

Introductory Module: Fundamentals of Science

Topic 4 Content: Types of Graphs Presentation Notes

Introduction

Types of Graphs

Introduction

There are many different types of graphs, and each one has a different purpose. Learning how to create and interpret graphs is an important part of conducting scientific investigations in chemistry. Different types of data require different types of graphs. Click on the label for each type of data to learn more.

The image displays three distinct types of graphs used in scientific data presentation:

- Line Graph:** Titled "Methyl Tertiary Butyl Ether Solubility", it plots Solubility (grams/Liter) on the y-axis against Temperature (°C Celsius) on the x-axis. The data points show a clear downward trend, indicating that solubility decreases as temperature increases.
- Bar Graph:** Titled "Trace Elements in Venus' Atmosphere", it shows the concentration of various elements in Parts Per Million. The elements listed are Sulfur Dioxide, Argon, Water Vapor, Carbon Dioxide, Nitrogen, and Neon. Sulfur Dioxide is the most abundant, followed by Argon.
- Pie Graph:** Titled "The Chemical Composition of Oil", it shows the percentage distribution of different hydrocarbon classes: Alkanes (30%), Cycloalkanes (40%), Aromatic Hydrocarbons (25%), and Other Substances (5%).

Navigation buttons are provided on the right side of the interface:

- Line Graph
- Bar Graph
- Pie Graph

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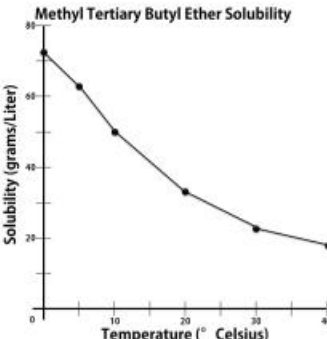
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Line Graph

Types of Graphs

Line Graph



Temperature (° Celsius)	Solubility (grams/Liter)
0	80
5	65
10	50
20	35
30	25
40	20

A line graph displays quantitative data, which includes exact measurements. A line graph is a type of graph that draws trends by connecting data points on a graph. The y-axis label contains the dependent variable information. On this graph, the y-axis graphs the solubility of Methyl Tertiary Butyl Ether in grams per liter. The x-axis label contains the independent variable information. On this graph the x-axis graphs temperature in degrees Celsius. The data

Bar Graph

Pie Graph

A line graph displays quantitative data, which includes exact measurements. A line graph is a type of graph that draws trends by connecting data points on a graph. The y-axis label contains the dependent variable information. On this graph, the y-axis graphs the solubility of Methyl Tertiary Butyl Ether in grams per liter. The x-axis label contains the independent variable information. On this graph, the x-axis graphs temperature in degrees Celsius. The data from this particular graph is best shown as a line graph. Here the linear trend shows that as Methyl Tertiary Butyl Ether is heated, its solubility decreases.

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Bar Graph

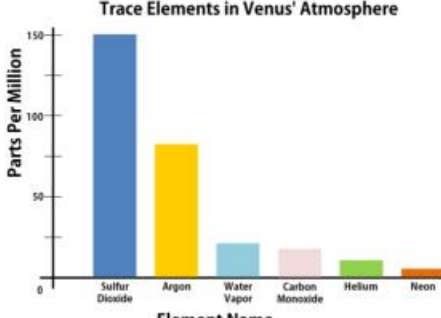
Types of Graphs

Line Graph

Bar Graph

Bar Graph

Trace Elements in Venus' Atmosphere



Element Name	Parts Per Million
Sulfur Dioxide	150
Argon	80
Water Vapor	25
Carbon Monoxide	20
Helium	15
Neon	10

Parts Per Million

Element Name

Bar graphs are used to compare non-numerical and qualitative data, such as color, texture, or smell. A bar graph is a horizontal or vertical representation of data in different sized bars. The y-axis label contains the dependent variable information. On this graph, the y-axis graphs the quantity in parts per million. One part per million equals one milligram of something per liter of water. The x-axis label contains the independent variable information. On this

Pie Graph

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Pie Graph

Types of Graphs

Line Graph
Bar Graph
Pie Graph

Pie Graph

The Chemical Composition of Oil

Chemical Substance	Percentage
Alkanes	30%
Cycloalkanes	40%
Aromatic Hydrocarbons	25%
Other Substances	5%

The pie chart (circle graph) is a circular chart used to show proportions or percentages. The chart gets its name due to the resemblance to a pie which has been sliced. Pie charts are used to graph statistical data. The sum of the percentages in the chart should always equal one hundred percent. Notice how this graph uses different colors to represent the different chemical substances found within petroleum oil. Also, notice how this type of graph does not utilize x- and y-axes.

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