

# A Good Breakfast



For breakfast, Alex eats 30g of cornflakes with 200g of milk and 25g of sugar. Then she has 2 slices of toast (50g total) with 7g of butter and 10g of strawberry jam. She also drinks a glass of orange juice (150g).

**But....does she eat a good breakfast?**

**FACT**

A Good Breakfast should supply about one fifth of the day's energy needs. For a teenager, it should give 600 Kcals of energy and 14g of protein!

## TASK 1a

Choose appropriate software which can be used to model information. Starting in cell A1, set up a table like the one shown below.

The screenshot shows a Microsoft Excel spreadsheet with the following data:

	A	B	C	D	E	F
	Food	Energy provided Kcal per 100g	Energy provided Kcal per 1g	Protein g per 100g	Protein g per 1 g	
1						
2	Apple	46		0.3		
3	Butter	740		0.4		
4	Cornflakes	368		8.6		
5	Strawberry Jam	262		0.5		
6	Milk	65		3.3		
7	Orange Juice	33		0.4		
8	Sugar	394		0		
9	Toast	233		7.8		
10						

### TASK 1b

- In cell C2, write a formula that will calculate the energy provided for 1g of apple.
- Drag this formula down to cell E9
- Set the cells in column C to be to 2 decimal places

### TASK 1c

- In cell E2, write a formula that will calculate the protein provided for 1g of apple.
- Drag this formula down to cell C9
- Set the cells in column E to be to 2 decimal places

### TASK 1d

Pick a background colour for any data relating to energy and a different background colour for any data relating to protein

For example

	A	B	C	D	E
	Food	Energy provided Kcal per 100g	Energy provided Kcal per 1g	Protein g per 100g	Protein g per 1 g
1					
2	Apple	46	0.46	0.3	0.00
3	Butter	740	7.4	0.4	0.00
4	Cornflakes	368	3.68	8.6	0.09
5	Strawberry Jam	262	2.62	0.5	0.01
6	Milk	65	0.65	3.3	0.03
7	Orange Juice	33	0.33	0.4	0.00
8	Sugar	394	3.94	0	0.00
9	Toast	233	2.33	7.8	0.08
10					

### TASK 1e

Starting in cell A12, set up a second table as shown here

	A	B	C	D	E
	Food	Amount eaten for breakfast (in grams)	Kcal eaten for breakfast	Protein eaten for breakfast	
10					
11					
12					
13	Apple				
14	Butter				
15	Cornflakes				
16	Strawberry Jam				
17	Milk				
18	Orange Juice				
19	Sugar				
20	Toast				
21		Totals			

### TASK 1f

In cell B13 enter the amount of food in grams eaten by Alex for breakfast.

### TASK 1g

- In cell C13 enter a formula to calculate the total amount of energy for the apple eaten at breakfast
- Copy this formula down to cell C20
- Set the data in this column to 2 decimal places

### TASK 1h

- In cell D13 enter a formula to calculate the total amount of protein for the apple eaten at breakfast
- Copy this formula down to cell D20
- Set the data in this column to 2 decimal places

### TASK 1i

- In cell C21 enter a formula to calculate the total amount of energy eaten for the whole breakfast. HINT: use a SUM formula

### TASK 1j

- In cell D21 enter a formula to calculate the total amount of protein eaten for the whole breakfast. HINT: use a SUM formula

### TASK 1k

- In cell F12 enter 'ideal number of Kcals for breakfast'
- Make this text bold and centred
- Wrap the text (highlight cell, right click, format cells, alignment tab, wrap text)
- Adjust the column width as required
- In cell G12 enter 'ideal amount of protein for breakfast'
- Make this text bold and centred
- Wrap the text
- Adjust the column width as required

The screenshot shows an Excel spreadsheet with the following data:

	A	D	E	F	G
9	Toast	7.8	0.08		
10					
11					
	<b>Food</b>	<b>Protein eaten for breakfast</b>		<b>Ideal number of Kcals for breakfast</b>	<b>Ideal amount of protein for breakfast</b>
12					
13	Apple				
14	Butter				
15	Cornflakes				
16	Strawberry Jam				
17	Milk				
18	Orange Juice				

Add a background colour to cells F13 and G13.

Add a border around cells F12: G13

In cell F13, enter the recommended amount of Kcals that a teenager should have for breakfast (see information at the front of this task sheet).

