

## HelpSheet: COUNT Group Of Functions

### Introduction

#### Background

Many of the Functions contained in Excel are only partially used. Consequently their effect is diluted and the reports which use them are not as powerful as they should be.

Hit The Ground Sprinting are producing a series of videos which, when used in conjunction with a Helpsheet such as this, will fully explore not only individual Excel Functions but will also examine how different Functions can be combined for even more effective reporting and the introduction of End User interactivity.

If you have not read the Helpsheet How Single Functions Work we suggest you do so before commencing this Helpsheet, as the theory behind how Functions work will help your understanding of the process.

#### Introduction

This helpsheet should be used in conjunction with the COUNT Group video produced by Hit The Ground Sprinting details of which can be found at [www.hitthegroundsprinting.com](http://www.hitthegroundsprinting.com)

#### Function Purpose

The Functions count the number of records in a group dependent upon specified criteria.

#### Video Commentary

Watch the Video, read the Helpsheet. Watch the Video again and do examples.

The video explains how to convert a date to text so that reports can have dates with words in them and a different format.

#### Count Group

There are a number of Functions in the Count Group and they will be described separately.

As they are not complicated they will all appear on the same video.

#### COUNT Function

It is possible to put in individual cells, values or ranges, we put in a range.

We start by typing '=count', and the definition to the right of the COUNT Function is given as 'Counts cells in a range of cells which contains numbers'

Putting in a round bracket gives us a breakdown of the Function itself.

	A	B	C	D	E	F	G	H	I	K	L	
1		COUNT Function Demonstration							<a href="http://www.hitthegroundsprinting.com">www.hitthegroundsprinting.com</a>			
2												
3		<b>Name</b>	<b>Food</b>	<b>Quantity</b>	<b>Colin</b>	<b>Andrew</b>						
4		Andrew	Apples	3		3						
5		Colin		2	2							
6		Andrew	Bananas	8								
7		Andrew	Pears	5								
8		Colin	Pears	5	5							
9		Denise	Plums	5								
10		Andrew	Apples	1		1						
11		<b>Totals</b>		<b>29</b>	<b>7</b>	<b>4</b>						
12												
13												

=count(

COUNT(value1, [value2], ...)

Blue bars representing the function's arguments.

'value1' is in **bold** (this can be a range, cell, value etc. It is in bold because it is the part of the Function which needs to be completed.

'[value2]' (can contain the same types of value as 'value1')

'...' (allows other types to be entered)

We are only going to put in a single data range so we will not put in a comma. We put in the range 'd4:d10', which turns blue in the Function, as does the border of the cell range 'D4' to 'D10'. This indicates that that part of the Function applies to those cells.

	A	B	C	D	E	F	G	H	I	K	L	M
1		COUNT Function Demonstration							<a href="http://www.hitthegroundsprinting.com">www.hitthegroundsprinting.com</a>			
2												
3		<b>Name</b>	<b>Food</b>	<b>Quantity</b>	<b>Colin</b>	<b>Andrew</b>						
4		Andrew	Apples	3		3						
5		Colin		2	2							
6		Andrew	Bananas	8								
7		Andrew	Pears	5								
8		Colin	Pears	5	5							
9		Denise	Plums	5								
10		Andrew	Apples	1		1						
11		<b>Totals</b>		<b>29</b>	<b>7</b>	<b>4</b>						
12												
13												
14												

=count(d4:d10)

Blue bars representing the function's arguments.

A closing bracket is typed in, enter is pressed and the value '7' is returned because this is the number of cells in the range which contain a number.

This and other Helpsheets can be found at [www.hitthegroundsprinting.com](http://www.hitthegroundsprinting.com)

Repeating this for a similar range of cells in column E returns the value '2'

### COUNTA Function

The box to the right of the COUNTA Function defines it as 'Counts the number of cells in a range that are not empty'

This applies to text in addition to numbers

In our example we look firstly at the range of cells between 'B4' and 'B10'.

Name	Food	Quantity	Colin	Andrew + Apples
Andrew	Apples	3		3
Colin		2	2	
Andrew	Bananas	8		
Andrew	Pears	5		
Colin	Pears	5	5	
Denise	Plums	5		
Andrew	Apples	1		1
<b>Totals</b>		<b>29</b>	<b>7</b>	<b>4</b>

This returns a value of '7' as all the cells have text in them.

This is then repeated for the same cells in column 'C'

The value returned is '6' (because cell 'C5' is empty).

If a cell contains a formula it will also be included in the total.

Looking at the same range in column 'E' returns '7', because they all have formulae in them (though only 'E5' and 'E8' are showing numbers)

The same range in column 'F' returns '2', because 'F5' to 'F9' are empty cells.

