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CHARTS AND GRAPHICS

15.1 INTRODUCTION

Data is just data until you have organised it usefully. When you present your data informatively, you are providing far more than just data; you are offering information. One of the best ways to convey information is with graphics and charts. Charts and Graphics makes the data effective, interesting, easy to understand, easy to analyse and compare. Excel helps you to create chart as either two-dimensional or three-dimensional. After creating a chart, you can enhance the information by adding chart items, such as data labels, a legend, titles, axes, and gridlines. You can also format these items using patterns, colours, alignment, fonts, and other formatting attributes. With the help of AutoShapes you can draw your own diagrams add additional features to your Charts. You can also add Clip Art images to your charts and diagrams to make them more attractive and presentable.

15.2 OBJECTIVES

After going through this lesson you would be able to

- prepare charts from data for better presentation
 - draw own graphs and diagrams
 - add clip art images to your charts and diagrams
-

15.3 CHARTS

Charts allow you to present data entered into the worksheet in a visual format using a variety of graph types. Before you can make a chart, you must first enter data into a worksheet. This section explains how you can create simple charts from the data.

15.3.1 Components of a Chart

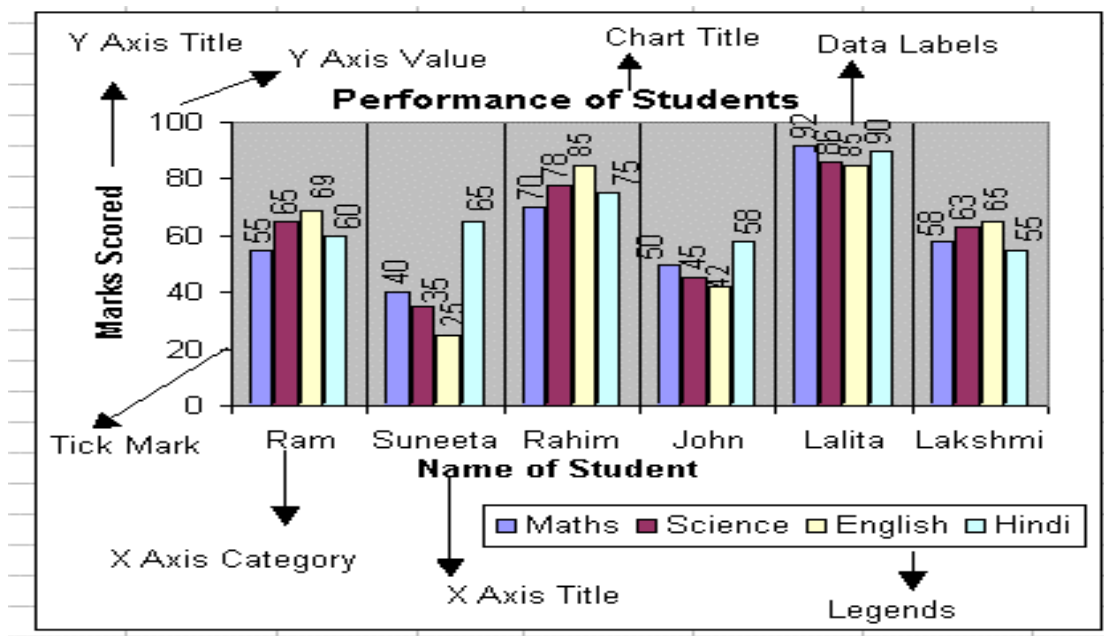


Fig. 15.1

There are a number of components of a chart. Some of the major components are illustrated in Figure 15.1. We will briefly discuss them.

Chart Title - A title given to the whole chart.

X-Axis Title - A title given to the X-axis data range.

Y-Axis Title - A title given to the Y-axis data range.

X-Axis Category - These are the categories of the data which have been plotted. These are taken from the first column or first row of your data range.

Y-Axis Value - This is the data range marked to plot the data series.

Data Labels - The values of the data series plotted.

Legends - Specifies the colour, symbol or pattern used to mark data series.

Tick Marks - These marks are used to show the scaling of X-axis and Y-axis.

Grid Lines - Displays lines at the major intervals on the category X-axis and/or Y-axis

15.3.2 Drawing Your Own Charts Using Chart Wizard

The Chart Wizard brings you through the process of creating a chart by displaying a series of dialog boxes.

