Department Of Biotechnology
Topic – generating charts and graphs

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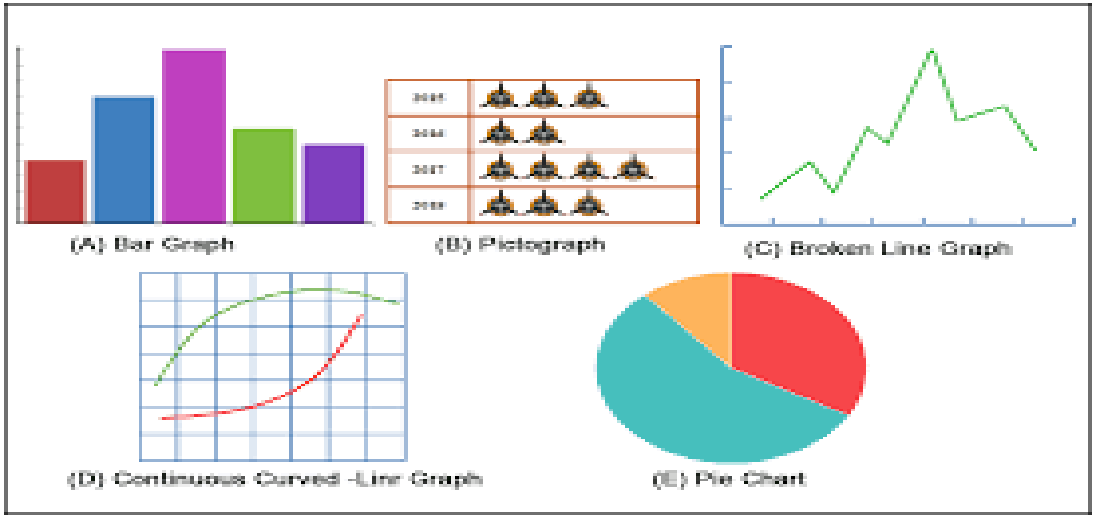
Introduction

- The main purpose of charts and graphs is visually impart information that cannot be easily read and interpreted from a table of data
- It can be sometimes difficult to see patterns, trends and contracts in a table that has many data points
- Using charts can be a good method of showing trends and changes in statistical data.
- Charts can also be used to make predictions and forecasts and to compare two or more data sets.

Purpose of charts and graphs

- Charts and graphs are used in business to communicate and clarify spreadsheet information
- Charts and graphs emphasize and categories spreadsheet information into a format that can be quickly and easily analyzed.

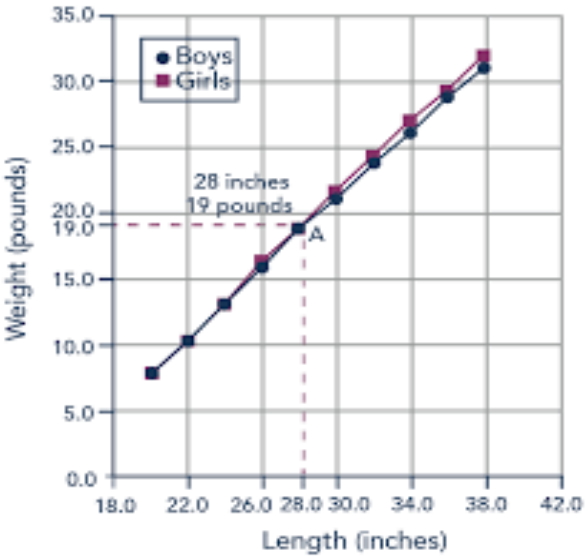


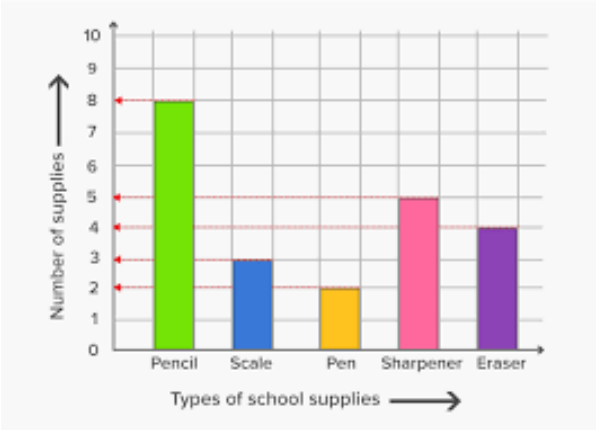
Graph

- A data structure that consist of a set of nodes(vertices) and a set of edges the relate the nodes to each other.
- The set of edges describes relationship among the vertices.
- A graph G is defined as follows :

$$G = (V.E)$$

- Graph can either be directed with the directed edges(areas) pointing from one vertex to another or unidirected with the edges symmetrically connecting vertices.





