

# **English for Specific Purposes**

Saturday

26 September 2009

Hochschule Ulm

Ulm, Germany

# **Beyond `eine Grafik`**

Teaching ESP learner's the best language  
with the best type of chart or graph.

Presented by: Clark Stoppia English Training Consulting  
Basel Switzerland  
e.t.c@bluewin.ch

# Agenda

- Introduction and background
- What this workshop is about
- What this workshop is not
- Definition of chart/graph
- Introduction of sample charts
- Introduction of ESP fields for the charts
- Combine charts and ESP fields
- Develop the language for our learners
- Conclusion and summary

# **Introduction and Background of the presenter**

- Start as teacher
- Start as EFL/ESL teacher
- Start as Business English Teacher
- Begin ESP teaching

# **What this Workshop is not**

- How to create Graphs and Charts

# What this workshop is about

- For the teachers in the ESP field to learn about some of the charts and graphs available to our learners.  
Discovery phase
- To learn about some of the professions where these charts and graphs apply.  
Discovery phase
- To match charts and graphs with professions  
Work phase
- To develop the language and the methods to teach this language to our learners.  
Hard workshop phase

# Definition chart/graph

- Graph – a drawing that uses a line or lines to show the relationship between two or more sets of figures, measurements etc.
  - Longman Business English Dictionary
- Chart – a mathematical drawing or list showing information arranged in a way that is clear and easy to understand
  - Longman Business English Dictionary
- Graphic(s) - drawings, designs or pictures that are used to represent objects or facts, especially in computer programs
  - Longman Business English Dictionary

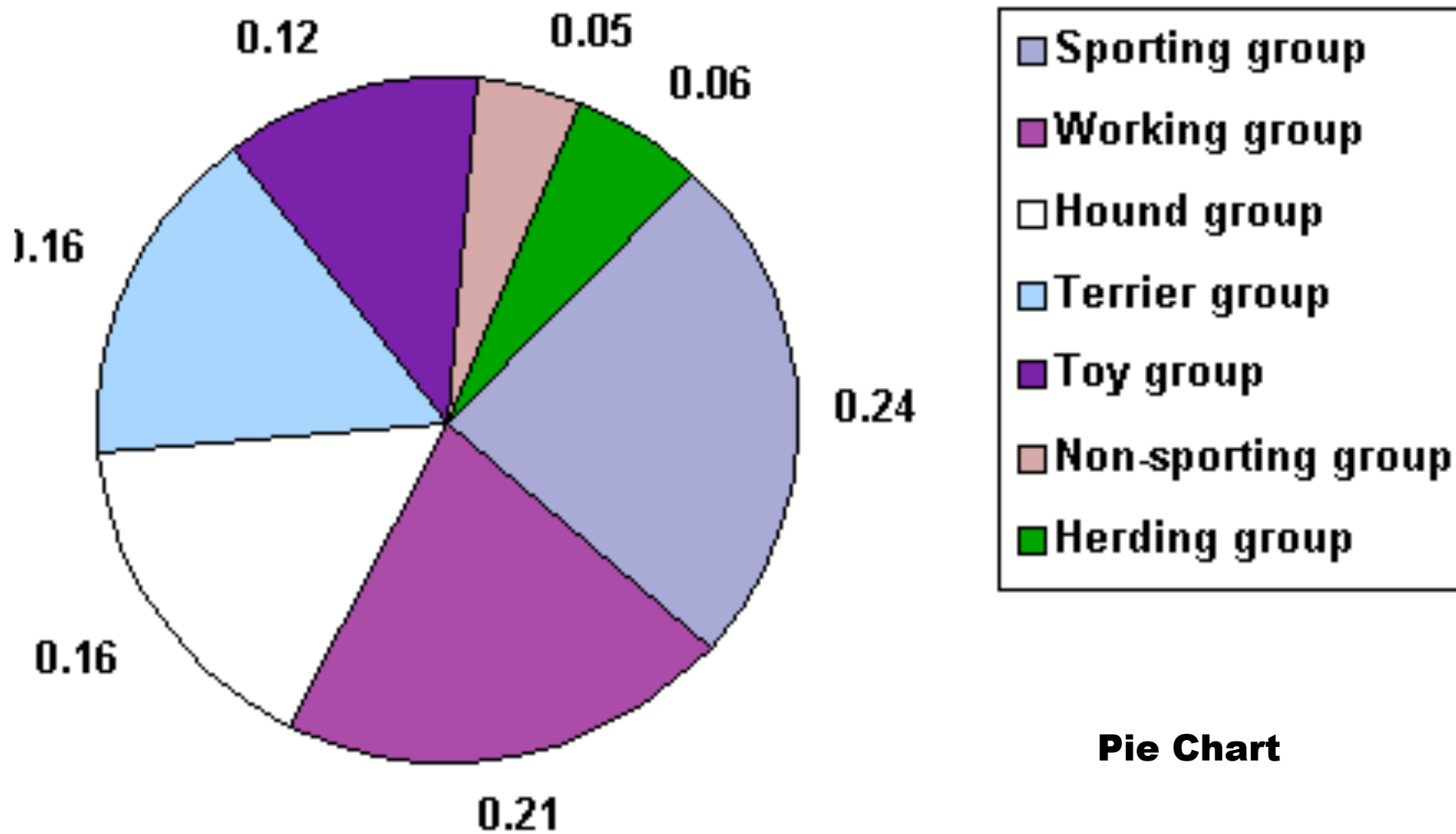
# Definition #2

- Graphic – a diagram or picture, especially one that appears on a computer screen or in a newspaper or book.

