

Excel Basics Tutorial

1. Create and Edit Tables



1.1 The Excel Screen

Excel 2000, as all other Office applications, has a **menu bar** and a **toolbar** and a **status bar**.

The **worksheet** of an Excel workbook is divided into columns and rows.

The **cell address**, which consists of the column letter and the row number, serves to reference the cell. The cell selected by the **cell pointer** is called the **active cell**. Data entries, commands etc. relate to this cell.

1.2 Start and Quit Excel, Save a File

Select the programmes submenu on the **Start** menu to start Excel, or double-click on an already existing Excel file. Save a file by clicking on  (Save). If you save the document for the first time, a dialog box will appear so you can enter the file name. You can close the programme in various ways. The quickest option is to click on  (Close) on the title bar.

1.3 Enter Data

Data are always entered into the **active**, i.e. the selected, **cell**. Confirm the entry by pressing the return key or one of the arrow keys or by clicking on a different cell.


The programme supports the data input into the cells by various automatic assistants, e.g. **AutoEntry**.

By dragging the column boundary in the column head to the right or to the left, you can adjust the column width. A quick info, which shows the exact width, will then pop up.

If you select Insert / Rows, a new row is inserted above the active cell.

2. Print Worksheets

2.1 Print Preview

The print preview shows how a worksheet will look when printed. Activate the Print Preview by clicking on the  button. If you activate the **Print Preview** button, a dialog box displaying all formatting options for the worksheets will open.

You can select the **Print** dialog box directly on the Print Preview.

2.2 Set up Page

If you select **File/Page Set-up** and choose the **Paper Format** tab, among other things, you can change the scaling of the worksheet. This does not affect the worksheet in any manner.

A custom header or footer can be inserted by using the **Header and Footer** tab.

It is possible to define the margins accurate to the millimeter by selecting the **Margins** tab. In the print preview, the margins can be adjusted by a drag and drop action.

2.3 Print

The **Printing** dialog box opens by clicking on the **Print** tab on the **Set up Page** submenu or by selecting the corresponding command on the **File** menu. In this dialog box, you can set individual printing parameters. If you click on the **Print** button on the standard toolbar, the printing process is started without any further request. In such case, the selected section is printed as a single print-out using standard settings.

2.4 Page Break Preview

You can start the **Page Break Preview** by selecting the corresponding command either on the **View** menu or in the Print Preview window. The page break preview displays the page breaks as well as the print area of the worksheet. To change the location of a page break, you can move the page break lines by a drag and drop action.

3. Workbooks

3.1 Structure of Workbooks

As a standard, a workbook contains three worksheets and can store up to 255 sheets. Select the **General** tab on the **Options** submenu on the **Tools** menu to add worksheets. In a workbook, all worksheets are stored in a row on the sheet tab bar and as one file just like in a spring folder. This enables you to keep a clear structure and filing of data.

A well-structured workbook is a precondition if you want to have rapid access to the different worksheets. You can add, delete, move, group, hide or unhide the worksheets.

3.2 Hide and Unhide Worksheets

Hide Worksheets

If your **workbook** contains a great number of **worksheets**, it may be expedient to display only those worksheets you need frequently in order to switch more quickly between them. To hide a worksheet, select **Hide** on the **Window** menu. Hidden worksheets are no longer displayed on the screen, nevertheless you can refer to hidden sheets in formulas. It is possible to unhide and make visible any hidden worksheets at any time by using the **Window** menu.

3.3 Links to other Workbooks

Create external links

Links which refer to other workbooks (external links) allow you to create a permanent **link between such workbooks**. You do not create, by this feature, a copy of the data but a **reference** to the cell contents in the other workbook. If changes are applied to the **source file** (to which the formula refers), such changes will automatically or on request also be carried out in the destination sheet. Such links offer the following advantages:

- ✍ The source files may be created and edited individually and at different locations.
- ✍ The destination sheet is stored as an autonomous workbook
- ✍ There is no need to transfer the data manually from one worksheet to another. Transfer errors can thereby be avoided.

4. Formulas


4.1 Formulas

Any calculation command to be carried out by Excel is expressed in the form of a **formula**. Formulas must always begin with an **equal sign**. **Operands**, that means the values on which Excel should carry out the calculation, can be cell addresses, ranges of cells or numbers. The most important **operators** are apart from the minus sign to subtract and the plus sign to add the “*” to multiply and the “/” to divide. The formulas are subject to the “normal” arithmetical rules, e.g. with regard to the use of brackets and the precedence of multiplications and divisions over subtractions and additions.

4.2 The Point Method

As an alternative to manually entering data using the keyboard, addresses, formulas and functions can also be entered using the mouse. To do so, you need to click on the respective cell. Cell ranges may be filled by selecting the respective cells. If you want to extend a range of cells, which has already been entered as an argument, by a separate range, you can select such range while holding down the **CTRL key**.