Types of graph and charts

- Different types of graphs and charts, their uses and names.
- Different kinds of graphs aim to present data they are used in many areas such as in statistics, in data science, in math, in ecomomics, in business and etc.
- Every type of graph is a visual representation of data on diagram plots(ex. Bar, pie, line chart) that show different types of graph trends and relationship between variables.

a) Line graph

b) Bar chart

c) Pie charts

d) Histogram

e) Scatter plot

f) Venn chart

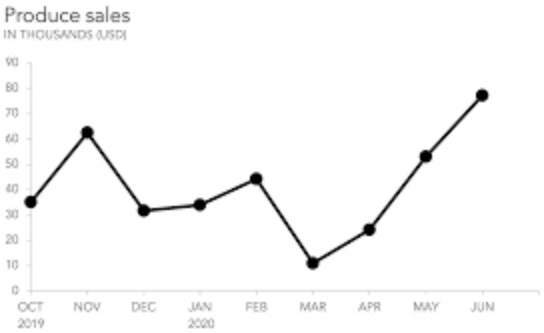
g) Area charts

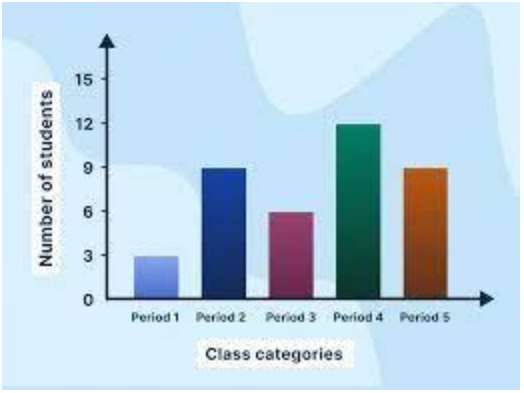
h) Spline chart

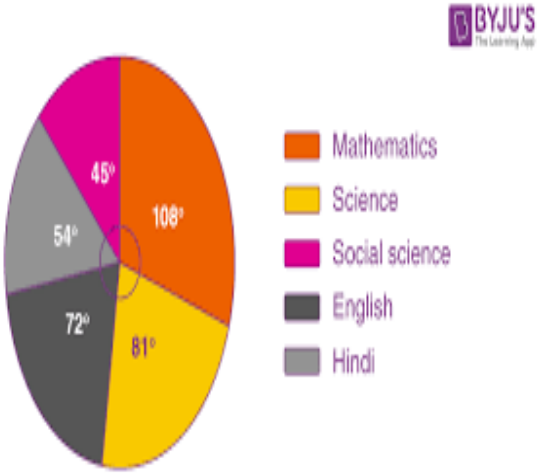
i) Box and whisker chart

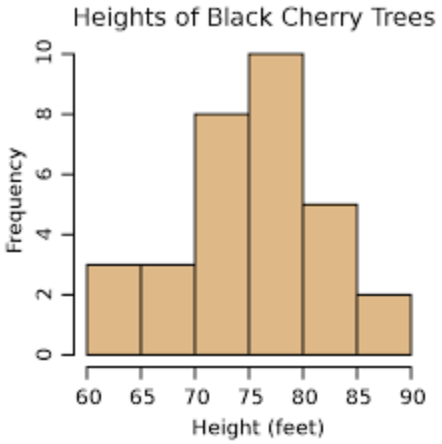
j) Bubble chart

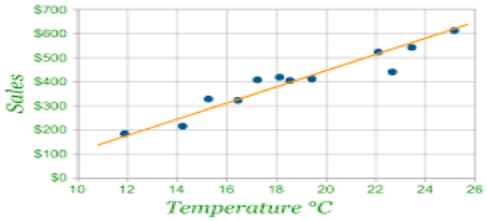
k) Pictographs

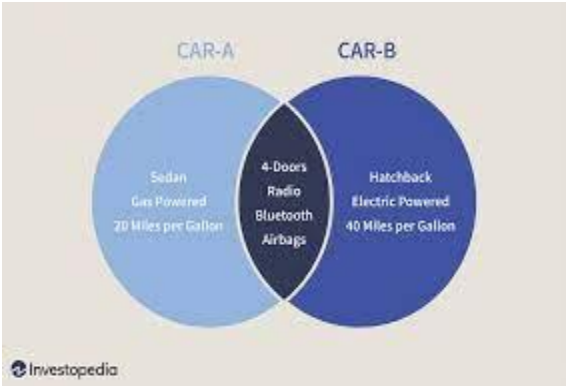












Line graphs

- A line charts graphically displays data that changes over time. Each line graph consists of connect dat ato show a trend(continuous line graphs have an x-axis and a y-axis. In the time is distributed on the horizontal axis.