Oxford Business English Dictionary

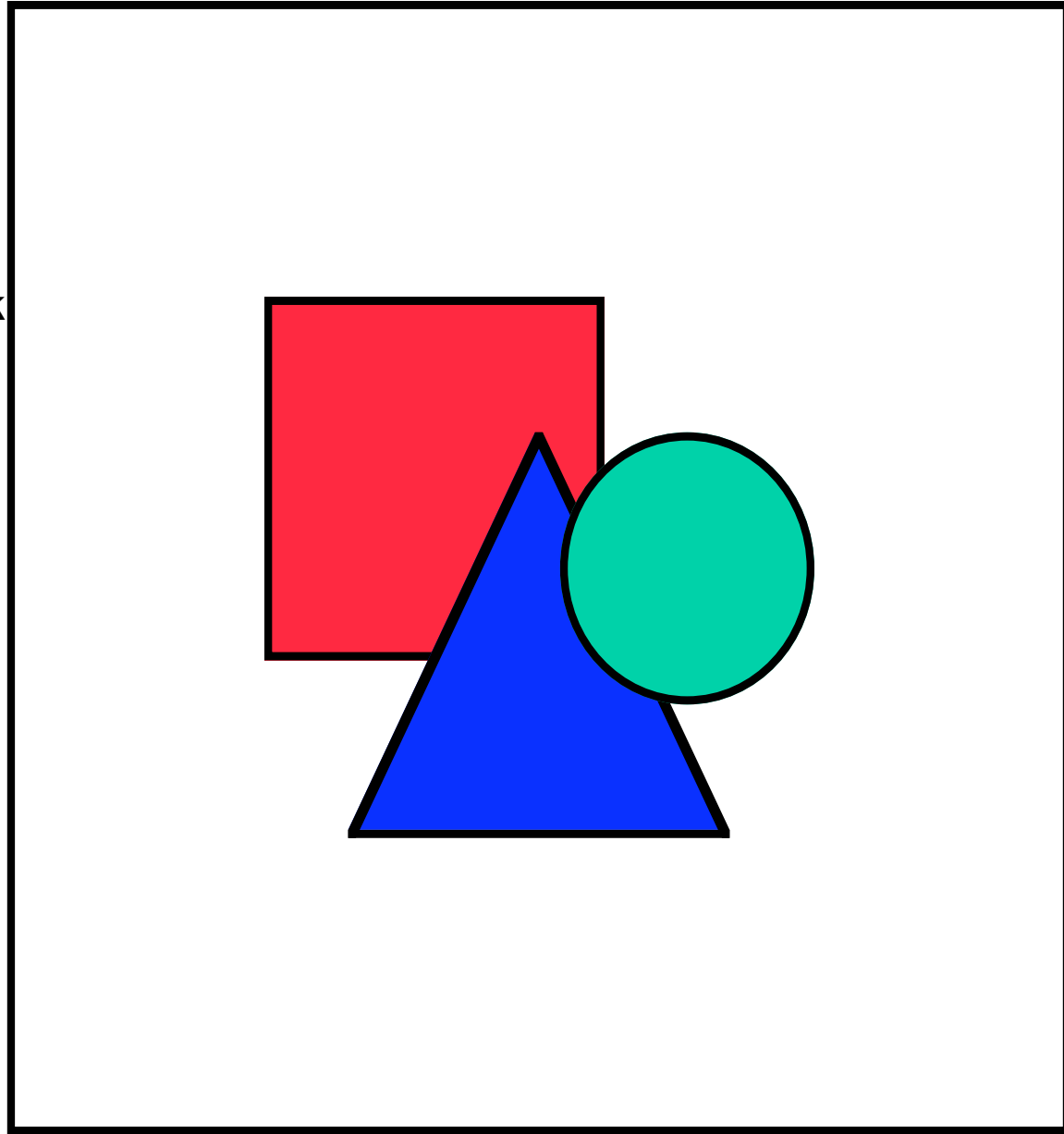
- Diagram – a simple drawing using lines to explain where something is, how something works, etc.

