# **Keyboard Shortcuts**

#### Selecting

One cell to the <b>right</b>	$\rightarrow$				
One cell to the <b>left</b>	<b>←</b>				
One cell <b>down</b>	↓ or <b>Enter</b>				
One cell <b>up</b>	1 or Shift + Enter				
One screen down	Page Down				
One screen up	Page Up				
Beginning of sheet (A1)	Ctrl + Home				
End of sheet (last cell)	Ctrl + End				
To the end of contiguous data	Ctrl + Arrow or End + Arrow				
A cell or range of cells	Ctrl G or F5 then enter address				
Next sheet	Ctrl + Page Down				
Previous sheet	Ctrl + Page Up				
Whole <b>column</b>	Ctrl + Space Bar				
Whole <b>row</b>	Shift + Space Bar				
One more cell to the <b>right</b>	Shift $+ \rightarrow$				
One more cell to the <b>left</b>	Shift + ←				
One more cell <b>up</b>	Shift + ↑				
One more cell <b>down</b>	Shift +↓				
All the contiguous data to the <b>right</b>	$Ctrl + Shift + \rightarrow$				
All the contiguous data to the <b>left</b>	$Ctrl + Shift + \longleftarrow$				
All the contiguous data <b>up</b>	$Ctrl + Shift + \uparrow$				
All the contiguous data <b>down</b>	$Ctrl + Shift + {\downarrow}$				
All cells	Ctrl A				

#### File Functions

Open file	Ctrl + O					
Save file	Ctrl + S					
Close window	Ctrl + W					
New file	Ctrl + N					
Print file	Ctrl + P					

#### Formatting

Format cells	Ctrl + 1
Bold	Ctrl + B
Italic	Ctrl + I
Underline	Ctrl + U

# Function Keys

Help	F1				
Edit cell formula	F2				
Paste Name box	F3				
Insert function	Shift + F3				
Toggle absolute / relative references	F4				
Go to specified cell	F5				
Go to next pane	F6				
Check spelling	F7				
Toggle extended mode	F8				
Recalculate	F9				
Activate ribbon options with letters	F10				
Auto Graph / Chart	F11				
Save As	F12				

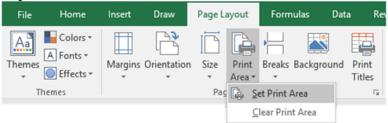
### Editing

Cut	Ctrl + X
Сору	Ctrl + C
Paste	Ctrl + V
Undo	Ctrl + Z
Redo	Ctrl Y
Insert cells, rows, or columns	Ctrl + +
Delete cells, rows, or columns	Ctrl + -
Find	Ctrl + F
Search and Replace	Ctrl + H
Erase cell contents	Delete
Finish cell formula and stay in cell	Ctrl + Enter
Cancel edit	Esc
Insert new line in cell	Alt + Enter
Insert current date	Ctrl + ;
Insert current time	Ctrl + :
Toggle display between formulas vs. values	Ctrl + `

# Printing

### Select a print area

Select desired range of cells, then from the **Page** Layout tab choose Set Print Area as shown below.



## Fit print to one page wide

From the **Page Layout** tab choose **1 page** for the width as shown below.

File	Home	Insert	Draw	Page Layo	out	Form	nulas C	ata l	Review	Vie	w Develop	er Add	-ins	Tecl
Themes •	▲ Colors ▼ A Fonts ▼ ● Effects ▼	Margins	Orientation	∗ A	rint rea •	*	Backgrour	Titles	🖳 Sca	ight: ile:	Automatic Automatic 1 page 2 pages	Gridlines w nt	Headir Vie	ew int
Th	emes			Page 9	Setup			ſ	ā l	Scale	3 pages	t C	ptions	Fai

# Fit print to one page tall

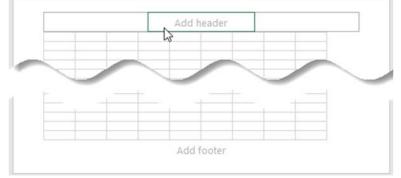
From the **Page Layout** tab choose **1 page** for the height as shown below.