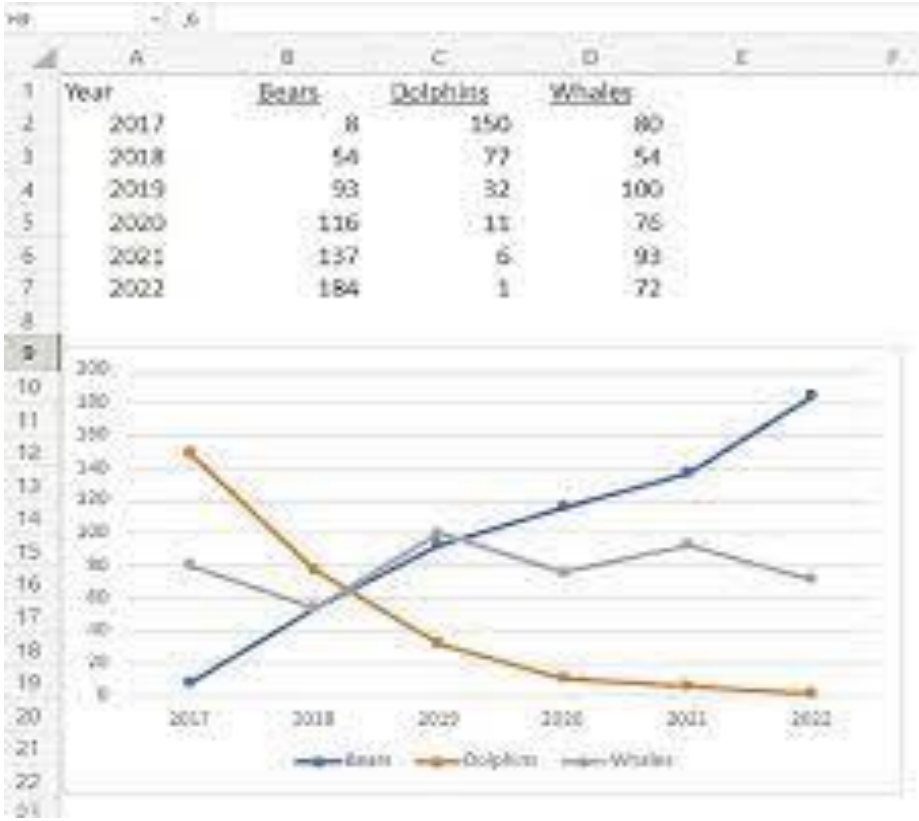
Uses of line graphs

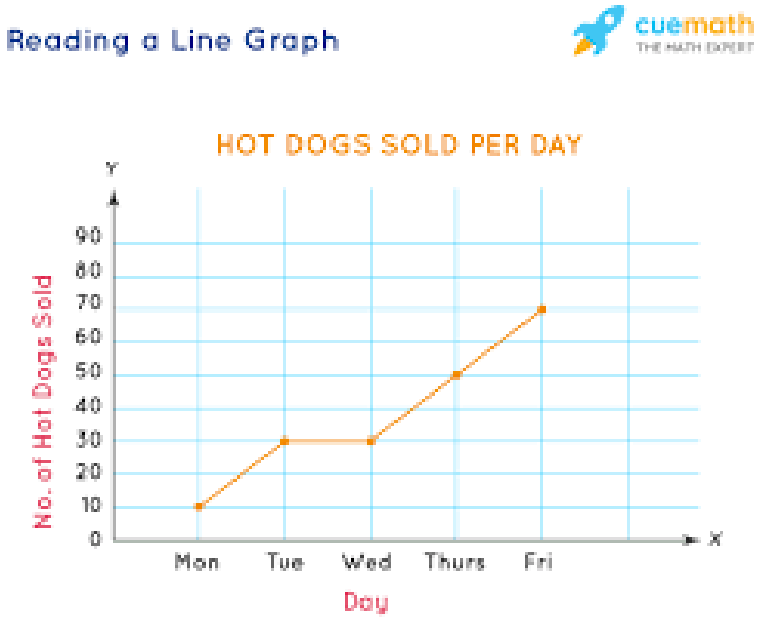
- When youy want to show trends, for example, how house prices have increased over time.
- When you want to make predictions based on a dat history over time.

Example

- The following line graph shows annual sales of a particular business company for the period of six consecutive years.

Year	Bears	Dolphins	Whales
2017	8	150	80
2018	54	77	54
2019	93	32	100
2020	116	11	76
2021	137	6	93
2022	184	1	72





Bar charts

- Bar charts represent categorical dat with rectangular bars(to understan what is categorical dat see categorical dat examples). Bar graphs are among the most popular types of graphs and charts in economics, statistics and marketing. They are commonly used to compare several categories of data.

- Each rectangular bar has length and height proportional to the values that they represent.

Bar charts uses

- When you want to display dat that are grouped into nominal or ordinal categories
- To compare dat among different categories.

Pie charts

- When it comes to statistical types of graphs and charts, the pie chart(or the circle chart) has a crucial place and meaning, it displays dat and statistics in an easy-to-understand ‘pie-slice’ format and illustrates numerical proportion.

Pie charts uses

- To show percentage or proportional dat a
- When comparing areas of growth within a business such as profit.

Applications of charts and graphs

- Show each data category in a frequency distribution.
- The spread of diseases and epidemics can be modelled using a network.
- Used to compare things between different groups or to track changes over time.
- Graphs are used from the local newspaper to the magazine stand.
- Are used to show the sales of a company, year wise.

References

THANK YOU FOR LISTENING