Oxford Business English Dictionary



**Pie Chart**

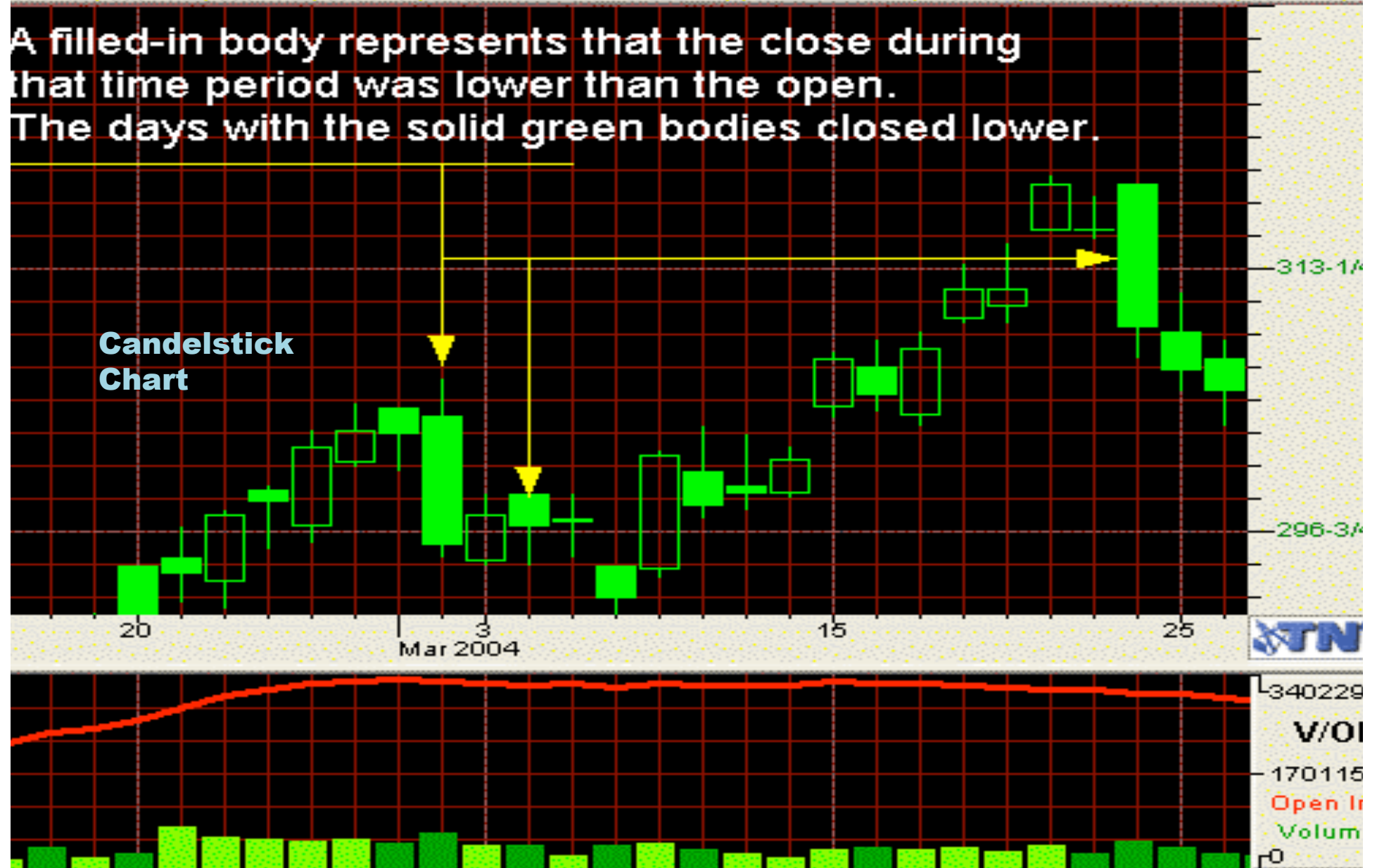
**Candelstick  
chart**

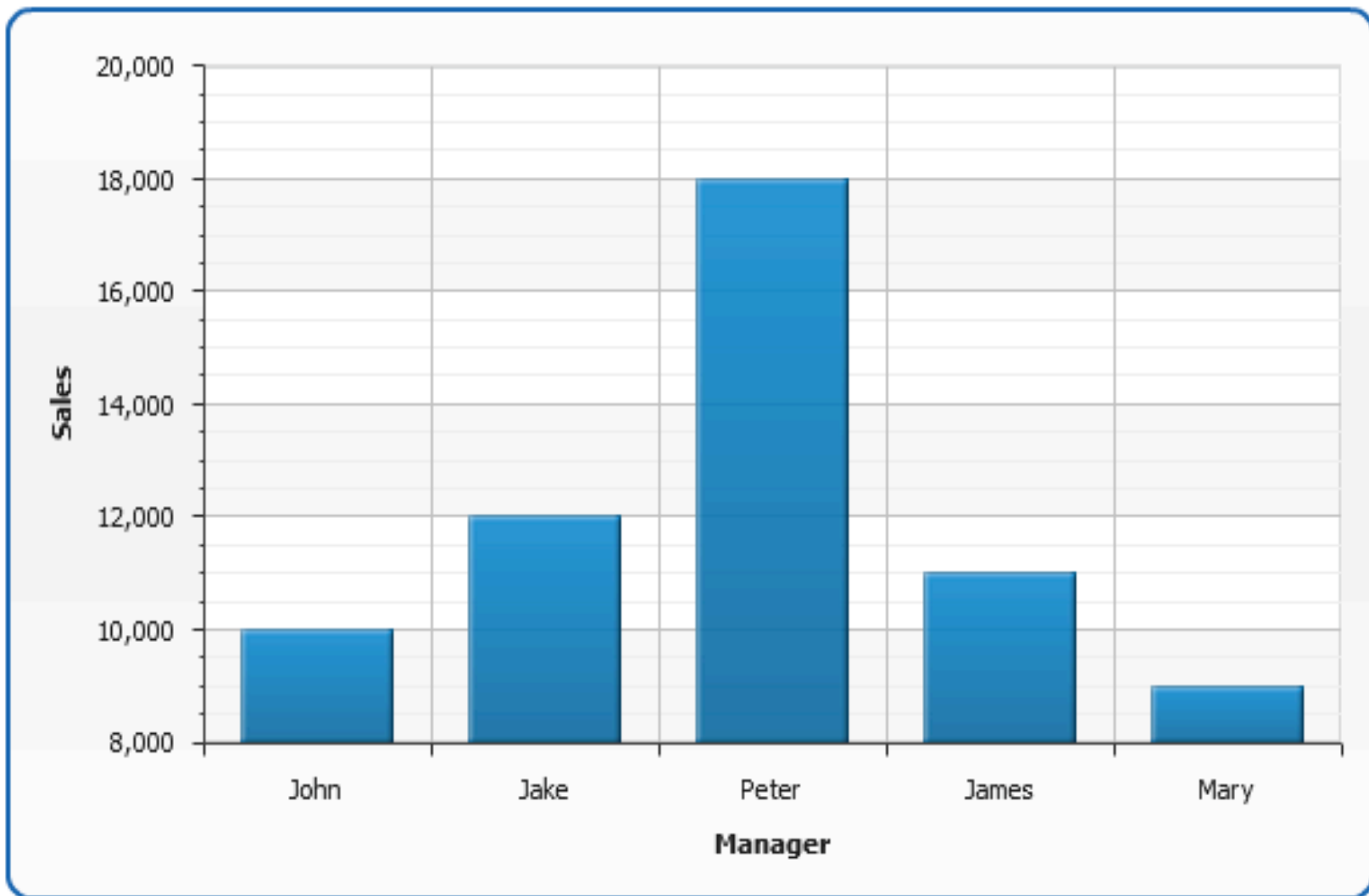