1. Enter the data into the worksheet and highlight all the cells that will be included in the chart including headers.

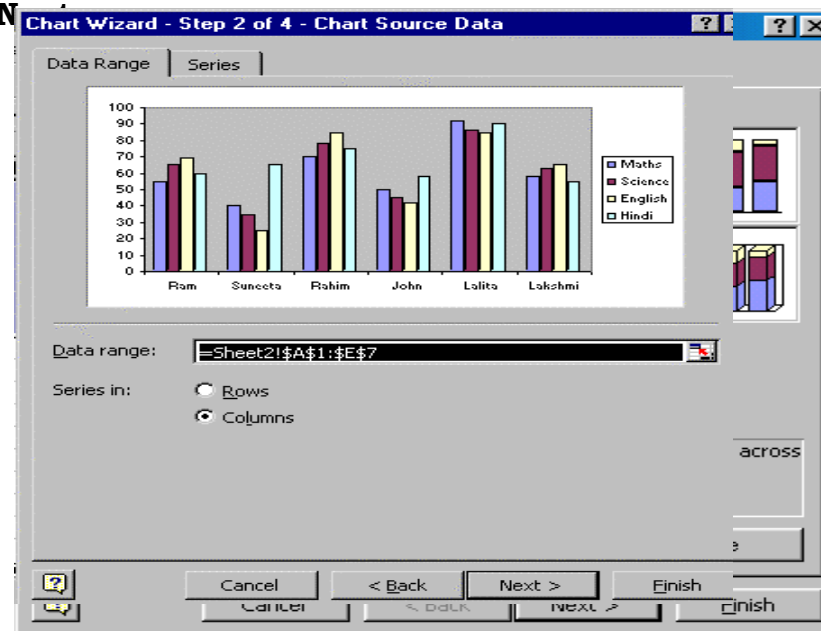
	A	B	C	D	E	F
1	Name	Maths	Science	English	Hindi	
2	Ram	55	65	69	60	
3	Suneeta	40	35	25	65	
4	Rahim	70	78	85	75	
5	John	50	45	42	58	
6	Lalita	92	86	85	90	
7	Lakshmi	58	63	65	55	
8						
9						
10						
11						

Fig. 15.2

2. Click the Chart Wizard button on the standard toolbar to view the first **Chart Wizard** dialog box.
3. **Chart Type** - Choose the **Chart type** and the **Chart subtype** if necessary. Click **Next**.

Fig. 15.3

4. **Chart Source Data** - Select the data range (if different from the area highlighted in step 1) and click **N**

**Fig. 15.4**

5. **Chart Options** - Enter the name of the chart and titles for the X- and Y-axes. Other options for the axes, grid lines, legend, data labels, and data table can be changed by clicking on the tabs. Press **Next** to move to the next set of options.

6. **Chart Location** - The chart can be placed on a new sheet or as an object in an existing sheet. The advantage of a separate sheet is that the chart can be moved and deleted separately. The advantage of an embedded chart is that the data and chart are together.