4.3 Copy cells

Excel provides several options to copy cells which contain formulas. Apart from applying the standard methods, which consist in using the buttons on the **Standard** toolbar, or selecting menu commands or shortcuts, you can also copy cells by dragging the cell's fill handle. As long as the copied range is marked by a selection border you can repeat the copying process. To quit this process, press **Esc** or .

When you copy cells, references in formulas will be adapted. If, for instance, the formula “A4+B4” is copied from C4 to C5, then the formula will change into “A5+B5”.

5. Data Protection

5.1 Protect Workbooks

Grant access authorisations for workbooks

You can protect worksheets containing data you do not want to make available to everyone by a password. To do so, select **General Options** on the **Tools** drop-down menu of the **Save as** submenu on the **File** menu.

- ✎ **Read and write access:** The user has to enter the corresponding password to open the workbook. Once he has opened the workbook, the user is entitled to apply changes and revise the existing workbook.
- ✎ **Read-only access:** Without the corresponding password, the workbook can only be opened in the read-only mode. In the read-only mode the existing workbook cannot be revised. To save changes, the user has to save the workbook as a different file.
- ✎ **Protection from accidental changes:** When opening the document, Excel displays a dialog box in which you choose whether you want to open the document for editing purposes or in the read-only mode.

IMPORTANT: If you note the password, please be aware that it is **case-sensitive**. If you want to open a file at a later date, you have to enter the password using the accurate case.

5.2 Protect worksheets, cells and objects

What is worksheet protection?

The Excel worksheet protection offers you the option to protect worksheet contents from being changed accidentally. This feature is particularly useful when a complex worksheet is used by different users who carry out calculations using different values.

The worksheet protection is also useful if you want to use a worksheet as a form. In this case, you can protect the form design from being changed, by placing those cells which contain text or formulas under a worksheet protection.

Before you activate the worksheet protection, it is possible to unlock certain cells or ranges to allow entries to be made in those cells which are intended to be completed, even after the worksheet protection has been applied.

Activate the worksheet protection:

☞ Open the worksheet concerned ☞ Select **TOOLS – PROTECTION – PROTECT SHEET** on the menu bar ☞ Enter a password in the password field, to avoid that other users unprotect the worksheet ☞ Activate the tick boxes of those actions which you want to be permitted despite the worksheet protection ☞ The worksheet protection can only be applied if the tick box is activated ☞ Confirm by clicking the OK button ☞ Confirm the password in the password field of the following dialog box.

Unprotect a worksheet:

☞ Open the worksheet you want to unprotect and select **TOOLS – PROTECTION – UNPROTECT SHEET** on the menu bar ☞ If you have entered a password, you need to enter and confirm the password in the additional dialog box, which appears in this case.

5.3 Set level of protection for certain cells

You can allow that changes are applied to individual cells, ranges of cells or graphic objects in a protected worksheets. To do so, you firstly have to select the ranges of cells in which you want to permit changes and then activate the worksheet protection.


☞ Select the cell, range of cells or the graphic object in which you want to permit changes ☞ Select **FORMAT – CELLS** on the menu bar ☞ Choose the **PROTECTION** tab in the dialog box that appears ☞ Deactivate the tick box to permit changes to be applied to the cells ☞ Activate the respective tick box if you want to hide the formula from being displayed on the formula bar ☞ Confirm by clicking the **OK** button ☞ Select **TOOLS – PROTECTION – PROTECT SHEET** on the menu bar to activate the worksheet protection for the remainder of the worksheet.

IMPORTANT: How to quickly edit a protected worksheet

When the sheet protection is on, the tab key will take you quickly to the next unlocked cell of the current worksheet. You can go back to the previous unlocked cell by pressing the shortcut Shift and tab key.

6. Charts

6.1 ChartWizard

If you want to create a chart, you first have to select the relevant cells. Apart from the cells you want to use, you should also include the respective headings of the rows and columns, so as to apply labels to the chart elements. By clicking on the  button, you start the ChartWizard. The ChartWizard guides you through the steps to follow to create a chart. These steps allow you to select a **Chart Type**, to check the selected data range and to select the **Chart Options**. Finally, you determine whether you want the chart to be placed as an object in an existing sheet or in a new sheet.

6.2 Format a Chart


All elements of a chart can be formatted after the creation of the chart. Double-click on the element you want to format or choose the corresponding command on the context menu to open a dialog box which shows all applicable formatting options. The **Chart** toolbar offers a selection of the edit chart commands. According to the element you have selected, the dialog box offers different options to format the chart elements. You can, for instance, rotate text or apply fill effects to the chart elements.

6.3 Place Chart


A chart which is integrated into a worksheet can be freely moved by using the mouse. To move a chart, place the mouse pointer on the **chart area** and hold down the mouse button as you move the chart. Furthermore, by dragging the dragging handles on the chart frame you can adjust the chart size. When placing the chart **as a new sheet**, the chart is placed in full screen size on the new sheet. Such a chart can neither be moved nor scaled.