File	Home	Insert	Draw	Page Layou	ut	Form	nulas	Data	Re	eview Vi	ew	Deve	lope	r Add	-ins	Tec
Themer	Colors • A Fonts •		Orientation	Size Pri			Backgrou	ind i		Width:		natic	_	Gridlines View	$\checkmark$	dings View Print
	emes	·	Ŧ	<ul> <li>Are</li> <li>Page Se</li> </ul>	ea ▼ etup	*			Fitles G		2 page 3 page	ε C	z		ption	

## Add header / footer

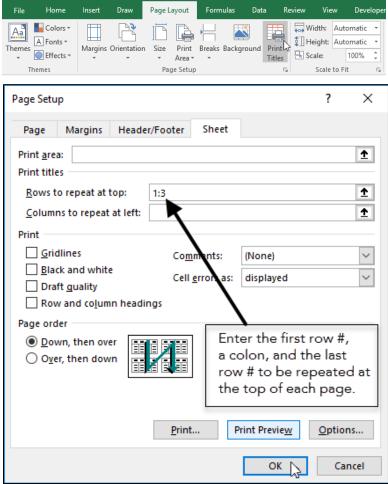
From the Insert tab choose **Header & Footer** then type your text in the desired location.





#### Print rows at top of each page

From the **Page Layout** tab click **Print Titles**, then select the **rows to repeat at top** and click **OK**.



# **PivotTables**

PivotTables allow you to arrange and summarize complex data in an easy-to-read report that is easy to manipulate. To create a simple PivotTable, follow these steps:

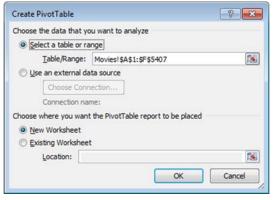
- 1. Start Excel and create or open your file.
- Make sure your data can support a PivotTable by using the check list below:
  - □ Each column of data has a column heading
  - Each column heading is unique
  - Each column heading is in the same row
  - □ The column headings do not span multiple rows
  - □ No merged cells exist
  - □ All the data is contiguous
  - The data in each column follows a consistent format
- 3. Position the cursor in one cell, and only one cell of the data.

	A	В	С	D	E	F
1	MovieNumber	Title	Year	Category	Rating	Color
2	1	\$(Dollars)	1972	Crime	R	TRUE
3	2	\$1,000,000 Duck	1971	Comedy	G	TRUE
4	3	10	1979	Comedy	R	TRUE
5	4	10 Rillington Place	1970	Crime	PG	TRUE
6	5	100 Rifles	1969	Western	PG	TRUE
7	6	11 Harrowhouse	1974	Crime	PG	TRUE
8	7	1492: Conquest of Paradise	1992	Drama	PG-13	TRUE
9	8	16 Days of Glory	1986	Documentary	G	TRUE
10	9	1776 Jac	1972	Historical	G	TRUE
11		18 Again!	1988	Comedy	PG	TRUE
12	11	1900	1977	Drama	NC-17	TRUE

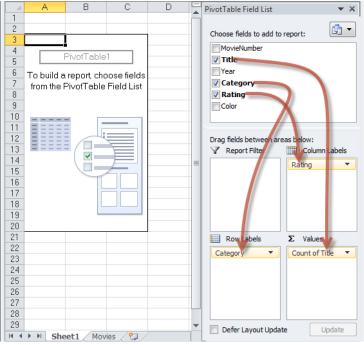
4. From the ribbon choose Insert, PivotTable.



5. In the resulting dialog box make sure the **table/range** is referring to the correct table or range and that the destination is a **New Worksheet**, then click **OK**.



