Excel has the ability to create up to 14 different kinds of charts in a worksheet. Different chart types emphasize data in various ways.

- **Area** - magnitude of change over time emphasizing area under curve.
- **Bar** - display data as evenly spaced bars. More emphasis on comparisons and less on time.
- **Column** - evenly spaced bars - more emphasis on time.
- **Line** - display data along line. Show changes in data over time. Emphasizes rate of change rather than amount.
- **Pie** - displays data as slices of circle or pie.
- **Doughnut** - same as pie charts - can show more than one data series.
- **Radar** - line or area chart wrapped around a central point. Each axis represents a set of data points.
- **XY or Scatter** - shows relationship between two ranges of data.
- **Surface** - appears a sheet stretched over a 3D column chart - useful for finding the best combination between sets of data.
- **Bubble** - compares sets of values.
- **Stock** - high, low, close - 3 sets of data required.

### Data table imported from Excel sheet

Projected Combine Costs in $/h

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>repair</td>
<td>$5.00</td>
<td>$5.50</td>
<td>$5.65</td>
<td>$6.85</td>
<td>$7.10</td>
</tr>
<tr>
<td>gas</td>
<td>$3.00</td>
<td>$3.30</td>
<td>$3.39</td>
<td>$4.11</td>
<td>$4.26</td>
</tr>
<tr>
<td>oil</td>
<td>$0.50</td>
<td>$0.55</td>
<td>$0.56</td>
<td>$0.69</td>
<td>$0.71</td>
</tr>
<tr>
<td>deprec</td>
<td>$6.25</td>
<td>$6.88</td>
<td>$7.06</td>
<td>$8.56</td>
<td>$8.88</td>
</tr>
<tr>
<td>total</td>
<td>$14.75</td>
<td>$16.23</td>
<td>$16.66</td>
<td>$20.21</td>
<td>$20.95</td>
</tr>
</tbody>
</table>

Our chart will use the years in C5 through G5 to label the X axis. The numbers to be charted are in C10 through G10.

**Click on Chart Wizard**

We will use column, clustered column.

The step 2 of 4 dialog box appears displaying a sample chart. The selected range appears in the Data Range box. You could now choose another range or accept this one.

The **SERIES IN** buttons control how Excel interprets the data - in rows in this case which is what we want.

**Excel uses the first row as the x axis labels and the leftmost column as the legends text**

Step 3 of 4 - can change appearance of elements such as legend and title.
Step 4 of 4 - specify where you want the chart on the worksheet. Can be as separate sheet or object on this sheet.
Now let’s look at some of the terminology.

Each group of related data is called a data series. Each number in series is represented by data marker.

Legend identifies chart series names and data markers.

**What is an object?** - Objects are items that can be added to a worksheet, sized and moved.

To select the chart for editing, merely press inside the chart. Eight black boxes called selection handles appear. **Note** the name box now says chart area.

To move the chart - move pointer inside so it says chart area in tag along box. Press down L mouse button and move – an outline indicates size that is moving.

Selecting a corner handle lets you resize a chart in both directions simultaneously. A center handle will resize in one direction only.

**Changing the Type of Chart**

Let’s see what this data would look like as a line chart. From the chart toolbar which has appeared

**Choose line chart and click** -- shows trend.

**Multiple Data Series**

Let’s look at the rest of the data in our table, we would like to chart it also C6-G9. The legends for each are in B6---B-9.

Select B5 – F9

**CHART WIZARD --- LINE CHART**

Again rows are the series we want. Go through rest - make a 3D column chart at the end.

We can modify several of the components within a chart.

**Legend** - click on it to select -- handles for moving or resizing.

Can change colors, patterns, fonts – can fill the legend with color to make it stand out, shadow, etc.

< demonstrate>

Can change data colors -- right click on data entry column and change patterns and colors

< demonstrate>
You may wish to add some text to the chart for information. To do this, we add a text box - can be added to a sheet or a chart

CLICK drawing – normal toolbar

CLICK text box

Size the text box with mouse

Resize the box as needed. Need to be outside graph.

Sample graph is shown below: