Seed Enterprise Management Institute (SEMIs)

Managing Seed Plan Spreadsheet
Using Microsoft Excel 2010

Definition of Terms

- **Spreadsheet:** A spreadsheet manual or electronic is a ledger sheet that enables the user to enter, edit and manipulate numeric data. An electronic spreadsheet is an automated version of the accountant's ledger. It eliminates the paper, pencil and eraser. Usually, data is organized into rows and columns.

- **Workbook –** The work file created using a spreadsheet program. Normally contains one or more worksheets

- **Worksheet** – Work area in a spreadsheet made up of columns and rows. It is like a single page in a workbook

- **Column** – the vertical divisions of a worksheet

Definition of Terms

- **Column** – the vertical divisions of a worksheet

- **Row** – The horizontal divisions of a worksheet

- **Cell** – The smallest unit that holds data in worksheet and its made by the intersection between a column and a row

- **Formula** – User define expression for performing calculations

- **Function** – Spreadsheets in-built formula used for performing simple to complex calculations. The user does not have to construct the expression when using a formula but only supplies the function arguments – data references to be acted on.

Examples of Electronic Spreadsheet Applications

- Microsoft Excel, Quattro Pro, Lotus 1-2-3, VisiCalc

Advantages of Electronic spreadsheets

- Advantages of electronic spreadsheets over the manual spreadsheets are;

- Spreadsheet final results are neat

- Numeric data can be edited and manipulated easily

- A large virtual worksheet for data entry and manipulation

- Enhanced formatting capabilities

Advantages of Electronic spreadsheets

- Built-in functions which enable the user to create powerful mathematical formulae

- Automatic recalculation – The result of a given formula auto-adjusts when a value used in formula is changed

- Advanced data manipulation tools like sorting, filtering, data validation, Sub-Total, etc.

- Data presentations tools like charts

Class Activity

- *What are the disadvantages of using electronic spreadsheets?*

Introduction to Microsoft Excel 2010

- Microsoft Excel 2010 is one of the products in the Microsoft office 2010 suit. The previous versions of Microsoft Excel include; Microsoft Excel 97, 2000, XP, 2003 and 2007

Starting Microsoft Excel 2010

- – Double click the Microsoft Excel 2010 shortcut icon from the desktop

Or

- – Click on start button from the task bar on the desktop
- – Point at All Programs from the pull up menu
- – Point at Microsoft office from the sidekick menu, then click on Microsoft Excel 2010 from the sidekick menu.

