KNOWLEDGE ORGANISER

KS3 COMPUTING: Year 7 Summer Term : Unit 5 Spreadsheets

ST IVO ACADEMY
Astrea Academy Trust
INSPIRING BEYOND MEASURE

Overview:

Keywords:

Absolute cell reference	The reference remains the same, even if copied or moved.
Conditional formatting	Similar to formatting, but using a pre-programmed function to change the appearance based on a condition, e.g. displaying a negative number in red or a positive number in green. Conditional formatting will automatically update the information.
COUNTIF statement	Counts the cells that meet the specified criteria in the defined area.
Data Validation	A control of what type of data can be entered into a specific cell, e.g. making sure that the number entered is valid, that a letter has not been entered in error.
Formatting	Changing the appearance of the spreadsheet to make it more attractive and easier to read. Formatting can relate to changing the font/colours to meet a house style and/or changing the data to make it relevant, such as making the data appear as currency if relevant.
Formula	Tells the spreadsheet what operation to perform, e.g. add together the values in cell A1 to the value in cell A2.
Function	A predefined formula programmed into excel, e.g. COUNTIF
Goal Seek	AKA what-if-analysis; a function within excel that uses a back-solving approach to reach a desired output, e.g. how much the tickets should cost if the goal is to make a profit.
IF statement	Checks whether a condition has been met and returns a value, similar to true/false, e.g. IF a score is greater than 50 display 'pass'.

Key Learning that will take place in this unit:

- Use of formatting and conditional formatting within spreadsheets.
- Different data types and formatting of these data types.
- Validation of data
- Use of images and image formatting.
- Application of the IF and COUNTIF functions within excel.
- Formula and creation use and application.
- Learning the different options available in the AutoSum function and their applications to spreadsheets.
- Use and application of goal seek analysis.

Software and resources that will be used:

- Microsoft Excel

Microsoft excel is a software program that allows users to organise, format and calculate data with forumlas using a spreadsheet system.

Key stroke shortcuts (an alternative to the right mouse button):

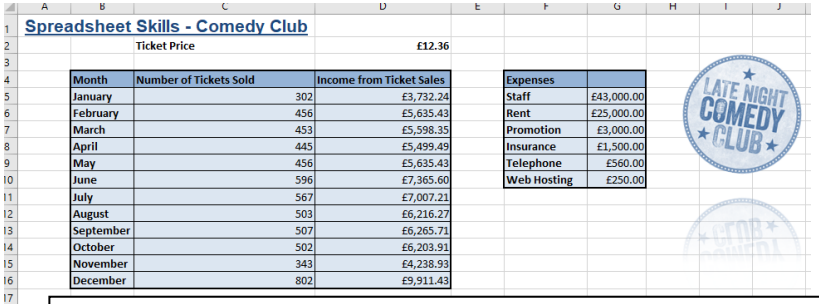
Ctrl + x – Cut selected data
Ctrl + C – Copy the selected data
Ctrl + v – Paste copied/cut data

Ctrl + a – Select all (entire workbook)

Ctrl + s – Save

Shift + arrow key – selects a single cell at a time in the direction of the arrow key pressed

Spreadsheet examples from the unit:

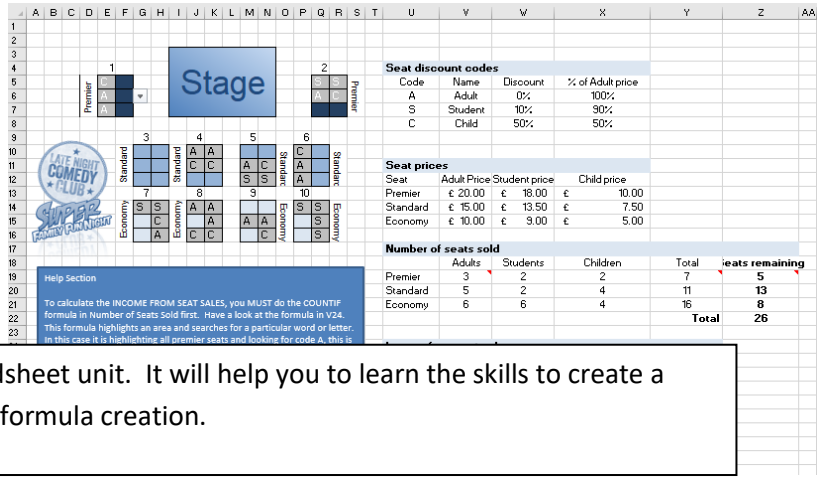


Spreadsheet Skills - Comedy Club

Ticket Price £12.36

Month	Number of Tickets Sold	Income from Ticket Sales
January	302	£3,732.24
February	456	£5,635.43
March	453	£5,598.35
April	445	£5,499.49
May	456	£5,635.43
June	596	£7,365.60
July	567	£7,007.21
August	503	£6,216.27
September	507	£6,265.71
October	502	£6,203.91
November	343	£4,238.93
December	802	£9,911.43

Expenses	
Staff	£43,000.00
Rent	£25,000.00
Promotion	£3,000.00
Insurance	£1,500.00
Telephone	£560.00
Web Hosting	£250.00



This unit will build on your knowledge gained in the year 7 spreadsheet unit. It will help you to learn the skills to create a useful and functional spreadsheet by focusing on formatting and formula creation.