6. Drag the fields from the PivotTable Field List to the desired location as shown below.

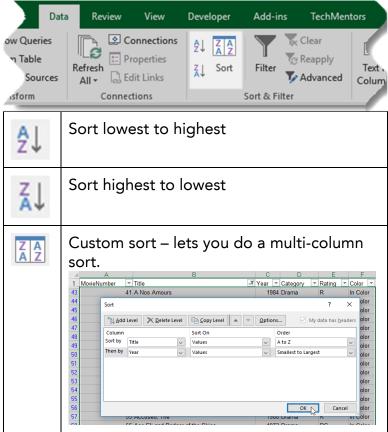


#### You now have a PivotTable.

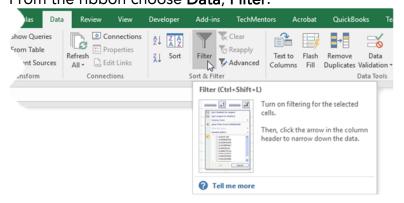
	A	B		C	D	E	F	Ĝ	Н	-	PivotTable Field List	-
1										- 1	Choose fields to add to re	mont:
	Count of Title	Column Labels	-									eport:
4	Row Labels			NC-17	NR	PG	PG-13	R	Grand Total		MovieNumber	
	Action		2			70		218	311		✓ Title	
	Adventure		30			100		36	177		Year	
7	Animated		43		1	13	1	6	64		Category	
8	Biography		6			49	17	49	121		Rating	
	Children's		37			15			52		Color	
10	Cornedy		65	3	8 1	487	206	505	1267			
	Crime		4	1		78	5	252	340			
2	Dance		4			1	4		9			
	Disaster		3			14		3	20			
4	Docudrama		1			1			2			
5	Documentary		10		2	11		7	30		Drag fields between area	
6	Drama		40	7	6	410	127	650	1240		Report Filter	Column Label
7	Fantasy		16			37	13	11	77			Rating
8	Historical		4			23	3	18	48			
9	Horror		2	1 1		110	16	317	446			
:0	Musical		32	•		53	8	22	115			
1	Mystery		4			40	4	45	93			
	Opera		1			1		1	3			
	Political					5		10	15			
4	Prison					3		27	30			
5	Religious		5			5	2	5	17		Row Labels	Σ Values
6	Romance		2			50	18	43	113		Category 🔻	Count of Title
7	Science		22			88	22	69	201			
8	Sports		7			51	9	28	95			
9	Spy		4			39	3	15	61			
0	Thniller					50	10	143	203			
1	War		12			38	5	26	81			
	Western		25			105		42				
	Grand Total		381	12	2 10	1947	508	2548	5406			
34										Ŧ	📃 Defer Layout Update	Update
-	► H Sheet1 /	Movies / 🞾 /				14				F 🛛 🗌		

# Sort data

To sort your data, click on one cell, that has data, in the column you want sorted. Then from the ribbon's **Data** tab click one of the three sort buttons.



### Filter data From the ribbon choose Data, Filter.



Then click the column heading's drop down to apply the desired filter.

A	A	В			C		D		E		F	
1	MovieNumber 🔽	Title		٣	Year	٣	Category	Ŧ	Rating	T	Color	٣
3	2	\$1,000,000 Duck	21	Sort	A to Z					h	In Col	or
5	4	10 Rillington Place	Z1	1 Sort Z to A							In Col	or
6	5	100 Rifles		Sort	by Cole	nr.					In Col	or
7	6	11 Harrowhouse	_								In Col	or
9		16 Days of Glory	×	Clea	er Filter	Fron	n "Rating"				In Col	or
10	9	1776		Fjlte	r by Co	lor				×.	In Col	or
11		18 Again!		Tex Entry					۲	In Col	or	
13	12	1941							Q	In Col	or	
18		2001: A Space Odyssey	4							~	In Col	or
19	18	2010	(*)	Gelect All)     G     NC-17						In Col	or	
21	20	3 Men and a Baby								In Col	or	
22	21	3 Men and a Little Lady			NR						In Col	or
23	22	3 Ninjas			PG						In Col	or
24	23	3 Ninjas Kick Back			PG-1     R	3					In Col	or
25	24	3 Women									In Col	or
27	26	300 Year Weekend, The									In Col	or
28	27	40 Carats									In Col	or
34	33	80 Steps to Jonah				-	1 103	_			In Col	or
35	34	84 Charing Cross Road					OK		Cancel		In Col	or
37	36	9 to 5			1						In Col	or
40	39	99 and 44/100% Dead			19	974	Crime		PG		In Col	or
62	61	Across the Great Divide		1977 Western			G		In Col	or		
64	63	Act of the Heart				070	Drama		PG		10.0.1	-
-	-65	Adam	-						PG	1		

# Formula basics Range Operators

Cell address with no operator	Refers to cell address	B2	A 8 C 1 2 3
:	Refers to all cells between first and last reference	A1:C3	A         B         C           1
,	Refers to first and last reference	A1,C3	A 8 C 1 2
ļ	Refers to address on the specified sheet	Sheet2!B2	A B C 1 2 3 9eef 9eed ©
\$	Designates that a column or row reference is absolute and therefore cannot change when copied.	=\$A\$1 + 1	A B 1 3 4 2 =\$A\$1+1 3 =\$A\$1+1 =\$A\$1+1 3

#### Formula Operators

Every formula must begin with an equal, plus or minus sign.

	Simula must begin w		
+	Add	= 20 + 2	22
-	Subtract	= 20 – 2	18
*	Multiply	= 20 * 2	40
/	Divide	= 20 / 2	10
^	Exponent	= 20 ^ 2	400
&	Concatenate	= 20 & 2	202
=	Equals	= 20 = 10	FALSE
>	Greater than	= 20 > 10	TRUE
>=	Greater than or equal to	= 20 >= 10	TRUE
<	Less than	= 20 < 10	FALSE
<=	Less than or equal to	= 20 <= 10	FALSE
()	Expressions inside parentheses occur before other expressions	= (3+4)*2 = 3+(4*2)	14 11

### Order of Operations

Excel follows the standard PEMDAS order of operations. This means expressions are performed in the following order:

1	Р	Parenthesis	()
2	E	Exponents	^
3	MD	Multiplication and Division	* /
4	AS	Addition and Subtraction	+ -

#### Formulas vs. Functions

Formulas and functions are not the same thing.

A simple formula is an equation that involves use of operators like + - \* / and &.

A function is a predefined programmed calculation that has a name, a set of parentheses, and usually has one or more parameters.

Complex formulas often combine one or more simple formulas and/or one or more functions.

#### Sample Formulas

Addition	= A1 + B1	= A1 + 3
Subtraction	= A1 – B1	= A1 – 3
Multiply	= A1 * B1	= A1 * 3
Divide	= A1 / B1	= A1 / 3
Concatenation	= A1 & B1	= "John " & "Adams"

### Sample Functions

Sum	=Sum(A1:A10)	Totals values in A1 through A10.
Average	=Average(A1:A10)	Calculates the average of the values in A1 through A10.
Count	=Count(A1:A10)	Counts the cells with numeric data in A1 through A10.
CountA	=CountA(A1:A10)	Counts the cells with alpha or numeric data in A1 through A10.

# Sample Complex Formula

= "Your half of the total is " & ( SUM(A1:A10) / 2 ) & "."

#### Expand the formula bar

When you have a long / complex formula you might want an expanded formula bar so you can see the whole thing. Just click the expand button shown below. After that you can drag the border with the mouse to make it even bigger.



## Absolute, Mixed, and Relative References

When a formula is copied from one cell to another, you have four options for how the formula's cell addresses will be adjusted relative to the new vs. original location. You select the options you want by choosing whether or not to place a \$ in front of the row number and/or column letter.