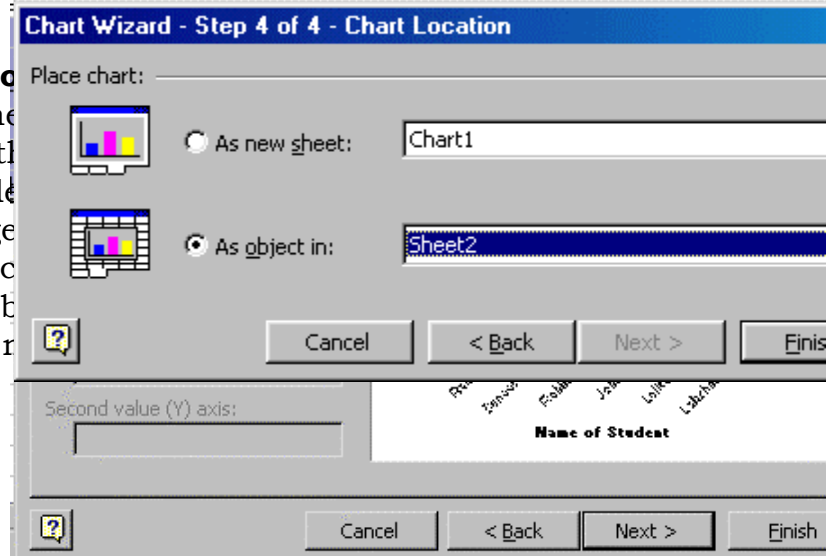


Fig: 15. 6

7. Click **Finish** to create the chart.

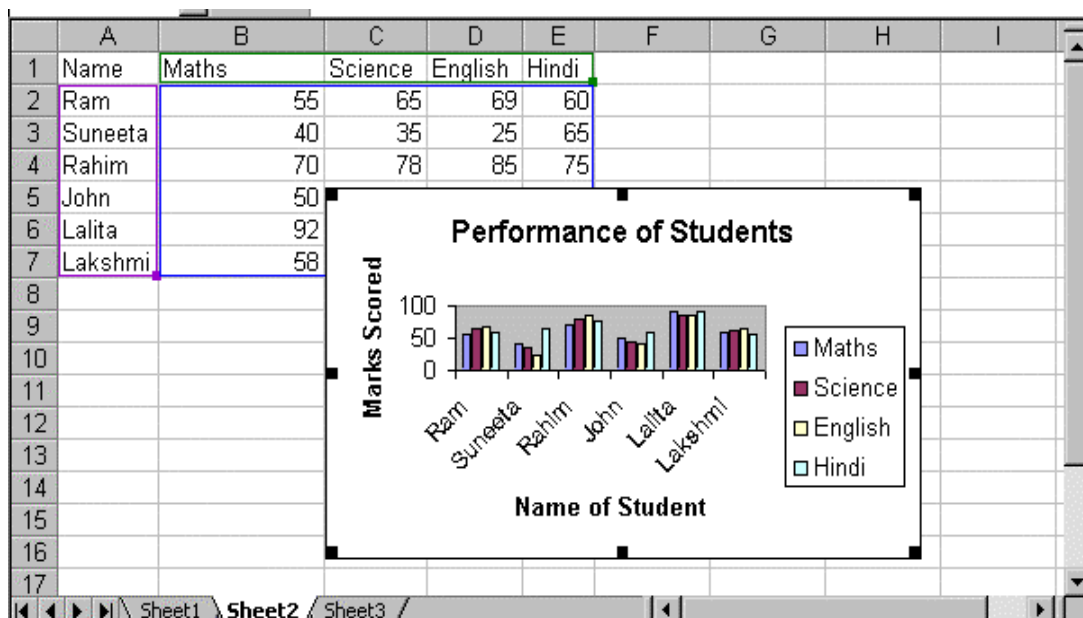


Fig. 15.7

15.3.3 Chart Types

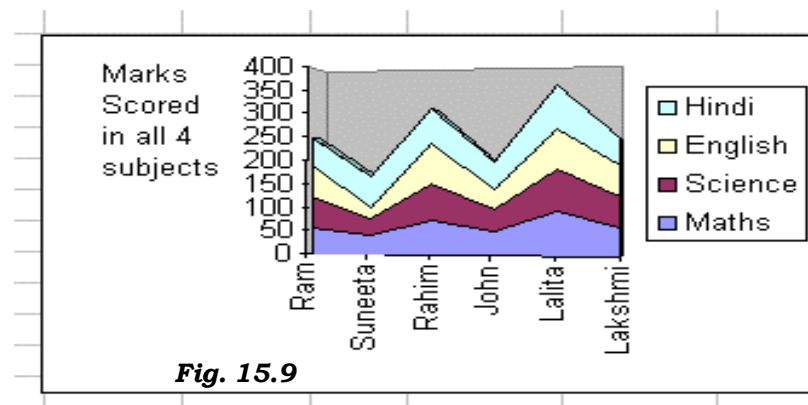
You can select a wide range of charts from a whole palette of chart types in step 1 of the Chart Wizard. The following paragraphs describe some of the chart types represented on the Chart Wizard's palette.

Column Charts - The column charts compare distinct items. In this chart category axis is horizontal (X-axis) and value axis is vertical (Y-axis). It is important to keep the number of series in a column chart to a minimum. Too many series cause the column to become too narrow and difficult to analyse. We can use column charts to compare the results. A column chart is illustrated in Figure 15.7.

Bar Charts - Compare distinct items or show single items at distinct intervals. It is similar to column chart except that in this chart value axis is horizontal (X-axis) and category axis is vertical (Y-axis). Figure 15.8 illustrates a bar chart.

Fig. 15.8

Area Charts - Show the relative contributions that each data series takes up. The greater the data series takes up, the greater its contribution to the whole. An area chart has been illustrated in Figure 15.9.

**Fig. 15.9**

Stacked Column Charts - These charts can be created by selecting the data range and then choosing a column chart that has a stacked style. This chart combines the advantages of both area charts and column charts. Series values are stacked to show the relative contribution of each series and then reflected at discrete intervals. Figure 15.10 illustrates a stacked column chart.

Fig. 15.10

Line Charts - These charts are useful to compare the trends over time. Figure 15.11 illustrates a line chart.