Microsoft Screen Features
Microsoft Excel 2010 Window Screen Shot
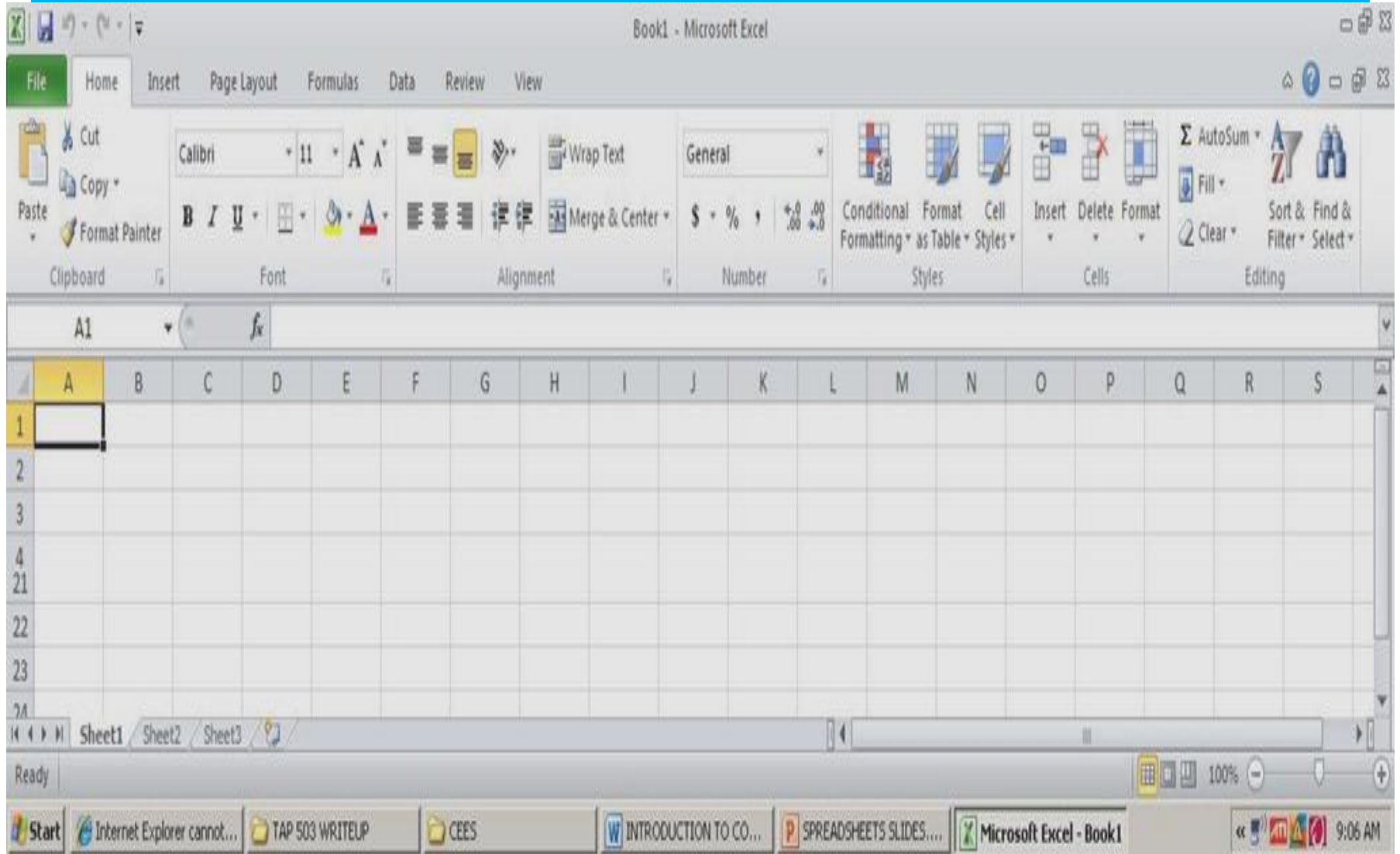
Microsoft Screen Features

- **Formula bar:** Displays the contents of the active cell including formulas and functions. Also used to enter data into a cell.

- **Name box:** Displays the active cell, i.e. cell with a dark outline that indicates where data in the formula bar will be inserted. Used to name/label cells.

- **Workbook:** refers to the user file that holds related information organized in a good manner.

- **Worksheet**: Blank area made up of rows and columns. Several worksheets form a workbook. A worksheet consists of:

Microsoft Screen Features

- – Columns are the vertical division of the worksheet. Are labeled using letters of alphabet from A to XFD
- – Rows are the horizontal divisions of the worksheet. Are labeled using numbers from 1 – 1048576.
- – Cell which is the intersection between a column and a row. Are referenced using column letter and the row number e.g. A1, B2 etc.
- **Worksheet tabs** – used to select the worksheets. Labeled as sheet1, sheet2, sheet3, sheet4 etc. there are 3 worksheets at default.
- **Worksheet browsers** – used for navigating through worksheets

Creating a Workbook and Entering data in a worksheet

- A cell can hold any of the following:
  - **Label:** Alphanumeric data that has no numeric significance and can only provide descriptive information e.g. name of a place, person etc.
  - **Value:** A numeric value (number) that may be used to perform numeric computations
  - **Formula and Functions:** A formula is user defined mathematical expression that evaluates into a value while a function is an in-built formula.

Take note of the following when entering data:

- Type numbers as you press enter or tab or an arrow key to move to the next cell

- Precede a negative number with a minus sign

- To type a fraction, type the whole number followed by space then the fraction, otherwise, type zero(0), space and then the fraction.

- A cell filled with #### means that the number is too large to fit in the cell. Adjusting the column width or row height fits the number in the cell.