# Corn (c) May +C2004K

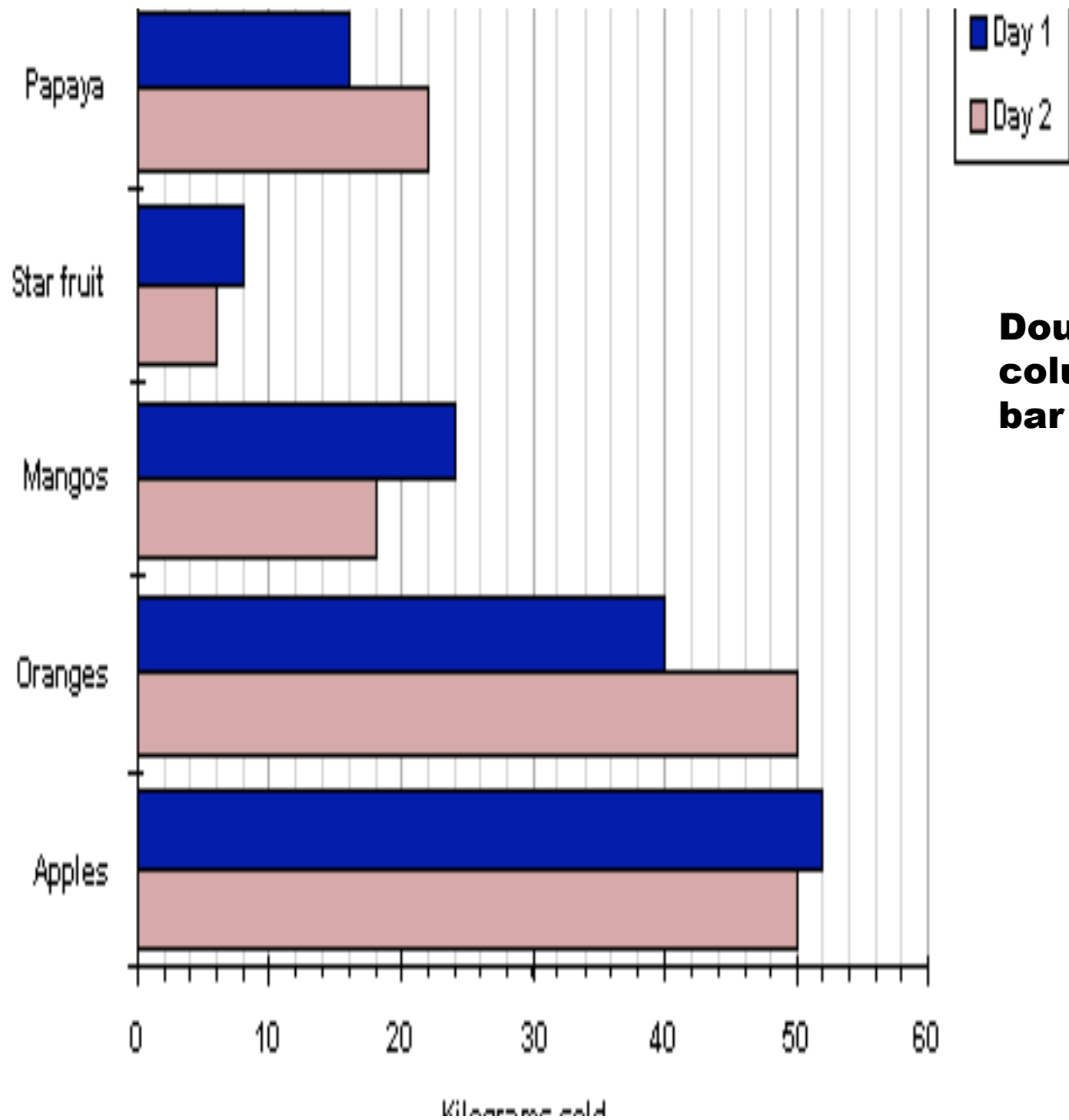
A filled-in body represents that the close during that time period was lower than the open. The days with the solid green bodies closed lower.