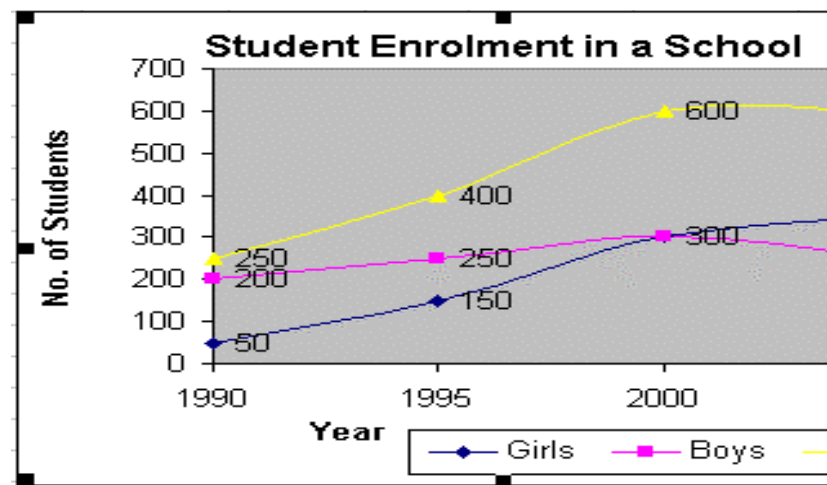


Fig. 15.11

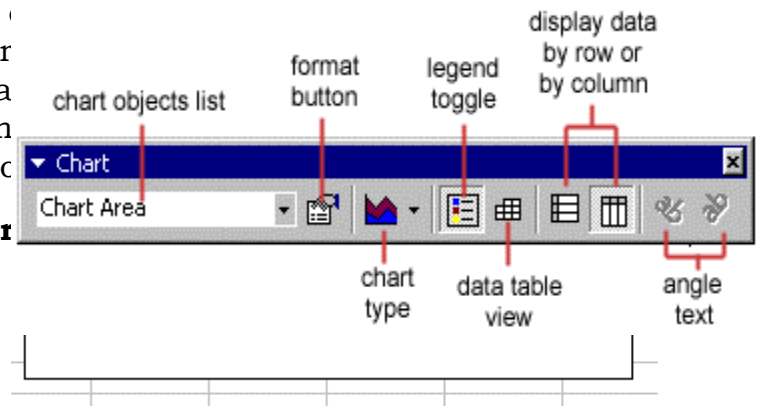
Pie Charts - These charts show the proportion of each component value to the total value in a data series. Pie charts are useful for showing proportional sales figures, or representation of different categories of population like male/female, adults/children, workers/non-workers, etc.

Fig. 15.12**15.3.4 Resizing the Chart**

To resize the chart, click on its border and drag any of the eight black handles to change the size. Handles on the corners will resize the chart proportionally while handles along the lines will stretch the chart.

15.3.5 Moving the Chart

Select the border of the chart and drag the chart to a new location, such as the title area. Click on the element to move the element to another location.

15.3.6 Chart Formatting**Fig. 15.13**

1. **Chart Objects List** - To select an object on the chart to format,

click the object on the chart or select the object from the **Chart Objects List** and click the **Format button**. A window containing the properties of that object will then appear to make formatting changes.

2. **Chart Type** - Click the arrowhead on the chart type button to select a different type of chart.
3. **Legend Toggle** - Show or hide the chart legend by clicking this toggle button.
4. **Data Table view** - Display the data table instead of the chart by clicking the Data Table toggle button.
5. **Display Data by Column or Row** - Charts the data by columns or rows according to the data sheet.
6. **Angle Text** - Select the category or value axis and click the **Angle Downward** or **Angle Upward** button to angle the selected by +/- 45 degrees.

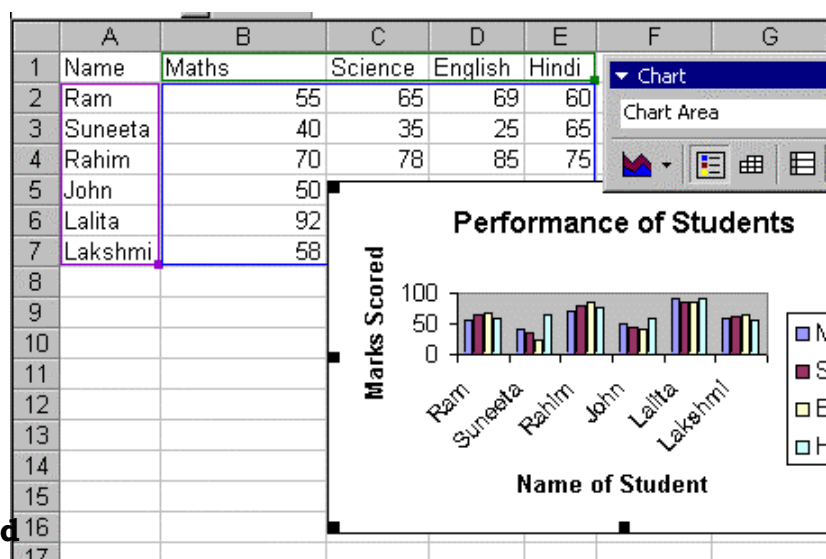


Fig. 15.14

15.3.7 Copying the Chart to Microsoft Word

A finished chart can be copied into a Microsoft Word document. Select the chart and click **Copy**. Open the destination document in Word and click **Paste**.