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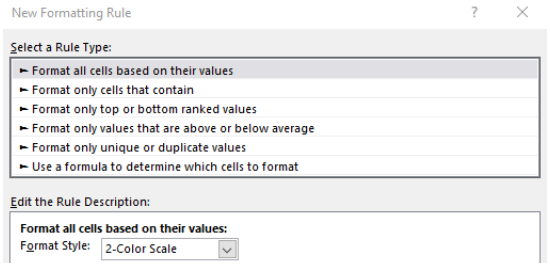
Formatting vs conditional formatting:

Formatting is essential – it not only makes your spreadsheet look more professional it also makes it easier to read and understand. Conditional formatting allows you to create conditions and your spreadsheet will respond to these and update the appearance of the relevant cells if necessary.

Conditional formatting:

Allows you to set the rules for the appearance of cells that meet a condition, such as being filled red if it contains a negative number. The spreadsheet will then respond and automatically apply the changes.

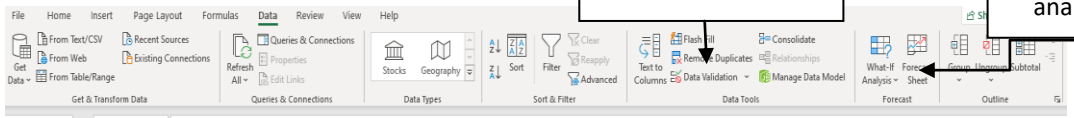


Menus within Excel:

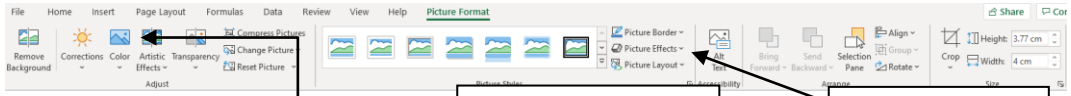
Not all menus are visible

Home menu:

Data menu:



Picture editing menu (visible when picture is selected or after picture has been inserted):

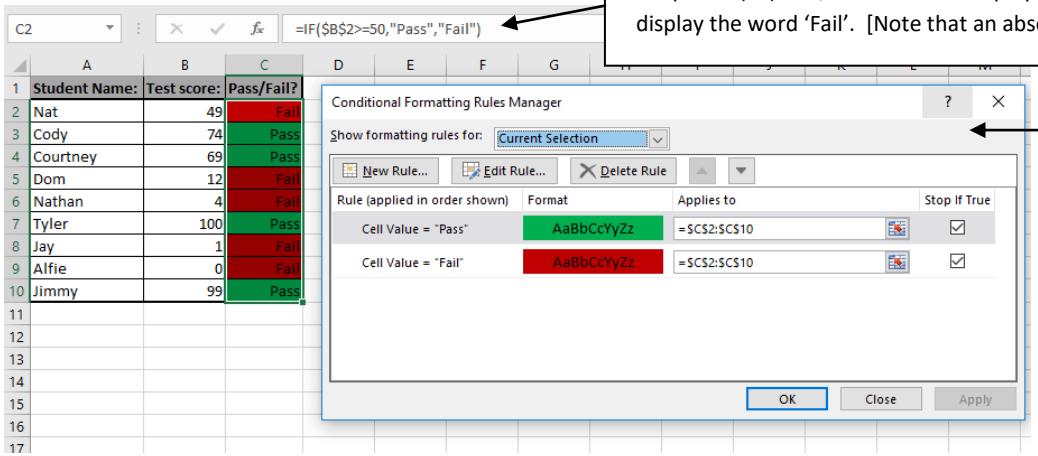


Functions:

Allows you to access functions such as COUNT, IF and COUNTIF.

IF statements and conditional formatting examples:

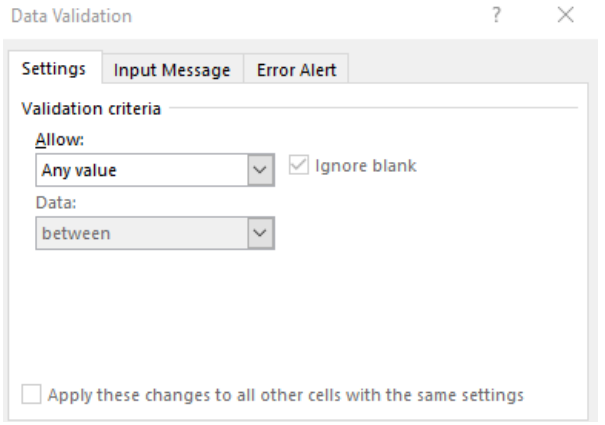
An example of an IF statement: If the value in column B is greater than or equal to (>=) '50', column C will display the word 'Pass'; if not then it will display the word 'Fail'. [Note that an absolute cell reference has been used]



Examples of conditional formatting: If the cell value (the information of the cell) is 'Pass' then the cell will fill green, if the cell value is 'Fail' it will fill red. The conditional formatting has been applied to column C. The conditional formatting is set in the rules manager pop-up box shown.