- To type text, click the cell where to type the text, type the text from the keyboard and press enter or tab or an arrow key

- To type number as text, precede the number with an apostrophe(')

Take note of the following when entering data:

- To enter a new line within a cell, press ALT + ENTER.
- To type date and time, type using any of the format valid date and time format.
- To enter data in series e.g. 1, 2, 3…… type the first two data in the series in two adjacent cells; select the data, point at the handle at the right bottom end of the cell selector and drag outward to fill the series or inwards to clear. This uses the auto fill feature.
- Long text data appear truncated meaning it cannot fit within the cell, hence need to increase the size of the cell/column

Activity

- Enter the data below in to Microsoft Excel worksheet and save it as Blue-Chip on the desktop of your computer. Adjust the column width and row heights to fit all the data. Merger and Center the cells in the first and second rows to appear as in table below. To save a workbook, go to file and in the drop down bar, select save or save as

Blue-chip Communication Ltd					
Summary of Year 2006 Sales Report					
Month	**Nairobi**	**Kisumu**	**Mombasa**	**Total Sales**	**Average Sales**
January	87350.00	65800.00	87000.00		
February	78000.00	23000.00	67000.00		
March	90000.00	28000.00	56000.00		
April	67000.00	45000.00	56000.00		
May	67000.00	28000.00	45000.00		
June	89000.00	31000.00	45000.00		
July	50000.00	45000.00	78000.00		
August	45000.00	42000.00	54000.00		
September	67500.00	43000.00	56700.00		
October	79000.00	28000.00	65000.00		
November	78000.00	56000.00	45000.00		
December	120000.00	87000.00	97000.00		
Yearly Sales					
Minimum Sale					
Average Sales					

Saving a Workbook

- Click on the file tab
- Click on the Save as submenu from the pull down menu
- On the dialog box that appears, choose the location/folder to save in e.g. desktop
- Type the name of the workbook. The default name is Book1 that can be replaced18
- Choose the save as type e.g. Excel Workbook (*.xlsx) for Ms Excel 2010 and 2007 compatibility o Excel 97-2003 workbook (*.xls) for Ms Excel 2003 and lower versions compatibility
- Click save to save and close the dialog box

Editing a Workbook/Worksheet

To edit the contents of a cell,

- Either click the cell
- click on the formula bar to type new cell contents or double click the cell and type in the new cell contents

To adjust column width;

- Point at the row border. The mouse pointer changes to a cross.
- Hold down the left mouse button and drag downwards to increase the height or upwards to decrease the height or double click the border to auto fit contents in the column width

Editing a Workbook/Worksheet

To insert a column;

- Click on the column left of which to insert a new column

- Click on the drop down arrow below the Insert option in the Cells group

- Click on Insert Sheets Columns from the drop down list

Editing a Workbook/Worksheet

To delete a column or row or a sheet;

- Click on the column or row or sheet to delete
- Click on the drop down arrow below the Delete option in the Cells group
- Click on what you want to delete.

- NB: Use Undo and redo icons to reverse the changes

Formatting a Workbook/Worksheet

- You can format a worksheet to improve its appearance just as in Microsoft word.

To change font of data in a worksheet;

- Highlight the data to format
- Click on the home tab
- Click on the format options to apply from the Font group.
- For more Font options, click on the arrow next to the Font.

Formatting a Workbook/Worksheet

To change alignment of data in a cell,

- Highlight the data to format

- Click on the home tab

- Click on the alignment format options to apply from the Alignment group. For more alignment options, click on the arrow next to the Number group to display the format cells dialog box.

Formatting a Workbook/Worksheet

To apply number formats in a cell,

- Different numeric data can be formatted to show different quantities in a worksheet;
  - Highlight the data to format
  - Click on the home tab
  - Click on the number format options to apply from the Number group.
  - For more number formatting options, click on the arrow next to the Number group to display the format cells dialog box.

Formatting a Workbook/Worksheet

- **To format border formatting:**

The grids in a worksheet are non-printable until one formats the borders.

To format the borders;

- Select the cell range to format the borders
- Click on Home tab then click on the drop down arrow below the Format option in the Cells group
- Click on Format Cells from the drop down list. The Format cells dialog box below appears;
- Click on border tab
- Select the line style, color and border type to apply then click ok

Cell Referencing

This is the process of addressing or identifying cells in a worksheet

Different methods used include.