15.4 GRAPHICS - AUTOSHAPES

The AutoShapes toolbar will allow you to draw a number of

geometrical shapes, arrows, flow chart elements, stars, and more on the worksheet. Activate the AutoShapes toolbar by selecting **Insert→Picture→AutoShapes** or **View→Toolbars→Drawing** from the menu bar. Click the button on the toolbar to view the options for drawing the shape. Different categories of AutoShapes available in Excel are shown in Figure 15.15. We will briefly discuss some of the here.

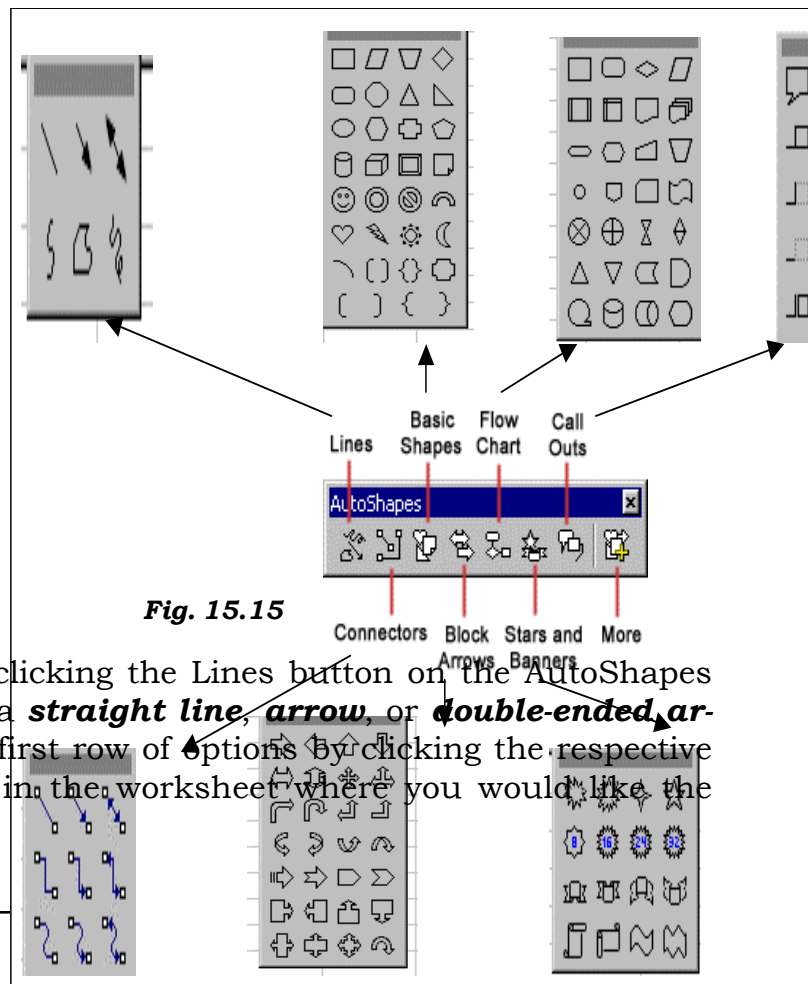


Fig. 15.15

1. **Lines** - After clicking the Lines button on the AutoShapes toolbar, draw a **straight line, arrow, or double-ended arrow** from the first row of options by clicking the respective button. Click in the worksheet where you would like the

line to begin and click again where it should end. To draw a **curved line** or **freeform shape**, select curved lines from the menu (first and second buttons of second row), click in the worksheet where the line should appear, and click the mouse every time a curve should begin. End creating the graphic by clicking on the starting end or pressing the **ESC** key. To **scribble**, click the last button in the second row, click the mouse in the worksheet and hold down the left button while you draw the design. Let go of the mouse button to stop drawing.

2. **Connectors** - These lines can be used to connect flow chart elements.
3. **Basic Shapes** - Click the Basic Shapes button on the AutoShapes toolbar to select from many **two- and three-dimensional shapes, icons, braces, and brackets**. Use the drag-and-drop method to draw the shape in the worksheet. When the shape has been made, it can be resized using the open box handles and other adjustments specific to each shape can be modified using the yellow diamond handles. For example, we have used (see, Figure 15.16) some of the basic shapes and lines to the chart showing the performance of students in an examination.

