Lecture Outline:

In this lecture we will learn how to construct,
1. Tables
2. Bar graphs
3. Pictographs
4. Line graphs
5. Pie charts
6. Photographs
7. Drawings
8. Diagrams
9. Flow charts
10. Organizational charts
11. Schedule charts
12. Budget statements

Tables:

The table is one of the most versatile and widely used visual aids. Tables are used so often because they can help writers achieve several common objectives. For example, they are an excellent tool for groups of detailed facts in a concise and readable form.

How to construct a table:

To create a table, you systematically arrange information in rows and columns. You should adjust the basic structure as needed to create an attractive visual aid that your readers will find easy to use. For example, if your table is crowded, you can separate columns (or groups of columns) with vertical lines, and to help them read across rows, you can place horizontal or leave a blank row after every five lines or so.

Note that fancier variations of the basic design may be used where attractiveness is especially important, as in advertising brochures and annual reports to stockholders.

When deciding how to display your information within the framework of your table, you have several basic decisions to make:

13. How to order the rows and columns
14. Which labels to use for the columns and which for the rows
15. How to align entries in the columns
16. Where to place special notes

Bar Graphs

Like a table, a bar graph can represent numerical quantities, which is done using rectangles called bards. The greater the quantity, the longer the bar.

Some uses of bar graphs are as follows:
1. To compare quantities at a glance
2. To show trends
3. To indicate the composition of a whole

How to construct a bar graph:

Begin by drawing your axis so that your graph will be roughly square.
Along one axis, place tick marks at regular intervals to indicate quantities ($5 million, $10 million, etc.; 50 psi, 100 psi, etc.).
Plan the tick marks so that the longest bar will extend nearly to the end of its parallel axis.
How to avoid misleading your readers:
A common mistake that results in accidentally misleading the readers is to omit the zero point on the axis that shows the quantity. If you simply cannot use the entire quantity scale, indicate that fact to your readers, perhaps by using hash marks to signal a break in the quantity axis in the bars themselves.

Pictographs:
Pictographs are a special kind of bar graph in which the bars are replaced by drawings that represent the thing being described. The chief advantage of the pictograph is that it uses drawings to symbolize concretely the quantities you are talking about in your graph. You will find pictographs especially useful where you want to do one or both of the following:
• Emphasize the practical consequences of the data represented.
• Make your data visually interesting and memorable.

How to create a pictograph:
The procedure for creating a pictograph is nearly identical to that for creating a bar graph. The difference is that you draw pictures instead of rectangles to represent quantities.

How to avoid misleading your readers:
Like bar graphs, pictographs can mislead the reader if they are not drawn properly. When using pictographs, you can avoid misleading your readers if you keep all of your pictures the same size and use more of them to represent greater quantities.

Line graphs:
A line graph shows how one quantity changes as a function changes in another quantity. You can use line graphs in many ways, including the following:
–To show trends and cycles: When you want to show a pattern of change over time, line graphs can be very helpful – especially when compared with a table.
–To compare trends: Line graphs are also very useful for showing readers how two or more trends compare with one another.–To show how two or more variables interact: Line graphs are well-suited to display interactions between variables.

How to create a line graph:
In line graphs, you generally show how variation in one thing (called the dependent variable) is affected by variation in another thing (the independent variable). Line graphs almost always show the dependent variable on the vertical axis and the independent variable on the horizontal one. Time is usually treated as an independent variable so it goes on the horizontal axis. Mark off each axis at regular intervals, using labeled tick marks. In some situations however, your readers may find it easier to read your line graph if you extend the tick marks all the way across the graph to form a grid. If you do this, make the grid with a thinner line than you use to represent the quantities you are describing, so that your data stands out.

Pie Charts:
Pie charts are unsurpassed in their ability to depict the composition of a whole. For example, to show how much each of several food sources contributes to the total amount of dietary fat consumed by the average American.

How to create a pie chart:
To create a pie chart, you draw a circle and draw lines that slice it into wedges. Each wedge occupies a portion of the circle’s circumference proportional to the amount of the total pie that the wedge represents. Arrange the wedges in a way that helps your audience determine the rank order of the wedges and compare the relative sizes of particular wedges.
Photographs:
With a photograph, you can show your readers exactly what they would see if they personally were to look at an object. Photographs can help you achieve a variety of communication purposes such as:
1. *To show the appearance of something the readers have never seen:* This could include a new product, or the inside of the human heart etc.
2. *To show the condition of something:* For example result of a skin treatment etc.
3. *To help the readers recognize something:* For example in a lab manual you might include photographs that would enable your readers to identify the imperfections they might encounter in sheet steel.
4. *To help your audience find something:* For example you could show parts of machinery in an instructional manual.

Diagrams:
A diagram is much like a drawing except that drawings accurately convey the actual appearance of things, diagrams depict subjects more abstractly. Diagrams can convey complex information, such as the system used for industrial processing of fruits, without actually showing the actual machinery.

**How to create a diagram:**
- Decide exactly what you want to show.
- Create an appropriate means to represent your subject with geometric shapes, or perhaps sketches that suggest their appearance.
- Provide the explanations people need in order to understand your diagram as a separate key, in the title or as part of the diagram itself.

Flow Charts:
Flow charts are an excellent means of representing the succession of events in a process or procedure. The simplest flow charts use rectangles, circles, diamonds, or other geometric shapes to represent events, and arrows to show the progress from one event to another.

**How to create a flow chart:**
A few conventions govern the creation of flow charts. The labels that identify the activities are placed *inside* the boxes that represent those activities. Boxes are arranged so that activity flows from left to right, or from top to bottom, or both.

Organizational charts:
An organizational chart uses rectangles and lines to represent the arrangement of people and departments in an organization. It reveals the organization’s hierarchy, indicating how the smaller units are combined to create larger units. It also indicates who reports to whom and who gives direction to whom.

**How to create an organizational chart:**
Because of the hierarchical nature of most business organizations, organizational charts are usually pyramidal. You do not need to show every part of the organization, only those relevant to your readers. Sometimes you may need to represent more than one kind of relationship by using different lines for the different relationships.

Schedule charts:
A schedule chart identifies the major steps in a project and tells when they will be performed. They are often used in project proposals to show the proposer’s plan of work. You can also use schedule charts in progress reports to show what you have accomplished and what you have left to do.
How to create a schedule chart:
One of the principal considerations in creating a schedule chart is deciding how much detail to include, which depends on the audience's needs and expectations. Tasks are always listed along the vertical axis, with indentation used to distinguish subtasks from major tasks. Intervals (weeks, months) are usually marked off with vertical lines to help the readers.

Budget statements:
A budget statement is a table that shows how money will be gained or spent. It may be very simple or very elaborate depending on your reader's needs. On the job, you can use budget statements in the following situations:
- To explain the expenses involved with a project purchase
- To summarize the savings to be realized by following a recommendation you are making
- To report the costs that have been incurred by a project for which you have responsibility
- To explain the sources of revenue associated with some project or activity.