- **Single cell reference** – in this the identity of a cell is done by using the column letter and the row number e.g. A1, B78

Cell Referencing

- **Relative cell referencing** – in this, a cell reference changes relative to the position of the formula. E.g. Consider the formula =A1+B1 entered in C1. What happens when it is copied into B2 through B10?

Cell Referencing

- **Absolute cell referencing** - when a formula is copied to other cells, the cell references remain unchanged. A dollar sign is placed before the column letter and the row number by either typing it or pressing F4 e.g. B20.

- **Mixed cell referencing** – either the column or the row is absolutely referenced but not both e.g. $B20, B$20

Performing Calculations using formulae and functions

a) Using a Formulae

- When constructing a formula, it is important to note that;

- The formula is typed after clicking on the cell where the result is to appear

- Every formula starts with an equal sign (=)

- Cell references are used in the formula other than the actual values

Performing Calculations using formulae and functions

- Math's operators are used depending on the operation being carried out e.g. **+** (addition), **-** (subtraction), **/** (division, ***** (multiplication), **^** (exponentiation)

- Parenthesis (brackets) can be used to supersede the order of evaluation of the operators

- Example of a formula: **= B3 * B5**

Performing Calculations using formulae and functions

b) Using Functions

- Functions are in-built formulas and therefore they are inserted using the function wizard that guides one through the process.

- There are different categories of functions that include;

- Math and trigonometry e.g. sum() etc.

- Statistical e.g. average(), count(), rank() etc.

Performing Calculations using formulae and functions

- Logical e.g. the IF function

- Financial e.g. pmt(), ppmt() etc.

- Date and time e.g. now(), today() etc.

- To insert a function;

- Click on the cell where the result should appear

- Click on Formulas tab. The different categories of Microsoft Excel functions are displayed in the Function Library group

Performing Calculations using formulae and functions

- Choose the function to use by clicking on the drop down triangle below the function category

- Specify the function arguments from the function argument dialog box e.g. the range containing values to be summed like **A2:B2** as shown below then click OK.
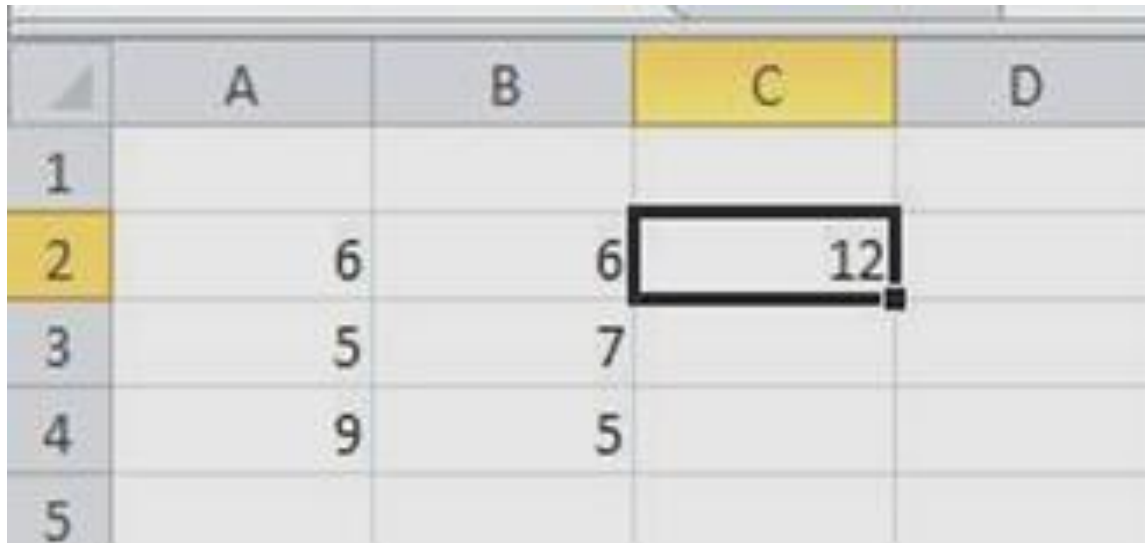
Performing Calculations using formulae and functions

Copying a formula

- You do not have to type formula in all cells containing calculated values that use the same formula. You need just to do type one correct formula and copy it to all other cells. To do so, you can use the Copy and Paste commands as used to copy data or you can use the drag and fill method.

- To use the drag and fill method;

- Click on the cell containing the formula to copy

Performing Calculations using formulae and functions

- Point and click on the handle on the bottom right of a the cell selector as shown below;

- Drag outwards to fill the formula or inwards to clear. The cell references change as you copy the formula – remember Relative cell referencing covered above.

Data Management

a) Sorting

- This means to arrange data in a particular order which could be in either ascending or descending order e.g. sorting a list of names of students alphabetically or marks in descending order from the highest to the lowest. To sort data in Microsoft Excel 2011;

- Highlight or click on the data to sort

- Click on the Data tab then click on Sort option from the Sort & Filter group

- Click on the checkbox labeled *My Data Has Headers* as shown below;

Data Management
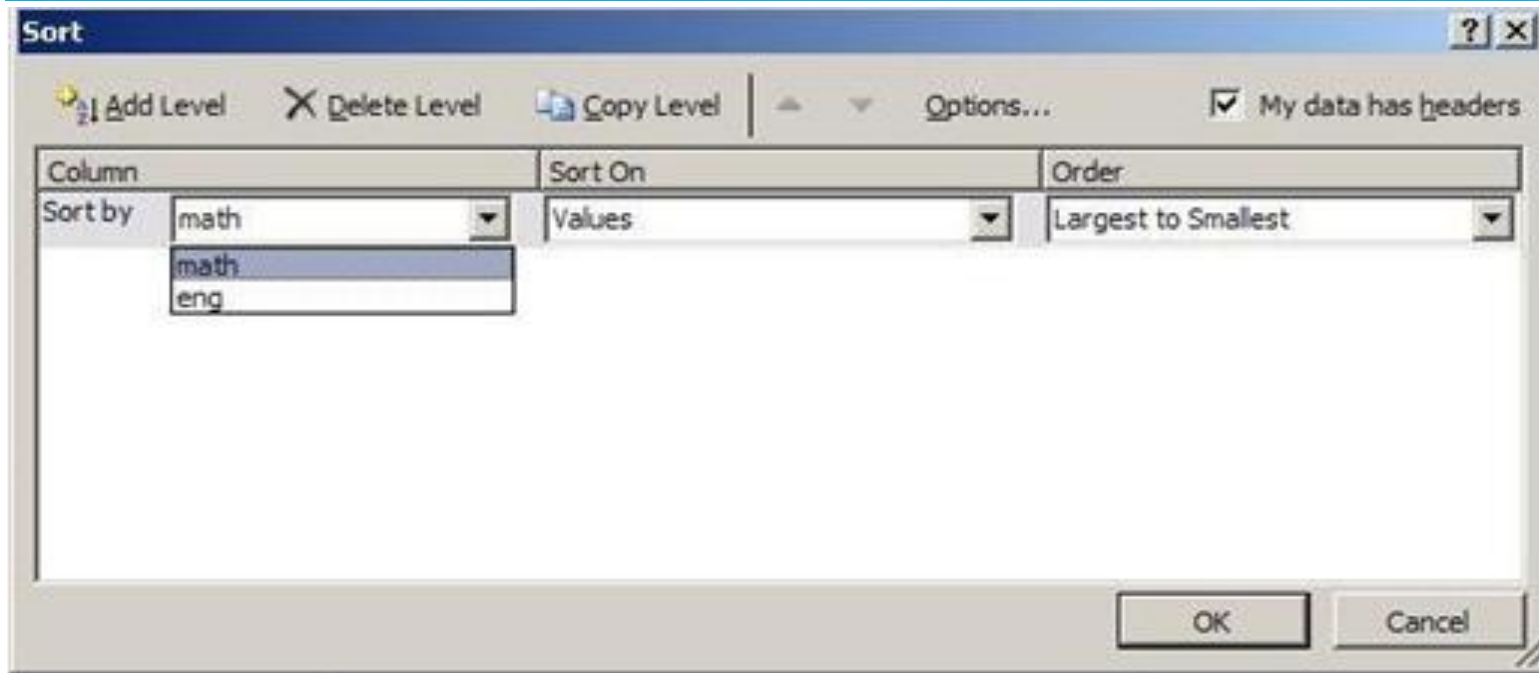
- Select column or header name by which to sort the data by in the sort by box
- Specify the sort order then click OK.

b) Filter

Used to display data that meet a user defined criteria. Can be auto filter or advanced filter.