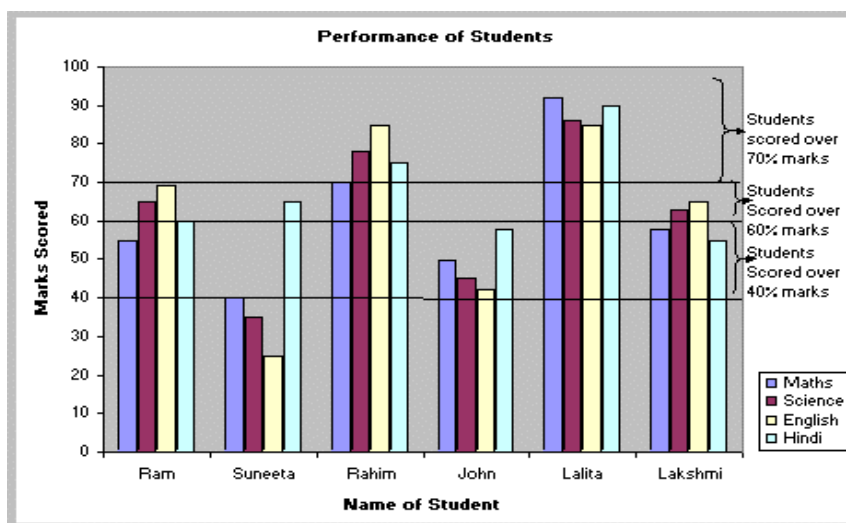


Fig. 15.16

4. **Block Arrows** - Select Block Arrows to choose from many types of **two- and three-dimensional arrows**. Drag-and-drop the arrow in the worksheet and use the open box and

yellow diamond handles to adjust the arrowheads. Each AutoShape can also be rotated by first clicking the **Free Rotate** button on the drawing toolbar . Click and drag the green handles around the image to rotate it. The tree image below was created from an up arrow

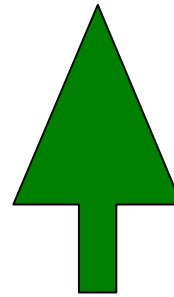


Fig. 15.17

5. **Flow Chart** - Choose from the flow chart menu to add **flow chart elements** to the worksheet and use the lines menu to draw connections between the elements. We have drawn a flowchart using lines, flow chart elements and connectors as shown in figure 15.13. You may try more such flow chart graphics using different categories of AutoShapes listed in Figure 15.10.

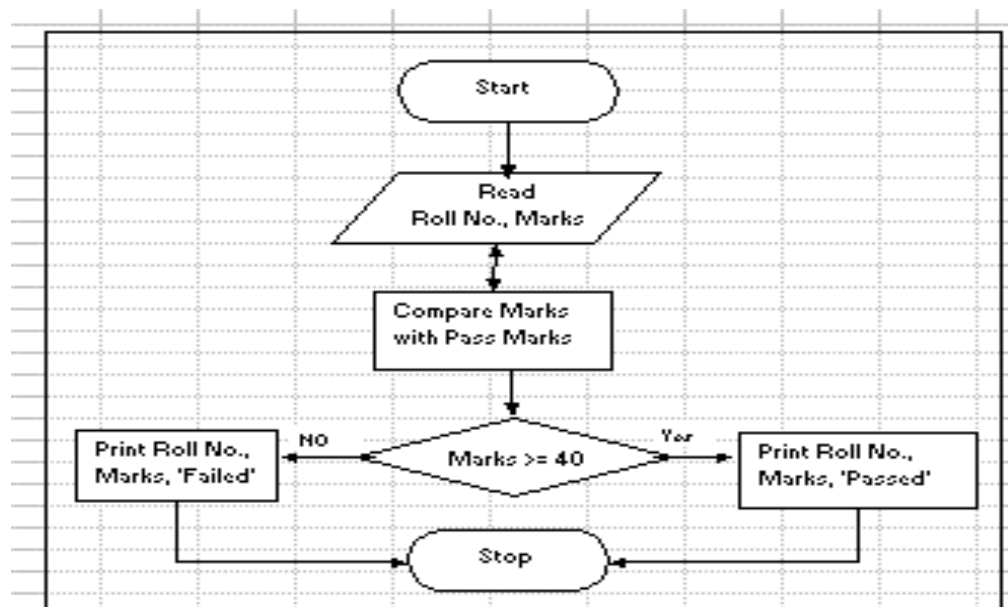


Fig. 15.18

6. **Stars and Banners** - Click the button to select **stars**, **bursts**, **banners**, and **scrolls**.
7. **Call Outs** - Select from the **speech and thought bubbles**, and **line call outs**. Enter the call out text in the text box that is made.
8. **More AutoShapes** - Click this button to choose from a list of clip art categories.