**Candelstick Chart**



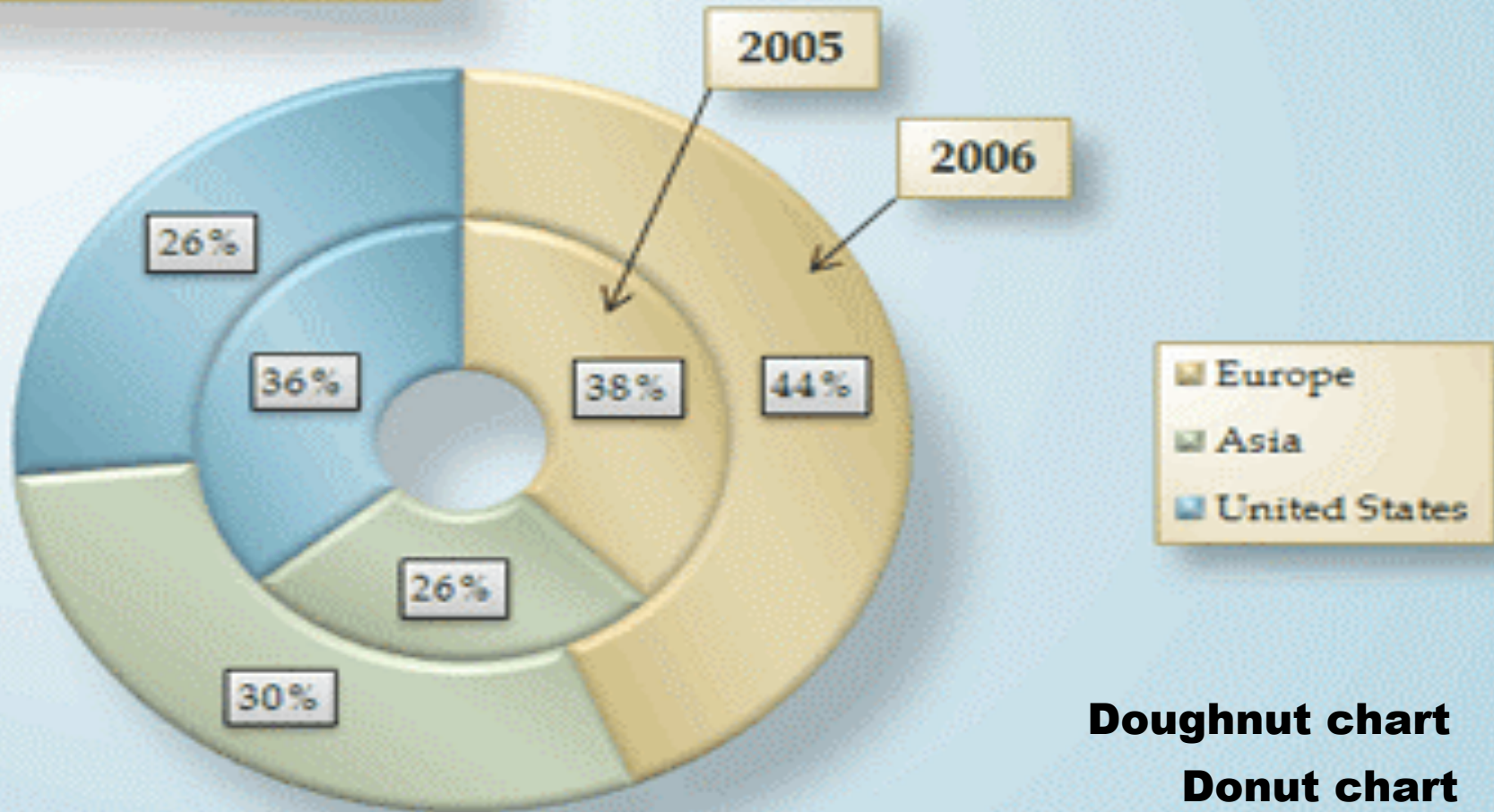


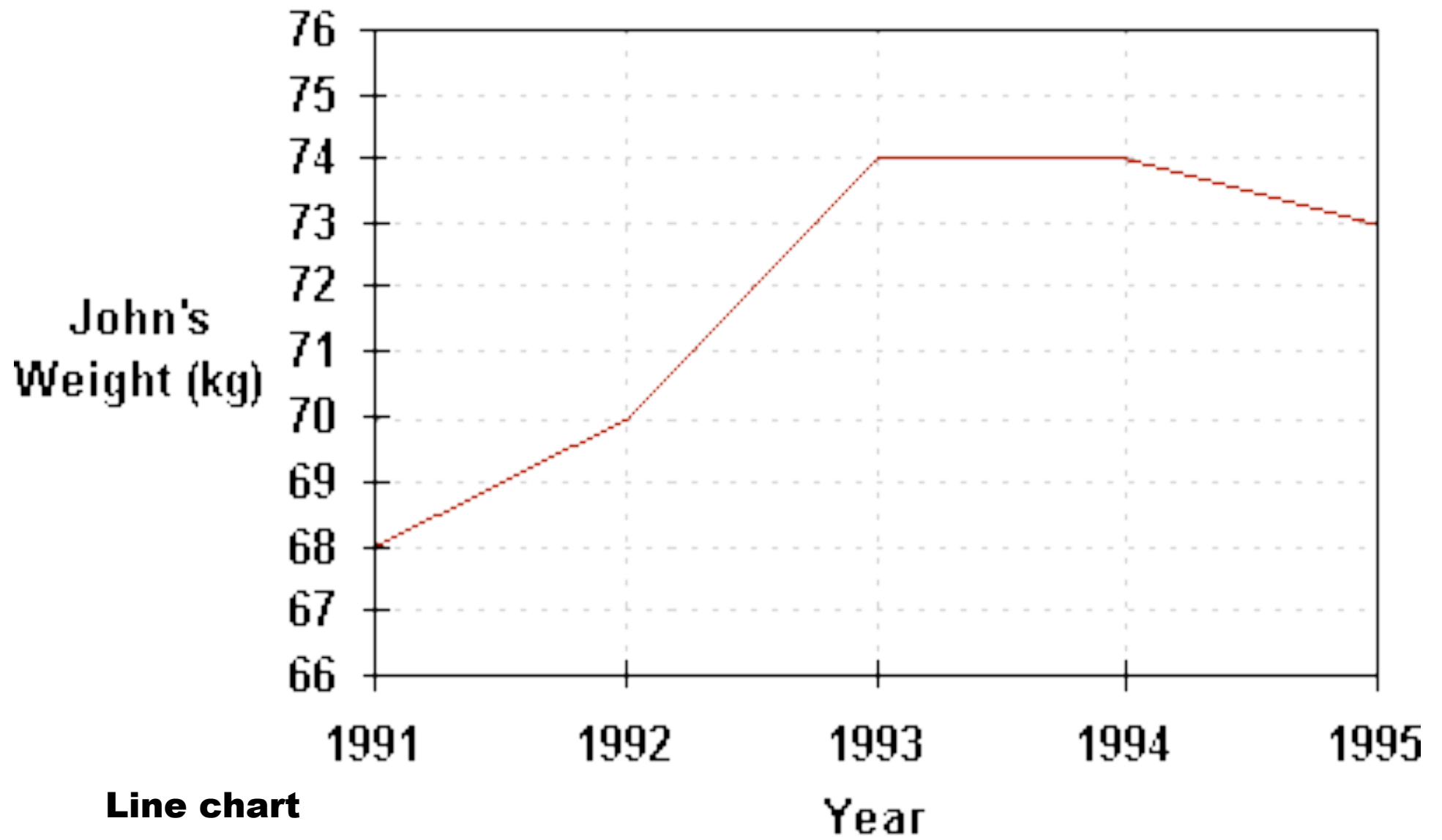
**Bar chart**



**Double  
column  
bar chart**

# Sales by Region

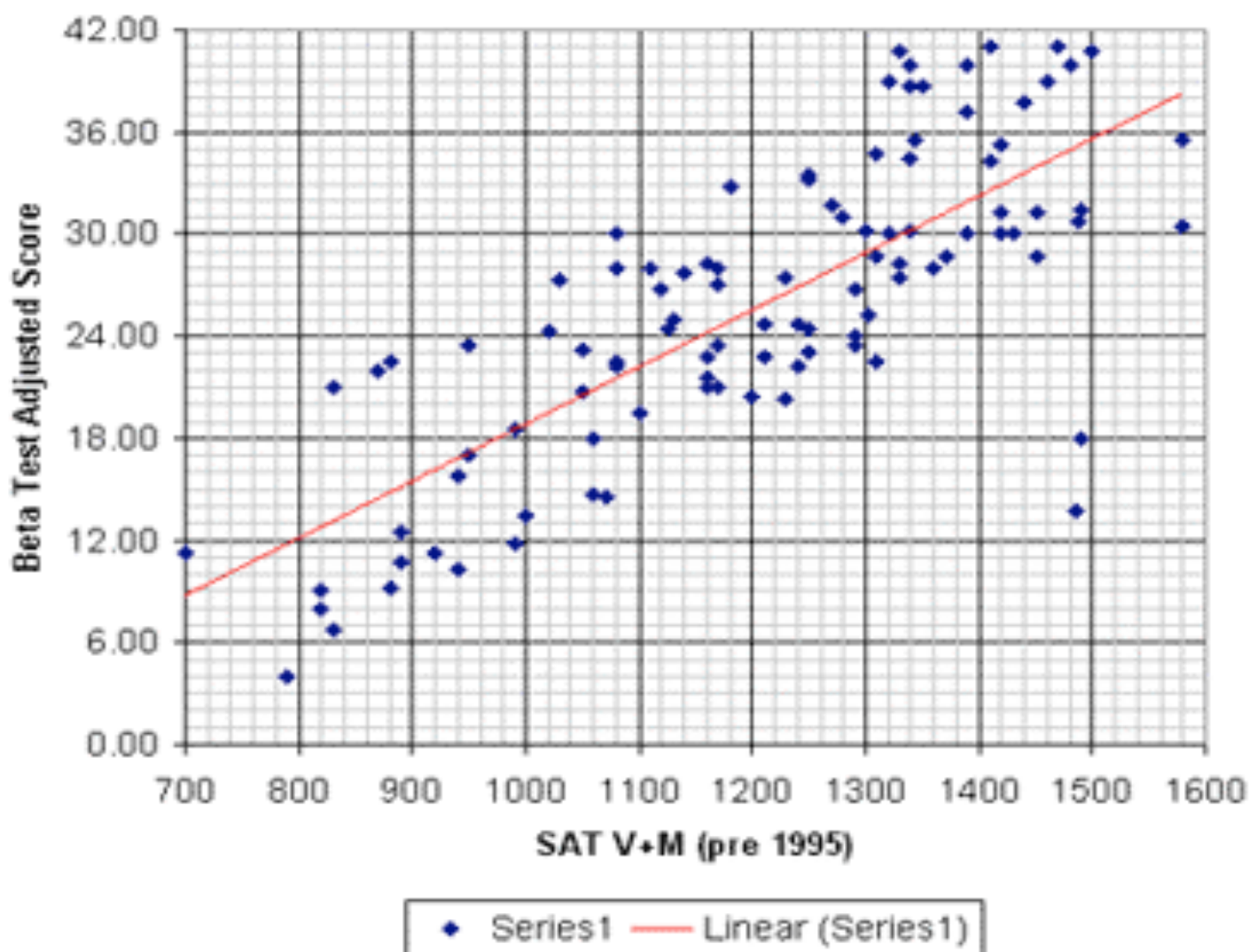




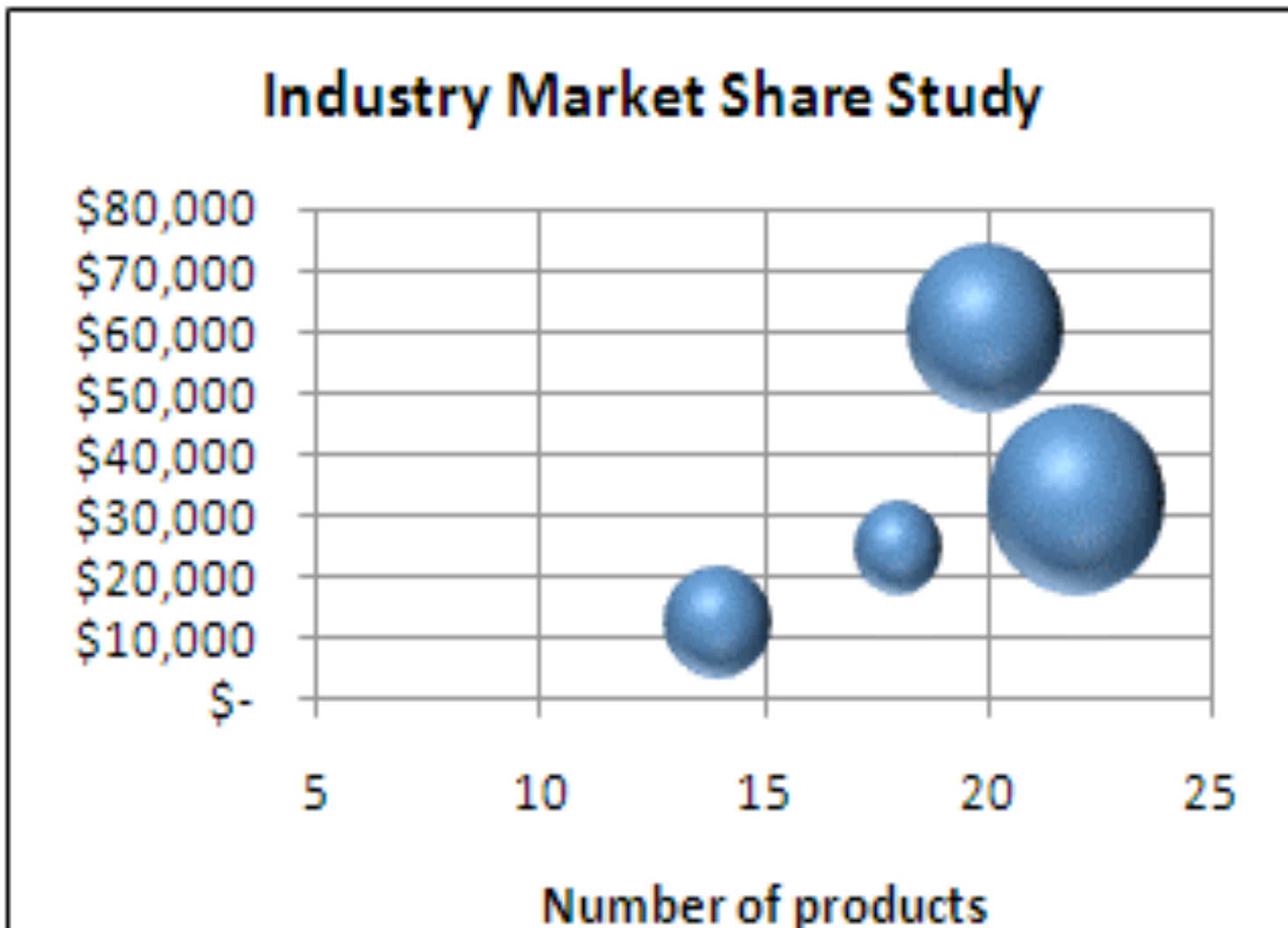
### Scatter Plot, SAT vs. Beta Test

$N = 102$ ,  $r = 0.77$

95% Confidence Interval:  $r = 0.68$  to  $0.84$



14	\$12,200.00	15%
20	\$60,000.00	33%
18	\$24,400.00	10%
22	\$32,000.00	42%



**Bubble chart**

## **Choosing the Chart**

Once you have an action statement as a heading, look at the verbs in the statement to get an idea of the best chart to use to present your data.

### **Showing change over time.**

Look for a key word such as "grow," "decline," or "trends." If, for example, you want to show how college entrance test scores have changed over 30 years, use a line chart. Line charts are best when a variable has more than four