7. Functions

7.1 The Sum Function

With a click on the  button you can place the **sum** function into the active cell. At the same time Excel suggests a range of cells above or left of the cell containing the formula as the argument on which Excel performs the calculation. You should always check the range of cells suggested as the argument and change the range if you need to. Such corrections can be effected using the point method by selecting the cell and clicking on the **formula bar**. As arguments you can enter individual cell addresses, ranges of cells or numbers. If you enter several arguments in one function, such arguments are separated by semicolons. Cell ranges can be specified by putting a colon between the ends of the range.

7.2 The FunctionWizard

Excel provides more than 200 functions to perform the most different calculations. The FunctionWizard helps you to easily start and edit such functions. You can activate the FunctionWizard by clicking on the  button.

Functions are pre-defined formulas that perform calculations by using specific values, called **arguments**.

7.3 AutoCalculate

If you select a range of cells filled with numbers, Excel will automatically perform calculations using these numbers and display the result on the status bar.

You can set the type of calculation, e.g. sum or average, by using the context menu or the status bar.

8. About using functions

8.1 Functions

Functions are pre-defined formulas used to perform simple or complex calculations. Like every formula, a function must also begin with an **equal sign**. The equal sign is followed by the **function name**, which in many cases is a short form of the type of operation performed by the function. The following **arguments** are enclosed by parentheses. Arguments often used in functions are e.g. numbers, references to cells or ranges of cells, formulas or functions. Successive arguments are separated by semicolons.

8.2 The FunctionWizard

The **FunctionWizard** helps you to select and enter the function you need. The FunctionWizard provides more than 200 functions in different **categories** from which you can select the one you want. Once you have selected a function, the description of its syntax and functioning is displayed.

8.3 Copy a function

Once you have defined a function, which you want to apply to other cells, too, you can copy it. Any relative cell references contained in the function automatically change accordingly.

If you want to copy a formula from one cell to the neighbouring one, you should use the quick AutoComplete method: Select the cell which contains the formula, move the mouse pointer to the autofill handle and hold down the left mouse button as you drag the selection frame on the range to which you want to copy the formula.

9. Working with dates and time

9.1 Dates and Time

Basics of time calculation

In order to be able to include dates and time into calculations, Excel internally counts every day as one of a consecutive series of whole numbers. In its standard version, Excel starts on January 1, 1900. Number 1 corresponds to the date of 1/1/1900. Calculated in this manner, January 1, 2001 is number 36892. In order to include time into calculations, Excel divides a whole number into decimal fractions.

The calculation itself is performed using the series numbers. In order to render the result recognisable as a date or time, the series number is afterwards re-formatted accordingly. Excel recognises any date or time entries and automatically applies the corresponding format.

9.2 How to quickly enter the current date or time

- ✎ Select the cell in which you want to enter a date or time
- ✎ Press the shortcut **CTRL + .** (dot) for the date and the shortcut **CTRL + SHIFT + .** (dot) for the time
- ✎ Confirm your entry by pressing the return key.

9.3 Date formats and easy calculations

Apply date and time formats

Excel automatically applies a standard time format to every date or time you have entered.

Additionally, Excel offers various different formats to permit individual formattings of date and time entries.

- ✎ Select the cells which contain a date or time
- ✎ Select **FORMAT - CELLS** on the menu bar and activate the **NUMBERS** tab
- ✎ Choose the category you need from the list displayed (date and time), activate the corresponding format in the (type:) list box. The **Sample** box shows you which effect the time format you have chosen will have on the first cell of the selected range of cells, provided the selected range of cells contains numbers.

Time formats which are marked by an asterisk in the (type:) list box are presented according to the country settings (system control) in Windows.

Should you require any other formats than those proposed by Excel, you can apply user-defined formats. A cell which already has a specific number format and in which you enter a date at a later time does not automatically receive the correct time format but its contents are displayed as a number. In such case, you will have to change the time format manually.

9.4 Date and time functions

Arguments of the FunctionWizard involving dates or time

Excel provides various functions to calculate dates or time.
Permitted arguments for date functions are:

- ✎ The series number corresponding to a date or the decimal fraction corresponding to a time
- ✎ The date or time in quotes (time text) or with a preceding apostrophe
- ✎ References to cells which contain a date or time

Date functions:

TODAY()	✎	Date of today
YEAR(<i>Number</i>)	✎	Determine the year
MONTH(NUMBER)	✎	Determine the month
DAY(Number)	✎	Determine the day of the month
DAY OF THE WEEK(Number;Type)	✎	Determine the day of the week, with the type fixing the first day of the week: 1 for Sunday = 1 to Saturday = 7 2 for Monday = 1 to Sunday = 7 3 for Monday = 0 to Sunday = 6