#### Absolute Reference – nothing changes Use a \$ in front of both the column letter and row number

	А	В	С
1	10		
2		=\$A\$1	=\$A\$1
3		=\$A\$1	=\$A\$1

No matter where the destination cell is, the row number and the column letter will not change.

In this example, when B2 is copied down to a cell in row 3, the "1" stays a "1" because the \$ in front of the row letter makes it absolute.

When B2 is copied across to a cell in column C, the column letter remains an "A" because the proceeding \$ makes it absolute.

#### Relative Row, Absolute Column

Use a \$ in front of the column letter but not the row number

	А	В	С
1	10		
2		=\$A1	=\$A1
3		=\$A2	=\$A2

Based on the destination cell, the row number can change but the column letter will not change.

In this example, when B2 is copied down to a cell in row 3, the "1" becomes a "2".

When B2 is copied across to a cell in column C, the column letter remains an "A" because the preceding \$ makes it absolute.

#### Absolute Row, Relative Column

Use a \$ in front of the row number but not the column letter.

	А	В	С
1	10		
2		=A\$1	=B\$1
3		=A\$1	=B\$1

Based on the destination cell, the row number will not change but the column letter can change.

In this example, when B2 is copied down to a cell in row 3, the "1" remains a "1" because the \$ in front of the row letter makes it absolute.

When B2 is copied across to a cell in column C, the column letter changes to a "B".

#### **Relative Reference**

Do not place a \$ in front of the row number and do not place a \$ before the column letter.

	А	В	С
1	10		
2		=A1	=B1
3		=A2	=B2

Based on the destination cell, both the row number and the column letter can change.

In this example, when B2 is copied down to a cell in row 3, the "1" becomes a "2".

When B2 is copied across to a cell in column C, the column letter changes to a "B".

# **Advanced Functions**

#### VLookup

Description	Looks for a value in the first column of a table and then returns the value from the specified column of that same row						
Syntax	VLOOKUP Col_index						
Arguments	Lookup_ value	Req'c	l Th	ie value	to find		
	Table_ array	Req'c	wł		or range value ca		s
	Col_ index_ num	Req'o	ta	The column number in the table from which the value is to be returned			
	Range_ lookup	Opt		find the	nk or ent e closest .SE to fin match	match,	_
Notes		If the Range_lookup is blank or TRUE then the data must be sorted in <b>ascending</b> order.					
Example	A 1 Student 2 Sally 3 Bob 4 June 5 Cary 6 7 8	B Score 75% 90% 84% 79%		D	E Score 0% 60% 70% 80% 90%	F Grade F D C B A	

#### XLookup

Description	Looks for a value in a column and then returns the value from the same row of a corresponding column				
Syntax		y, [lf_not_fo	ue, Lookup_array, ound], [Match_mode],		
Arguments	Lookup_ value	Req'd	The value to find		
	Lookup_ array	Req'd	The column or range of cells where the value can be found		
	Return_ array	Req'd	The column or range of cells where the desired value can be found		
	lf_ not_ found	Opt	Value to display if the Lookup_value is not found		
	Match_ mode	Opt	0 or blank for exact match -1 for exact match or next smaller item 1 for exact match or next larger item 2 for wildcard character match		
	Search_ mode	Opt	1 or blank for search of first-to-last -1 for search of last-to- first 2 for binary search (sorted in ascending order) -2 for binary search (sorted in descending order)		
Example	A         B         C           2         1         Title         2001: A Space           3         Title         2001: A Space         A Space           4         Rating PG         Meaning PG         Meaning PG           5         Meaning PG         Meaning Parental Guida         A           6         7         8         9         10           10         11	nce General Parental Parental Restrict	Audience G Guidance PG I Guidance Strongly Advised PG-13 ed - no children under 17 without parent's permission R ren under 17 allowed NC-17		