HINT: only enter the number into these cells, do not put the 'g' for grams.

In cell G13, enter the recommended amount of protien that a teenager should have for breakfast (see information at the front of this task sheet)

	A	B	C	D
	<b>Food</b>	<b>Amount eaten for breakfast (in grams)</b>	<b>Kcal eaten for breakfast</b>	<b>Protein eaten for breakfast</b>
12				
13	Apple			
14	Butter			
15	Cornflakes			
16	Strawberry Jam			
17	Milk			
18	Orange Juice			
19	Sugar			
20	Toast			
21		<b>Totals</b>		
22	is this breakfast good enough?			
23				

### TASK 1I

In cell A22 enter the text, 'is this breakfast good enough?'

Merge cells A22 and B22 (highlight cells, right click, format cells, alignment tab, merge cells)

### TASK 1m

Now you are going to write a pretty clever formula which will:

- look at the total energy and protien for Alex's breakfast
- compare the amount with the recommended energy and protien
- then automatically tell you if the breakfast was ok.

Watch the video tutorial on 'IF statements' (your teacher should give you a link to use) and see how to write this formula.

Once you understand what to do, have a go at writing this IF formula in cell C22 to check the kCal and D22 to check the protein.

### TASK 1n

Print out a copy of your model on one sheet, showing the row and column headings  
Annotate your sheet to explain what you have done  
Label your sheet 'task 1n' and make sure it has your name on it.

### TASK 1o

Print out a copy of your formula sheet, showing the row and column headings – this is very important.  
Annotate your formulas to explain how they are working.  
Label your sheet 'task 1o' and make sure it has your name on it.

## TASK 2

### Information



For breakfast Nicky has 1 slice (25g) of toast, 4g of butter, a cup of black coffee with sugar (10g) and an apple (150g).

### TASK 2a

Do NOT use your model yet.

Take a copy of the sheet called 'Task 2a: my prediction' and complete your prediction about Nicky's breakfast.

### TASK 2b

Once you have completed task 2a on your sheet, alter your original model to remove the amount eaten by Alex and replace it with Nicky's breakfast.

HINT: if any of the foods are not eaten, just enter 0, do NOT remove them from your model.

Look at the results, did you manage to improve Nicky's breakfast?

NOTE: it does NOT matter if Nicky's breakfast is not perfect. The question was, 'did you manage to improve it?'

Complete section 2b on your task sheet.

## TASK 3

### Information

For breakfast Jamie has 1 slice (25g) of toast, 5g of strawberry Jam, a glass of orange juice (100 g), 25g of cornflakes with 150g of milk and 30g of sugar and an apple (150g).

### TASK 3a

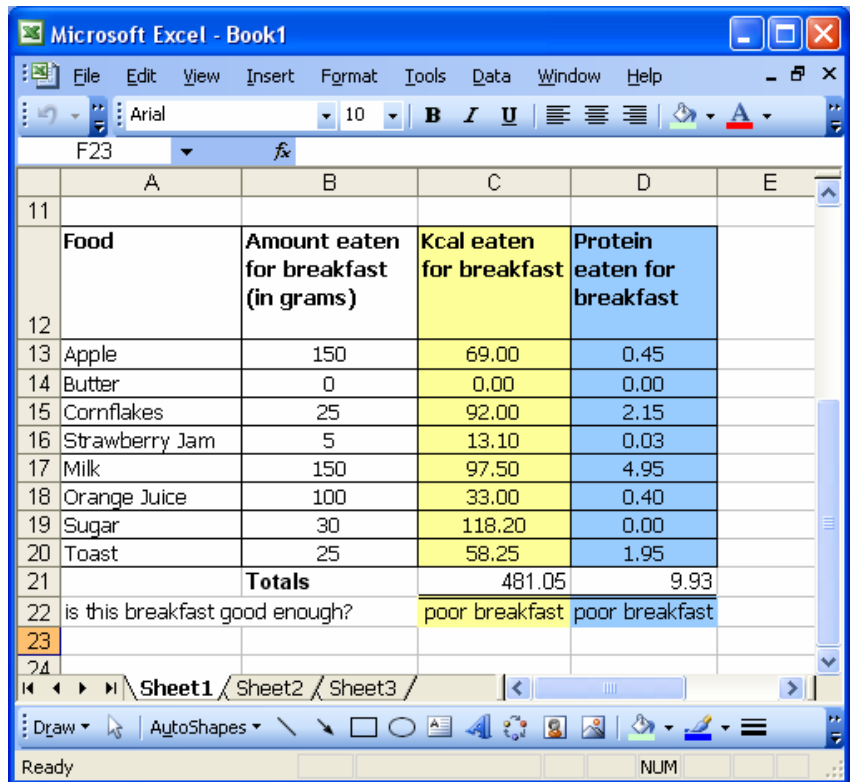
Remove the information about Nicky's breakfast and enter the information about Jamie's breakfast into your model.