or five data points, and you want to emphasize continuity over several months or years. The slope of the line tells viewers in a glance the direction of the trends.

However, if you have fewer than five data points and you want to emphasize quantity at discrete times - for example, how administrative costs have risen faster than manufacturing costs over three years - use a column chart (vertical bars). Since the audience naturally associates left-to-right with the movement of time, vertical bars work better than horizontal bars for time series data.

## **Comparing items at one point in time.**

Look for a key word such as "ranks" or "compares." If, for example, you want to show the highest profit, the lowest interest rate, or the most products sold, or you want to rank variables from largest to smallest, use a horizontal bar chart.

Bar charts are often the best way to compare a set of individual items or several sets of related items. The bar's length corresponds to its ranking; the bar's label identifies the item.

## **Comparing parts of a whole.**

Look for key words such as "percentage," "portion" or "share." If, for example, you want to show the proportion of state government budget spent on education, use a pie chart. However, the number of pie slices should not be more than five, and each slice should be easy to see and interpret.

A **pie chart** is best when you want to highlight one part of the whole. Place this component in the 12 o'clock position and "explode" it out of the pie for emphasis.

When you want to show relative proportions of two, three, or four wholes, a segmented bar chart may work equally well or better. In this chart form, each bar represents 100 percent, and each segment a percentage. A series of vertical segmented bars shows how percentages change over time.