15.5 GRAPHICS - CLIP ART

15.5.1 Adding Clip Art

To add a clip art image to the worksheet, follow these steps:

1. Select **Insert**→**Picture**→**Clip Art** from the menu bar.

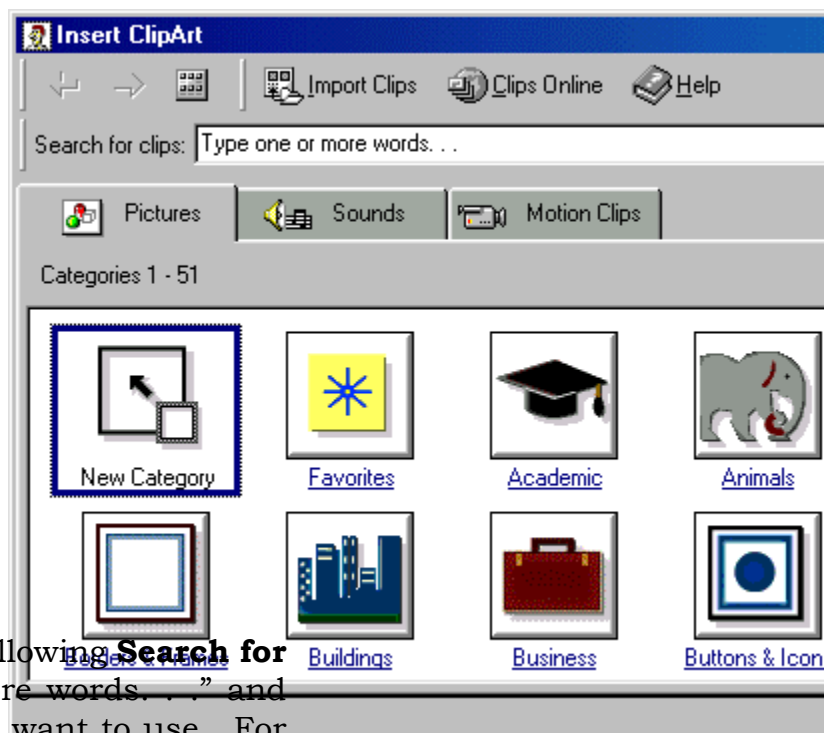


Fig. 15.19

2. To find an image, click in the white box following **Search for clips**. Delete the words “Type one or more words...” and enter keywords describing the image you want to use. For example, by entering words like **Animals**, you will get all those Clip Arts on animals that comes with Excel or added by you earlier.

3. Click one of the category icons.
4. Click once on the image you want to add to the worksheet and the following popup menu will appear:

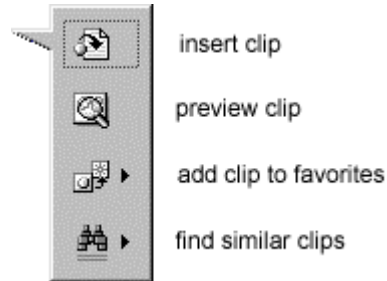


Fig. 15.20

- **Insert Clip** to add the image to the worksheet.
- **Preview Clip** to view the image full-size before adding it to the worksheet. Drag the bottom, right corner of the preview window to resize the image and click the “**x**” close button to end the preview. In the following Figure we have shown a Clip Art indicating a School.



Fig. 15.21

- **Add Clip to Favorites** will add the selected image to your favorites directory that can be chosen from the **Insert ClipArt** dialog box.
 - **Find Similar Clips** will retrieve images similar to the one you have chosen.
5. Continue selecting images to add to the worksheet and click the **Close** button in the top, right corner of the **Insert ClipArt** window to stop adding clip art to the worksheet.

15.5.2 Add an Image from a File

Follow these steps to add a photo or graphic from an existing file:

1. Select **Insert ---> Picture ---> From File** on the menu bar.
2. Click the down arrow button on the right of the **Look in:** window to find the image on your computer.
3. Highlight the file name from the list and click the **Insert** button.