Follow the following steps for auto filter:

- Click on data tab
- Click on the filter icon under sort and filter group
- Click on the drop down arrows added on the fields and choose the criteria to be met

NB: Click on the same arrow show all to display all data after a filter action

c) Pivot Tables

- PivotTable reports can help to analyze numerical data
- With PivotTable reports, you can look at the same information in different ways with just a few mouse clicks. Data swings into place, answering questions, telling you what the data means.
- Select the data to analyze
  - >Ribbon
  - >Insert
  - >Pivot Table
    - Create in New sheet
    - Add filters (country)
    - Quarters (Group and show data)
    - Sort Data

d) What If Analysis

- What-if analysis is the process of changing the values in cells to see how those changes will affect the outcome of formulas on the worksheet.

- Three kinds of what-if analysis tools come with Excel:
  - scenarios,
  - data tables,
  - goal seek

i.   Scenarios

- A scenario is a set of values that Excel saves and can substitute automatically in cells on a worksheet.

- You can create and save different groups of values on a worksheet and then switch to any of these new scenarios to view different results.

- Ribbon
  - >Data
  - >What if Analysis
  - >Scenario Manager
    - Add
    - Name the scenario
    - Select cell(s) to change
    - Save
    - Put in the new values
    - Save
    - Show

ii. Data Tables

- Data Table is a way to see different results by altering an input cell in your formula
- Put in values to be used in data table, then highlight the values and the formula for the input
- Ribbon
  - >Data
  - >What if Analysis
  - >Data Table
    - Select the row or column cell

iii. Goal Seek

- A method to find a specific value for a cell by adjusting the value of one other cell.

- When goal seeking, Excel varies the value in a cell that you specify until a formula that's dependent on that cell returns the result you want.

- Ribbon
  - >Data
  - >What if Analysis
  - >Goal Seek
    - Set the target cell
    - Set the target value
    - Select the cell to be changed
    - View the results

Charts

A chart is a graphical representation of the worksheet data to shows the relationships between values. The choice of the chart depends very much on the kind of data you are trying to chart and how you want to present the data. E.g. Line, pie, column etc.

- To insert a chart in Microsoft Excel 2010;
- Click/Select the data to present in a chart
- Click on Insert Tab then click on the drop down triangle below the type of chart to insert from the Charts group

Charts

- Take note that two chart Tools tab appears at the top of the ribbon when the chart is inserted or when the chart is selected. You can use these chart tools to manipulate the inserted chart for example by changing the chart type, the location of the chart, add more data etc. For more options on chart type and subtypes, click on the arrow next to the Charts group.

Protecting a workbook and a worksheet using passwords

- Click on the File button

- Point at Info from the pull down menu

- Click on Protect Workbook drop down triangle.

- Choose the type of protection to apply e.g. Encrypt with Password, Protect Workbook Structure etc.

- Enter the password and click OK then reenter the password and click OK again

Workbook and Worksheet Printing

- To produce hardcopies of data created in Microsoft Excel, you need to print it following the steps below;

- Open the Workbook/worksheet to print its data

- Click on the File button then click on Print from the pull down menu

- Set the print options as desired e.g. printer, print range, number of copies and other options from the side list.

- Click on the Print button on the top of the side list.

Application of Electronic Spreadsheets in Education

- Electronic Spreadsheets can be used in Educational Institutions to replace the paper-based ledger sheets used in various aspects of managing educational data. Some of the practical applications of electronic spreadsheets include;
  - Time tabling and event scheduling
  - Analysis and presentation of examination results
  - Financial management e.g. maintaining electronic ledger books, balance sheets etc.
  - As a subject to be taught and examined.

References

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SEMIs UoN

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