

Bringing Maths to Life using Microsoft Excel by Gina Cohen of Sunbird Advisers

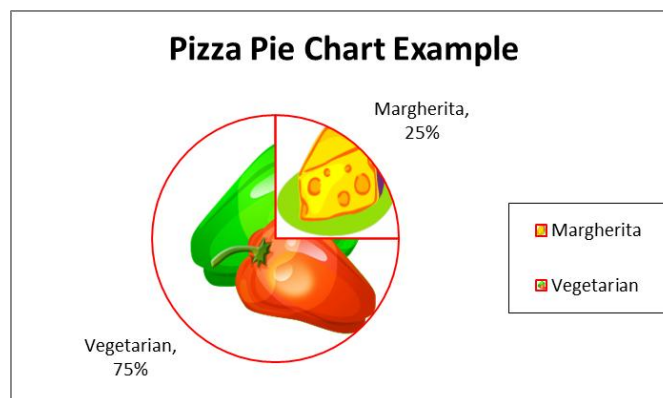
As many of you will know, a great way to assist the teaching of Mathematics is to use computers as a teaching tool. What might be less widely known is that an excellent software package to use is Microsoft Excel. Microsoft Excel is the leading spreadsheet software tool and it enables users to create charts, format data and compute calculations easily.

Sunbird Advisers provides training to teachers enabling them to use Excel to bring maths to life and help the children visualise maths in a fun, engaging and dynamic way.

There are two ways that Excel can be used in a classroom, one as a teaching tool by the teacher on the interactive white board, the other is by teaching the children themselves how to use Excel and then for the children to apply their Excel knowledge to maths in the ICT room.

Creating your own pizza

One great way of using Excel to help visualise maths is through the use of charts. It is already well documented that a good way to illustrate percentages is by showing them as pizza slices, but with this tool you can go one step further and actually use Excel to create the pie (or pizza!) charts. An example of this is shown below:

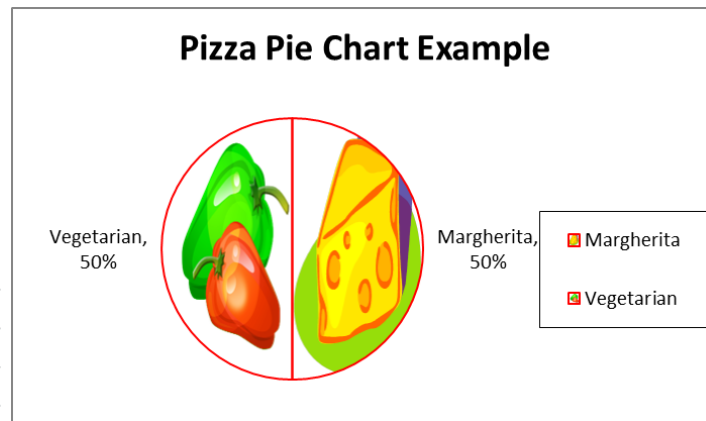


To create this pie chart in Excel, the data needs to first be typed into an Excel document:

Pizza		
Margherita	25%	
Vegetarian	75%	

Once the data is in Excel, then the data needs to be highlighted and then go to the Insert tab, and select the type of chart that you require, in this example, a simple 2-D pie chart was selected. The big advantage of using Excel to create a pie chart is that pupils can instantly see the effect of changing the data. As soon as the data is changed, the pie chart will update as shown below:

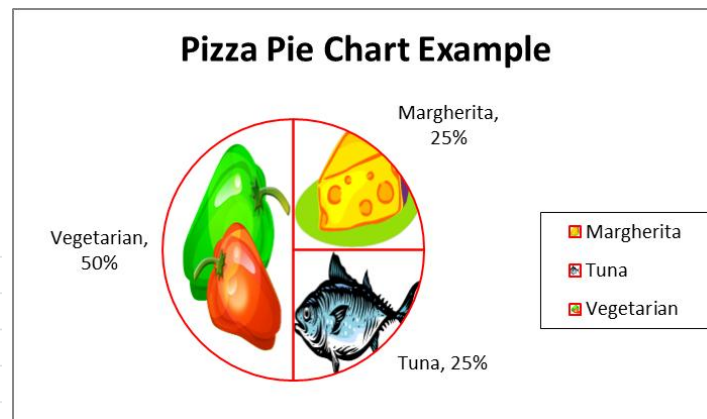
Pizza	
Margherita	50%
Vegetarian	50%



As shown above, as the data is changed to be half Margherita, half Vegetarian, the pie chart is automatically updated.