Thanks to Strategic Communications for these slides

# **How to Choose Which Type of Graph to Use?**

## **When to Use . . .**

### **. . . a Line graph.**

Line graphs are used to track changes over short and long periods of time. When smaller changes exist, line graphs are better to use than bar graphs. Line graphs can also be used to compare changes over the same period of time for more than one group.

### **. . . a Pie Chart.**

Pie charts are best to use when you are trying to compare parts of a whole. They do not show changes over time.

A **doughnut/donut chart** is similar to a pie chart except that it has a hole in the middle and it can display more than one series of data.

### **. . . a Bar Graph.**

Bar graphs are used to compare things between different groups or to track changes over time. However, when trying to measure change over time, bar graphs are best when the changes are larger

### **. . an X-Y Plot.**

X-Y plots are used to determine relationships between the two different things. The x-axis is used to measure one event (or variable) and the y-axis is used to measure the other. If both variables increase at the same time, they have a positive relationship. If one variable decreases while the other increases, they have a negative relationship. Sometimes the variables don't follow any pattern and have no relationship.

A **bubble chart** is a type of [chart](#) where each plotted entity is defined in terms of three distinct numeric parameters.<sup>[1]</sup>

Bubble charts can facilitate the understanding of the social, economical, medical, and other scientific relationships

The entities displayed on a bubble chart can be compared in terms of their size as well as their relative positions with respect to each numeric axis. Since both X and Y axis of the bubble chart are numeric scales, the position of plot is an indicator of two distinct numeric values. The area of the plot depends on the magnitude of the third numeric

characteristic.<sup>[1]</sup> A bubble chart can be considered a variation of a [scatter plot](#), in which the data points are replaced with bubbles. This type of chart can be used instead of a Scatter chart if your data has three data series, each of which contains a set of values

A **pie chart** (or a **circle graph**) is a [circular chart](#) divided into [sectors](#), illustrating relative [magnitudes](#) or frequencies. In a pie chart, the [arc length](#) of each sector (and consequently its [central angle](#) and [area](#)), is [proportional](#) to the quantity it represents. Together, the sectors create a full disk. It is named for its resemblance to a [pie](#) which has been sliced.

While the pie chart is perhaps the most ubiquitous statistical chart in the business world and the mass media, it is rarely used in scientific or technical publications.<sup>[1]</sup> It is one of the most widely criticized charts,<sup>[2]</sup> and many statisticians recommend to avoid its use altogether<sup>[3][4]</sup>, pointing out in particular that it is difficult to compare different sections of a given pie chart, or to compare data across different pie charts. Pie charts can be an effective way of displaying information in some cases, in particular if the intent is to compare the size of a slice with the whole pie, rather than comparing the slices among them.<sup>[5]</sup> Pie charts work particularly well when the slices represent 25 or 50% of the data,<sup>[6]</sup> but in general, other plots such as the [bar chart](#) or the [dot plot](#), or non-graphical methods such as [tables](#), may be more adapted for representing information.

A **candlestick chart** is a style of [bar-chart](#) used primarily to describe price movements of a [security \(finance\)](#), [derivative](#), or [currency](#) over time.

It is a combination of a line-chart and a bar-chart, in that each bar represents the range of price movement over a given time interval. It is most often used in [technical analysis](#) of equity and currency price patterns. They appear superficially similar to [error bars](#), but are unrelated.

### **Use of candlestick charts**

Candlestick charts are a visual aid for decision making in [stock](#), [forex](#), [commodity](#), and [options](#) trading.

<b>Chart Type</b>	<b>Typical Applications</b>	<b>Variants, Remarks</b>
Column/Bar	Observations over time or under different conditions; data sets must be small	Vertical (columns), horizontal (bars); multiple columns/bars, columns/bars centered at zero
Segmented Column/Bar	Proportional relationships over time	May be scaled to 100%
Line, Curve	Trends, functional relations	Data point connected by lines or higher order curves
Pie	Proportional relationships at a point in time	Segments may be pulled out of the pie for emphasis (exploded pie chart)
Scatterplot	Distribution of data points along one or two dimensions	One-dimensional, two-dimensional

## **Column/Bar**

Based on *line lengths*; shows observations over time or under different conditions

## **Segmented Column/Bar**

Based on *line lengths*, but stacked; shows proportional relationships over time

## **Line, Curve**

Based on the *position* of data points; shows trends and functional relations (through the connection of the data points to a line or curve).

## **Pie**

Based on *relative areas* (segments of a circle); show proportional relationships at a point in time.

## **Scatterplot**

Based on the *position* of data points; shows the distribution of data points along one or two dimensions.

# Some of those Fields and Professions

- Medical - Doctor patient statistics
  - Pharma - Cure rates
  - Engineering - metal fatigue
  - Aviation - on time numbers per airline
  - Telecoms - customer use per product
  - Stockbrokers/financial - stock trends
- ....more** up to you

## **Lesson Plan ideas for a lesson at A2 – B1 level**

Determine what exactly the student needs to do with their presentation. (see action language)

Offer them a choice of charts/graphs with the names clearly displayed. (Awareness building)

Have the learners read through the definitions, help with difficult vocabulary. (let them make the connection with what they want to present and how they want to present it and the chart/graph name and the functional language)

# Action Language

- Market share, ranks, Compares, profit, interest rate, sales, variables, grow, decline, trend, data points track changes over time, compare parts to the whole, stock prices, commodity prices, and...

# Summary/Closing

- Build awareness of charts/graphs
- Find correct applications for these
- Make the connection
- Take this expertise to our learners and let them internalize it.
- Have fun

**Thank You**