### COUNTBLANK Function

The box to the right of the COUNTBLANK Function defines it as 'Counts the number of empty cells in a specified range of cells'

Empty cells are cells which have no values

Formula with no values will not be returned

This and other Helpsheets can be found at [www.hitthegroundsprinting.com](http://www.hitthegroundsprinting.com)

Putting in range 'C4' to 'C10' returns '1' as 'C5' is blank

Range 'E4' to 'E10' returns '5' as only cells 'E5' and 'E8' have values in them

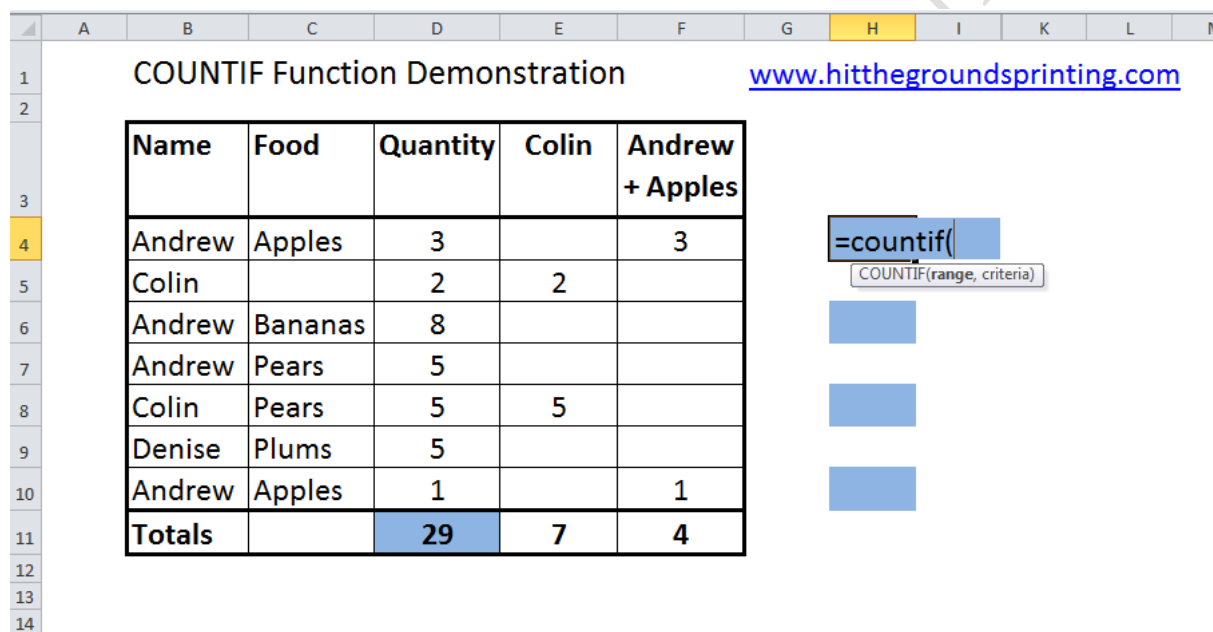
Range 'F4' to 'F10' returns '5' because there are five cells with blanks in them

To summarise the Function counts one if a cell contains a formula **and** the formula returns nothing or it is empty

## COUNTIF Function

The box to the right of the COUNTIF Function defines it as 'Counts the number of cells within a range that meet the given criteria'

Putting in the Function '=countif(' tells us that the Function has only two parts to it.



The screenshot shows an Excel spreadsheet with the following data table:

Name	Food	Quantity	Colin	Andrew + Apples
Andrew	Apples	3		3
Colin		2	2	
Andrew	Bananas	8		
Andrew	Pears	5		
Colin	Pears	5	5	
Denise	Plums	5		
Andrew	Apples	1		1
<b>Totals</b>		<b>29</b>	<b>7</b>	<b>4</b>

To the right of the table, there is a formula box containing the text '=countif(' and a tooltip that reads 'COUNTIF(range, criteria)'. Below the formula box are three blue rectangular boxes, likely representing the range and criteria arguments.

'range' (in **bold** (because it is the part of the Function to be entered) is the range of cells to count if the criteria given is met)

'criteria' (is the criteria needed to return the count)

If we continue with the Function and put in 'b4' to 'b10' as our range, followed by a comma to go the criteria section, then 'Colin' in quotation marks (because it is text).

COUNTIF Function Demonstration					<a href="http://www.hitthegroundsprinting.com">www.hitthegroundsprinting.com</a>
Name	Food	Quantity	Colin	Andrew + Apples	
Andrew	Apples	3		3	=countif(b4:B10,"Colin")
Colin		2	2		
Andrew	Bananas	8			
Andrew	Pears	5			
Colin	Pears	5	5		
Denise	Plums	5			
Andrew	Apples	1		1	
<b>Totals</b>		<b>29</b>	<b>7</b>	<b>4</b>	

The value returned is '2', because 'Colin' appears twice in the range specified.

If we extend the range to column 'C' and make it 'B4' to 'C10' we will still return '2' because 'Colin' is not a food.

Putting 'Colin' in to empty cell 'C5' will return '3'.

So the range does not have to be from a single column.

The 'criteria' can be made flexible instead of being hard coded in.

The Function would replace "'Colin'" with 'e3', so whatever is in cell 'e3' will be returned as a value.

COUNTIF Function Demonstration					<a href="http://www.hitthegroundsprinting.com">www.hitthegroundsprinting.com</a>
Name	Food	Quantity	Colin	Andrew + Apples	
Andrew	Apples	3		3	
Colin		2	2		=countif(b4:b10,e3)
Andrew	Bananas	8			
Andrew	Pears	5			
Colin	Pears	5	5		
Denise	Plums	5			
Andrew	Apples	1		1	
<b>Totals</b>		<b>29</b>	<b>7</b>	<b>4</b>	

The value for the range is '2', as the value in cell 'E3' appears twice in the range 'B4' to 'B10'

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If the value of cell 'E3' is changed to 'Andrew' then '4' is returned as 'Andrew' appears 4 times in the same range.

Therefore it is possible to build in flexibility.

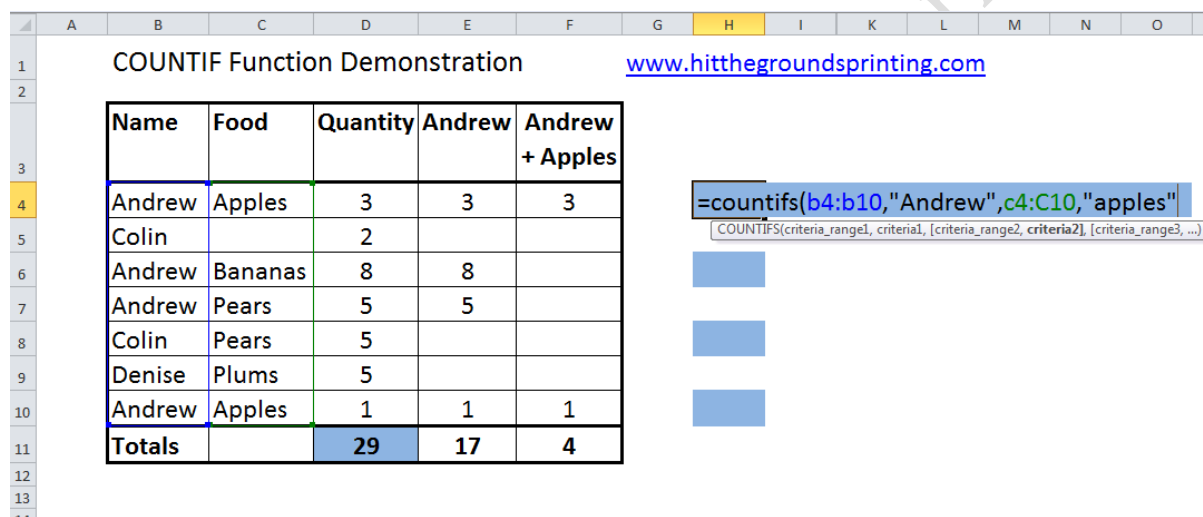
### COUNTIFS Function

The box to the right of the COUNTIFS Function defines it as 'Counts the number of cells specified by a given set of conditions or criteria'

This can be more than one, in effect from 2 upwards.

We are going to choose one name and one food.

If we choose 'Andrew' for the name and 'Apples' for the food the Function would look like this



The screenshot shows an Excel spreadsheet titled "COUNTIF Function Demonstration" with a URL [www.hitthegroundsprinting.com](http://www.hitthegroundsprinting.com). The table has the following data:

Name	Food	Quantity	Andrew	Andrew + Apples
Andrew	Apples	3	3	3
Colin		2		
Andrew	Bananas	8	8	
Andrew	Pears	5	5	
Colin	Pears	5		
Denise	Plums	5		
Andrew	Apples	1	1	1
<b>Totals</b>		<b>29</b>	<b>17</b>	<b>4</b>

To the right of the table, a formula box shows the formula: `=countifs(b4:b10,"Andrew",c4:C10,"apples")`. Below the formula box are three blue rectangular buttons.

The parts of the Function are:

'criteria\_range1' (which is the range which relates to the first criteria).

'criteria1' (which is the criteria to be applied to the first criteria range).

This continues with a '2' after both of the next two part of the Function and on after that because there can be many 'criteria\_range' and 'criteria' put in (remember it is 'IFS')

The value returned is '2' because 'Andrew' and 'Apples' as a combination appear twice.

As practice makes perfect apply the above at every practical opportunity

### Finally

This Helpsheet was written by Norman of Hit The Ground Sprinting Ltd. Its distribution is Free but please acknowledge the author and company in any communications concerning it. Further it is intended for guidance purposes only. For more information and other Helpsheets please check out the website [www.hitthegroundsprinting.com](http://www.hitthegroundsprinting.com) or contact by email on [norman@hitthegroundsprinting.com](mailto:norman@hitthegroundsprinting.com)