It is also very easy to add additional data, for example changing the pizza to have three different toppings, and the pie chart will instantly update:

Pizza	
Margherita	25%
Tuna	25%
Vegetarian	50%



Children can practise changing the data and watching the pie chart update. To assist learning further, it would be a good idea for the children to work out beforehand what they think will happen to the pie chart and then they can see if they are correct.

In the example above, instead of using the standard Excel colours to create the pie chart, clip art was used, to help aid the children to visualise the pizza even more.

One of the world's most powerful calculators

Excel can also be used to compute calculations, instead of using a calculator. Below is a recent SATs maths question. This question could be attempted using pencil and paper and then another great way of bringing maths to life, and making the lesson more interesting to children to help consolidate their learning, would be to then calculate this using Excel to check their answers.

These are the prices of cheese in a shop.



Cheddar cheese
82p for 100 grams

Edam cheese
66p for 100 grams

Cottage cheese
45p for 100 grams

The question data could be added into Excel:

	A	B	C	D
1		Cheese	Price (p)	Quantity
2		Cheddar cheese	82	100
3		Edam cheese	66	100
4		Cottage cheese	45	100

Once the data is in excel, the calculation can be easily made, by multiplying the 82p by 2 and multiplying the 66p by 1.5.

In Excel, all formulae begin with an equals sign =, the multiply sign is the star * and divide sign is /. Instead of writing out a formula long-hand you can simply reference the appropriate cell, so, to calculate the price of 200g of cheddar cheese the formula would simply be =C2*2 and the formula for the 150g of edam cheese is =C3*1.5.

As the data is in pence, the answers will also show in pence, to change these to pounds, simply divide the answers by 100:

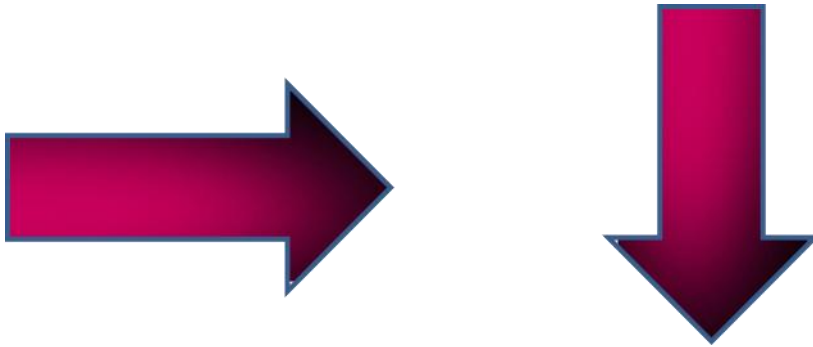
	Price (p)	Price (£)
200g cheddar cheese:	164	1.64
150g edam cheese:	99	0.99
	<u>263</u>	<u>2.63</u>

Covering all angles

Another interesting use of Excel to help bring Maths to life is the use of angles.

A shape can be easily added to Excel by going to the Insert tab and selecting Shapes and then choosing, for example, an arrow. If you then right-click on the shape and select "size and position", the rotation of the arrow can be changed, for example, to 90°. This is a very popular way of

demonstrating visually the effect that angles have on every day objects – again bringing maths to life.



There are a great many more fun and popular ways of using Excel as an effective teaching tool. As someone who is and has always been passionate about Maths, I am so pleased to have developed a way of making the subject more accessible to children up and down the country. We know that Maths does not need to be dry or dull, and by using Microsoft Excel we can together show this to our pupils as well!