Description	Evaluates a logical expression. If the expression is true one value is returned, if not another value is returned.					
Syntax	IF(Logical_te	est, [Value_i	f_true], [Value_if_false])			
Arguments	Logical_ test	Req'd	The expression that is either TRUE or FALSE			
	Value_ if_true	Opt	The value you want returned if the logical expression is TRUE			
	Value_ if_false	Opt	The value you want returned if the logical expression is FALSE			
Example	A B 1 Area Country 2 NA United Sta 3 Asia China 4 Asia Japan 5 Europe Germany	Sales Over	D E 200K =IF(C2>200000,"Yes","No")			

#### Sumlf

Description	Sums the number of cells in a range that match a given criteria				
Syntax	SUMIF(R	ange, C	Criter	ia, [Sum_range])	
Arguments	Range	Reqʻ	d	The set of cells to test	
	Criteria	Req'd		The condition the cells must match in order to be added	
	Sum_ range	Opt		The cells that are to be added. If left blank the cells in the range parameter are used.	
Example	2 NA Un 3 Asia Ch 4 Asia Jap 5 Europe Ge 6 Europe Un 8 SA Brr 9 Europe Ita 10 Asia Inc	ian rmany ince ited Kingdom izil ly	C Sales \$818,66 \$377,84 \$509,45 \$196,82 \$196,82 \$149,32 \$174,65 \$174,65 \$174,36 \$174,36 \$123,43 \$145,87	11 15 15 15 15 10 10 10 10 14 15 15 15 15 15 15 15 15 15 15	



Description	Counts the number of cells in a range that match a given criteria				
Syntax	COUNTI	F(Rang	ge, C	riteria)	
Arguments	Range	Reqʻ	′d	The set of cells to count	
	Criteria			The condition the cells must match in order to be counted	
Example	3 Asia Chir 4 Asia Japa 5 Europe Ger 6 Europe Fran	ed States \$818,665 a \$377,841 n \$509,495 many \$196,822 ce \$149,325 ed Kingdom \$174,650 il \$174,650 s \$123,434		5 5 6 7 7 7 7 7 7 7 7 7 7 7 7 7	

#### SumIfs

Description	Sums the number of cells in a range that match all the given criteria			
Syntax	SUMIFS(Criteria_range1, Criteria1, [Criteria_range2],[Criteria2])			
Arguments	Sum_ range	Req'd	The cells that are to be added	
	Criteria_ range1	Req'd	The first set of cells to be evaluated	
	Criteria	Req'd	The criteria the first set must match	
	Criteria_ range2	Opt	The second set of cells to be evaluated	
	Criteria2	Opt	The criteria the first set must match	
Notes	The criteria can be literal text or cell references. Literal criteria should be placed inside quotes. Operators like =, >, < can be used as part of the criteria. Use ? and * as wildcards to represent one or multiple characters.			
Example	A         B         C         D         E         F         G         H           1         Area         Country         Sales         Sales         E         Sales         Sales			



Description	Counts the number of records in a range that match all the given criteria			
Syntax	COUNTIFS(Criteria_range1, Criteria1, [Criteria_range2],[Criteria2])			
Arguments	Criteria_ range1	Req'd	The first set of cells to be evaluated	
	Criteria	Req'd	The criteria the first set must match	
	Criteria_ range2	Opt	The second set of cells to be evaluated	
	Criteria2	Opt	The criteria the first set must match	
Notes	The criteria can be literal text or cell references. Literal criteria should be placed inside quotes. Operators like =, >, < can be used as part of the criteria. Use ? and * as wildcards to represent one or multiple characters.			
Example	A         B           1         Area         Country           2         NA         United States           3         Asia         China           4         Asia         Japan           5         Europe         Germany           6         Europe         France           7         Europe         United Kingdom           8         SA         Brazil           9         Europe         Italy           10         Asia         India           11         NA         Canada	\$149,325	F G H =COUNTIFS(C2:C11,">150000", A2:A11,"Europe")	