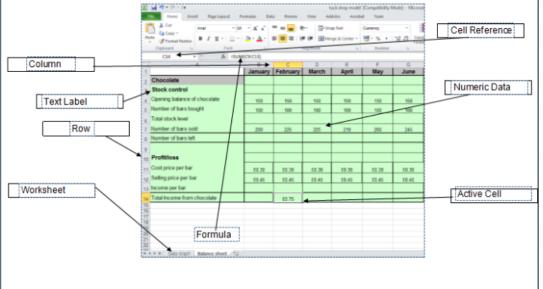## Spreadsheets

Spreadsheets are used to store information and data. Once we have our information in a spreadsheet we can run powerful calculations, make graphs and charts and analyse patterns.

Other uses for _spreadsheets_ –
- Modelling and Planning
- Home/Business Finance and Budgeting
- Wages/Invoices
- Predictions / Simulations / Calculations
- Creating charts and graphs

Labels: Column, Text Label, Row, Worksheet, Formula, Cell Reference, Numeric Data, Active Cell

What is a Function?	A **function** is a standard routine used to perform common tasks. It represents a complex formula that uses reserved words e.g. VLOOKUP, IF. A **function** performs a specific set of operations on its input values to produce a single output value.
What is a Formula?	Using **formulas** in **spreadsheets** can allow you to quickly make **calculations** and get totals of multiple cells, rows, or columns in a **spreadsheet**.
Conditional Formatting	is a tool that allows you to apply **formats** to a cell or range of cells, and have that **formatting** change depending on the value of the cell or the value of a formula. For example, you can have a cell appear bold only when the value of the cell is greater than 100.

Common Formulas/Functions

= SUM	Adds a range of cells together
= AVERAGE	Finds an average for a range of cells
= MIN	Returns the smallest value in range
= MAX	Returns the highest value in a range
= COUNT	Counts cells if they meet a condition

The Design Process

Design Brief	
Task Analysis	A mindmap to explore all elements of the designing/making tasks ahead
Customer Profile	An outline of a typical user of the product being designed
Primary Research	Gathering new data that has not been collected before using surveys, questionnaires or interviews
Secondary Research	Gathering existing data that has already been published from sources like the internet and magazines
Research Analysis	A summary of important findings from each area of research
Specifications	
Initial ideas	A range of quick sketches in response to the design problem
Development	More detailed drawings which explore and refine better ideas
Modelling	Hand generated or CAD/CAM models to prove construction methods
Final idea	
Plan of Make	A flow chart or illustrated guide to how the product will be made
Manufacture	
Testing	Comparing outcomes to the original specification
Evaluation	
Modifications for Industry	Details of how the product/design would need to be modified to be produced in industry

Golden rule: every formula always starts with an =

Cell references begin with a letter, and finish with a number. EG: A1

A range is a selection of cells. EG: (A2:F4)

Operators

+	Adds two numbers / cells
-	Subtracts one cell or number from another
*	Multiplies two numbers/cells
/	Divides one number / cell from another one
<	Less than
>	Greater than
<=	Less than or equal to
>=	Greater than or equal to

IF	one of the logical **functions**, to return one value if a condition is true and another value **if** it's false. For example: **=IF(A2>B2,"Over Budget","OK") =IF**(A2=B2,B4-A4,"")
Count IF	=COUNTIF (Where do you want to look?, What do you want to look for?)
Auto SUM	**Excel automatically** enters a formula (that uses the **SUM**function) to **sum** the numbers
= COUNT	Counts cells if they meet a condition

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