Data validation:

Allows you to set the rules for what is valid and create an error message if a user attempts to enter incorrect data.



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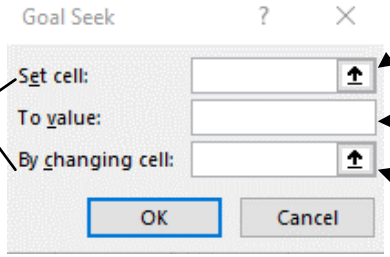
Goal seek:

Also known as 'what-if analysis' helps you to reach a target, or a goal. The goal is to make sure that the comedy club breaks even (that the profit/loss is £0 – they are neither making a profit or making a loss).

Ticket Price	£10.00
Number of Tickets Sold	Income from Ticket Sales
302	£3,020.00
456	£4,560.00
453	£4,530.00
445	£4,450.00
456	£4,560.00
596	£5,960.00
567	£5,670.00
503	£5,030.00
507	£5,070.00
502	£5,020.00
343	£3,430.00
802	£8,020.00
Total Income	£59,320.00
Total Profit/Loss	-£13,990.00

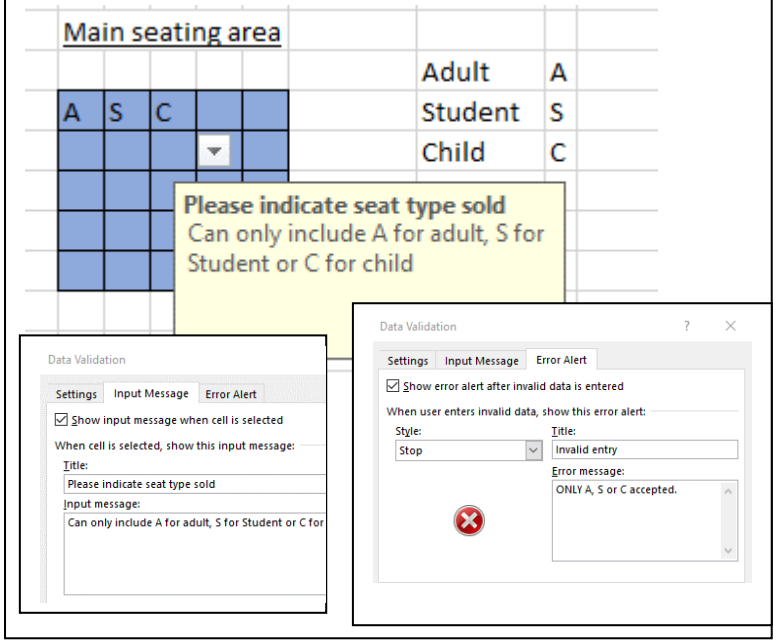
The total profit/loss is dependant on the ticket price. The goal seek/ what-if analysis can do the calculations to work out the how much the tickets need to be to reach this goal.



1. Select the cell showing the total profit/loss,
2. Enter the goal figure,
3. Select the cell that contains the value to change.

Data validation example:

Data validation has been applied to the main seating area (the blue cells) to ensure when seats are sold the only information that can added is valid – that it is only sold as an Adult ticket (A), a student ticket (S) or a child ticket (C). No other information will be accepted and an error message will appear – created in the data validation menu.



Functions:

Functions can be typed in or added from the insert function button:

SUM (type as '=SUM' followed by the cell range)	Adds all the numbers in a range of cells, i.e. =SUM(A2:A11) adds togethers all the numbers in cells A2 to A11.
COUNTIF (type as '=COUNTIF' followed by the cell range, then the criteria	Counts a given criteria within a given range, i.e. =COUNTIF(B4:F8,"A") would count the numbers of 'A's in cells B4 to F8
AVERAGE (type as '=AVERAGE' followed by the cell range)	Calculates the average value within a given range, i.e. =AVERAGE(K5:K8) would work out the average value of data in cells K5 to K8.

TEST YOURSELF

1. How would you edit cell reference H7 to make it an absolute cell reference?
2. Describe what would happen if you used the formula =SUM(A2:A11)
3. Which function would you select to change the fill colour of a cell that contained information about a product that was available to buy to indicate that it had been sold?
4. Write the formula that you would use to automatically indicate whether a person had passed a test when the minimum pass mark is 50.
5. Give an example of where you could use the goal seek function.

Useful Links

Office 365 free online
https://www.microsoft.com/en-gb/microsoft-365/free-office-o... the-web
BBC Bitesize
Spreadsheets:
https://www.bbc.co.uk/bitesize/guides/zdydmp3/revision/1
Test yourself: https://www.bbc.co.uk/bitesize/guides/zdydmp3/test

At Home

Imagine that you are creating a spreadsheet to keep track of your spending – include pocket money, money received as gifts etc.

- Could you use a function to calculate how long it would take you to save up for something that you want?

Could you create a test for someone else who has completed this unit to check their knowledge of the key terms learnt?
Could you create your own 'house style'? What font would you use? What colour scheme?