variety of formulae for a cell such as calculations, totals, averages, minimum and maximum for the selected cells.

Move cell tool
This tool makes a cell's contents moveable by drag-and-drop methods.

Random tool
Click to give a random value between 0 and 9 to the cell.

Rows
Vertical reference points for the cells in a spreadsheet.

Spin Tool
Adds or subtracts 1 from the value of the cell to its right.

Spreadsheet
A computer program that represents information in a grid of rows and columns. Any cell in the grid may contain either data or a formula that describes the value to be inserted based on the values in other cells.

Timer
When placed in the spreadsheet, click the timer to adds 1 to the value of the cell to its right every second until it is clicked again.

- In Years 5 and 6, the teaching of spreadsheets moves to Excel, as the children apply the skills they have gained previously in Purple Mash. The focus is on the children recognising and implementing the correct formula to organise data for a given purpose. A number of problems are posed in which the children must use the facilities in Excel to find an answer. This includes devising formulae for 3 different options for receiving pocket money. They also learn how to represent data using graphs and charts.

How would you add a formula so that the cell shows the total of a column of cells?

Use the formula wizard advanced total tool or type a formula into the cell by using the '=' symbol, mathematical operators and cell references.

What is a computational model and what it can be used for?

Modelling in Computing means creating or using a simulation (a model) of a real-life situation, on a computer. It represents the data of a situation. For example; budgeting for a party; working out how big a field needs to be for a certain number of animals; working out the best price for an item or using the existing data to predict what time your shadow will be a certain length.

If you were going to use a spreadsheet to plan your dream holiday. What data would you collect to cost the trip?

Ideas could include:

Include travel; comparing the cost of different methods, airports, airlines, different companies and discounts such as rail cards.

Cost of accommodation of different types, trips out, food, passports, immunisations.

You have three different options for receiving your pocket money.
[A] You can receive £5 pocket money this week and every week thereafter.
[B] You can receive 50p pocket money this week and the amount increases by an additional 50p every week thereafter
[C] You can receive 1p pocket money this week, but every week thereafter the amount will be doubled.

Week	Option A		Option B		Option C	
	Weekly	Cumulative	Weekly	Cumulative	Weekly	Cumulative
1	£5.00	£5.00	£0.50	£0.50	£0.01	£0.01
2	£5.00	£10.00	£1.00	£1.50	£0.02	£0.03
3	£5.00	£15.00	£1.50	£3.00	£0.04	£0.07
4	£5.00	£20.00	£2.00	£5.00	£0.08	£0.15
5	£5.00	£25.00	£2.50	£7.50	£0.16	£0.31
6	£5.00	£30.00	£3.00	£10.50	£0.32	£0.63
7	£5.00	£35.00	£3.50	£14.00	£0.64	£1.27
8	£5.00	£40.00	£4.00	£18.00	£1.28	£2.55
9	£5.00	£45.00	£4.50	£22.50	£2.56	£5.11
10	£5.00	£50.00	£5.00	£27.50	£5.12	£10.23
11	£5.00	£55.00	£5.50	£33.00	£10.24	£20.47
12	£5.00	£60.00	£6.00	£39.00	£20.48	£40.95
13	£5.00	£65.00	£6.50	£45.50	£40.96	£81.91
14	£5.00	£70.00	£7.00	£52.50	£81.92	£163.83
15	£5.00	£75.00	£7.50	£60.00	£163.84	£327.67
16	£5.00	£80.00	£8.00	£68.00	£327.68	£655.35
17	£5.00	£85.00	£8.50	£76.50	£655.36	£1,310.71
18	£5.00	£90.00	£9.00	£85.50	£1,310.72	£2,621.43
19	£5.00	£95.00	£9.50	£95.00	£2,621.44	£5,242.87
20	£5.00	£100.00	£10.00	£105.00	£5,242.88	£10,485.75