### TASK 3b

In task 1m you set up a formula to display whether a person has had a 'good breakfast' or a 'poor breakfast'.

Now you are going to make these cells change colour depending on the message contained within them.

Watch the video tutorial on 'conditional formatting' (your teacher should give you a link to use) and see how you can use this tool to change the formatting within a cell.



The screenshot shows a Microsoft Excel spreadsheet titled 'Microsoft Excel - Book1'. The spreadsheet has columns A through E and rows 11 through 24. The data is as follows:

	A	B	C	D	E
11					
12	<b>Food</b>	<b>Amount eaten for breakfast (in grams)</b>	<b>Kcal eaten for breakfast</b>	<b>Protein eaten for breakfast</b>	
13	Apple	150	69.00	0.45	
14	Butter	0	0.00	0.00	
15	Cornflakes	25	92.00	2.15	
16	Strawberry Jam	5	13.10	0.03	
17	Milk	150	97.50	4.95	
18	Orange Juice	100	33.00	0.40	
19	Sugar	30	118.20	0.00	
20	Toast	25	58.25	1.95	
21		<b>Totals</b>	481.05	9.93	
22		is this breakfast good enough?	poor breakfast	poor breakfast	
23					
24					

Once you understand what to do, have a go at setting up conditional formatting on cells C22 and D22.

### TASK 3c

In task 2a you made a guess or prediction about what changes you might need to make in order to improve Nicky's breakfast. You probably did make an improvement but it was unlikely that you ended up with a 'perfect breakfast'.

Now you are going to use Goal Seek to try and improve Jamie's breakfast.

You used goal seek in the first lesson of this project. If you can't remember what to do, watch the video tutorial on 'Goal Seek' (your teacher should give you a link to use).

Once you know what to do, change the amount of milk that Jamie needs to drink in order to get the value in cell C21 to 600 Kcal.

### TASK 3d

Reset the milk value back to 150 g and try using Goal Seek to experiment with some of the other values.

What is the best breakfast that you can come up with to provide exactly or as close as possible to the 'perfect breakfast' values?

### TASK 3e

When you think you have come up with an almost perfect breakfast, print out your sheet onto one page and annotate it to explain how you used conditional formatting and goal seek.

### TASK 4a

You have set up a model to allow people to see whether they are eating a healthy breakfast.

Sometimes numbers are not always easy for people to understand. Using the same software, create a column chart

Your column chart should:

- be a simple column chart
- This should have a title
- Both axes should be labelled
- If the legend isn't necessary then remove it
- Save the chart as a new sheet, not as a small chart on the worksheet
- Change the colours but be careful to keep them simple. Avoid effects like 'raindrops', keep colours to a minimum – two complimentary colours at most.

Print out your chart and annotate to explain what you have done. Add it to your project.

### TASK 4b

Using the same software, create a pie chart

Your pie chart should:

- Showing something sensible i.e. proportions
- Have a sensible title
- Show values or percentages
- Have a suitable legend
- Save the chart as a new sheet, not as a small chart on the worksheet
- Change the colours but be careful to keep them simple. Avoid effects like 'raindrops', keep colours to a minimum – two complimentary colours at most.

Print out your chart and annotate to explain what you have done. Add it to your project.

### TASK 5 if you have time .....

On your model, write clear instructions to show someone how to check their own breakfast.

**Think about using text boxes on your model, sound recordings and or written help sheets**

*You may:*

- Guide teachers or students to access this resource from the [teach-ict.com](http://teach-ict.com) site
- Print out enough copies to use during the lesson

*You may not:*

- Adapt or build on this work
- Save this resource to a school network or VLE
- Republish this resource on the internet

**A subscription will enable you to access an editable version and save it on your protected network or VLE**