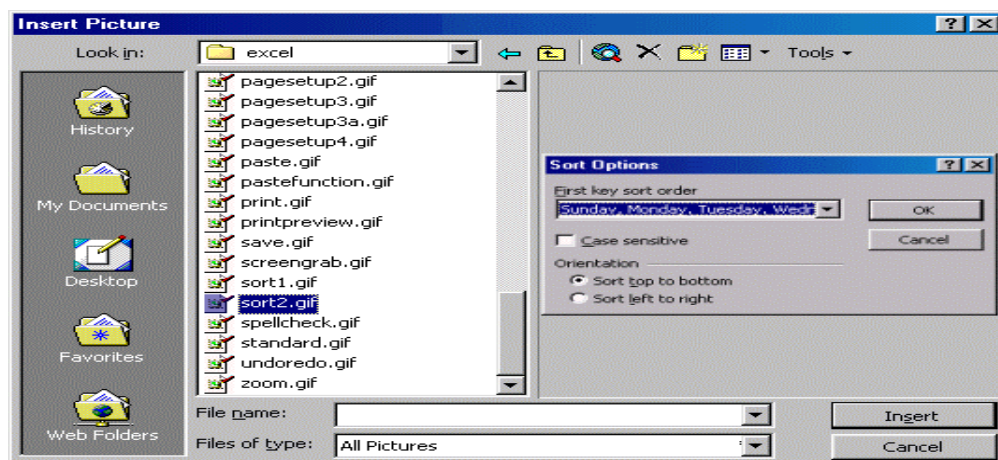


Fig. 15.22

15.5.3 Editing A Graphic

Activate the image you wish to edit by clicking on it once with the mouse. Eight handles will appear around the graphic. Click and drag these handles to resize the image. The handles on the corners will resize proportionally while the handles on the straight lines will stretch the image. More picture effects can be changed using the Picture toolbar. The **Picture toolbar** should appear when you click on the image. Otherwise, select **View→Toolbars→Picture** from the menu bar to activate it.

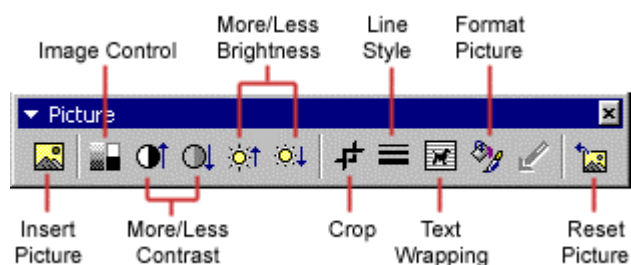


Fig. 15.23

- **Insert Picture** will display the image selection window and allows you to change the image.
- **Image Control** allows to to make the image gray scale, black and white, or a watermark.
- **More/Less Contrast** modifies the contrast between the colors of the image.
- **More/Less Brightness** will darken or brighten the image.
- Click **Crop** and drag the handles on the activated image to delete outer portions of the image.
- **Line Style** will add a variety of borders to the graphic.
- **Text Wrapping** will modify the way the worksheet text wraps around the graphic.
- **Format Picture** displays all the image properties in a separate window.
- **Reset Picture** will delete all the modifications made to the image.

INTEXT QUESTIONS

1. Write True or False for the following statements
 - (a) Format picture displays all the images properties in a separate window.
 - (b) Activate the image you wish to edit by clickign on it once with the mouse.
 - (c) Line charts show the proportion of each component value to the total value in a data series.
 - (d) Connectors can be used to connect flow chart elements.
 - (e) Pie charts are useful to compare the trends over time.
 2. Fill in the blanks
 - (a) Each autoshape can be rotated by first clicking _____ button on the drawing tool bar.
 - (b) More _____ effects can be changes using the picture toolbar.
-

- (c) _____ displays all the image properties in a separate window.
 - (d) _____ show the relative contributions that each data series takes up.
 - (e) Enter the name of the chart and titles for _____.
-

15.6 WHAT YOU HAVE LEARNT

In this lesson you learnt about the creation of charts and graphics. On the basis of data entered in a worksheet you can create a bar chart, area chart, stacked column chart, line chart or pie chart, you can add title, legend, data labels and grid lines to the chart. Moreover, you learnt about autoshapes and clip art also.

15.7 TERMINAL QUESTIONS

1. What is the importance of charts and graphics in providing information?
2. Briefly explain any 5 different components of a chart?
3. Explain the process of creating a chart using Chart Wizard dialog box.
4. Briefly explain the following:
 - (a) Chart sheet, (b) Embedded chart
5. Briefly explain the following:
 - (a) Bar charts, (b) Pie charts, (c) Stacked column charts
6. List any four features of Chart Formatting toolbar.
7. How do you copy a chart to MS Word created in MS Excel?
8. List any 5 categories of AutoShapes in Excel.
9. You are asked to prepare a flow chart. What kind of AutoShapes you would like to use?
10. Explain the steps in adding a Clip Art to your worksheet?

15.8 KEY TO INTEXT QUESTIONS

1. (a) True
 - (b) True
-

- (c) False
 - (d) True
 - (e) False
- 2.
- (a) free rotate
 - (b) picture
 - (c) format picture
 - (d) Area charts
 - (e) X,Y axes
-