

Different types of graphs KS2















Picture graph, pictogram

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A picture graph or pictogram uses pictures to represent quantities.

Pictures may represent one unit ...












Oceanarium - Area 2.

Type	Frequency
fish	   
turtles	  
crabs	   
sharks	  



or a number of units.
 = 10  = 5

Oceanarium - Area 8.

Type	Frequency
fish	   
turtles	  
crabs	 
sharks	 



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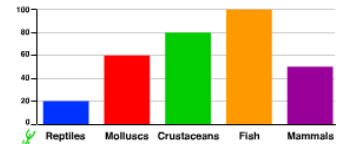
Bar graph, bar chart, column graph

From: A Maths Dictionary for Kids by Jenny Eather at www.amathsdictionaryforkids.com

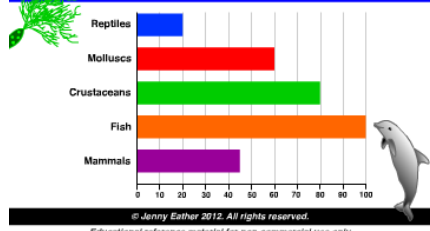
A bar graph or bar chart is a commonly used graph for organising and displaying data.

Bars are used to show quantities or numbers so they can be easily compared.

Oceanarium - numbers of marine creatures.



Bars may be vertical or horizontal.



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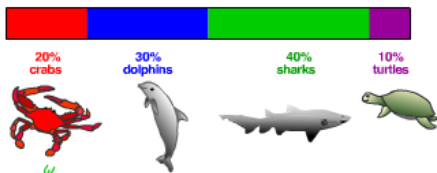
Divided bar graph

From: A Maths Dictionary for Kids by Jenny Eather at www.amathsdictionaryforkids.com

A divided bar graph is used for organising and displaying categorical data.

The bar is divided into percentages according to the frequency of items in each category to the total number of items.

Grade 4 - Most Popular Creature



Making a divided bar graph.

Most Popular Creature	Number of Students (frequency)
crabs	10
dolphins	15
sharks	20
turtles	5
Total	50

- Convert the frequencies to a percentage.
 - Draw a bar with 10 or 100 divisions.
 - Colour the divisions to match the frequencies.
- EXAMPLE: crabs**
- $10/50 \times 100 = 20\%$
 - Bar with 10 divisions.
 - $20\% = 2$ divisions.

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Frequency table, histogram

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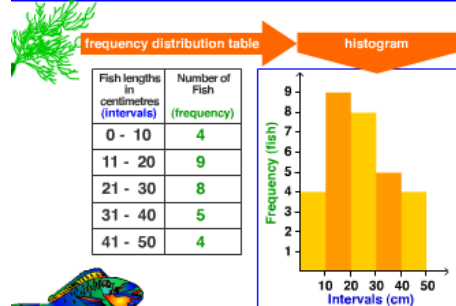
A histogram is a graph using adjacent rectangles to represent the frequencies of certain ranges or intervals.

A histogram is built from information contained in a frequency distribution table.

Oceanarium - fish sizes.

Marine biologists measure the lengths of 30 tagged fish each year to analyse growth patterns.

Each year, the information from a frequency table is used to make a histogram.



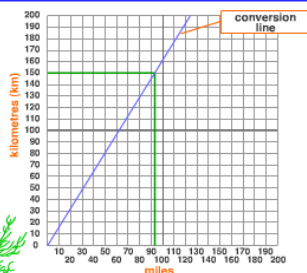
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Conversion graph

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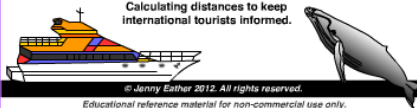
A conversion graph is a line graph used to convert one unit to another.

EXAMPLE: kilometres ... miles conversion



Read across and down: 150 km = 93 miles.

Whale Watching
 Calculating distances to keep international tourists informed.



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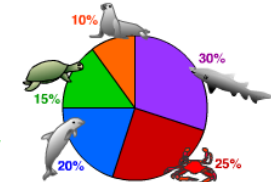
Pie or sector graph, pie chart

From: A Maths Dictionary for Kids by Jenny Eather at www.amathsdictionaryforkids.com

A pie graph or pie chart uses a divided circle where each part represents a percentage of the total.

Each part is called a sector.

3J - Most Popular Marine Creature



Making a pie graph.

Most Popular Creature	Number of Students (frequency)
crabs	5
dolphins	4
sharks	6
turtles	3
seals	2
Total	20

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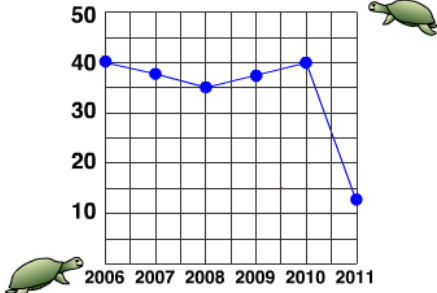
Line graph

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A line graph or line chart uses straight lines to join points which represent the data.

Line graphs are often used to show changes in data over a period of time.

Turtle Sightings - Far North Queensland



The sharp decline in turtle numbers seen in 2011 is believed to be a direct result of the devastating Queensland floods and cyclones experienced during the early part of the year.

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A histogram should be used when the data is continuous (there are values in-between each unit). For example length, weight, etc.

A bar graph should be used when the data is discrete (There are no values in-between the given units). For example colours, number of people, etc.

Different types of graphs KS3

Scatter plot or diagram

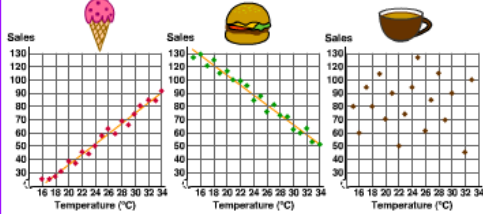
From: A Maths Dictionary for Kids by Jenny Eather at www.amathsdictionaryforkids.com

A scatter plot is a diagram where points are plotted to show the relationship (correlation) between two variables.

The points are placed as ordered pairs on a coordinate plane.

EXAMPLE: Oceanarium Kiosk Management

To manage ordering supplies more effectively, three scatter plots were made to see if there was any correlation between daily temperatures and sales of ice cream, hamburgers and coffee.



Positive Correlation

A positive trend - as one set of values increases, the other set increases.

For example, as the temperature went up ice cream sales went up.

Negative Correlation

A negative trend - as one set of values increases, the other set decreases.

For example, as the temperature went up hamburger sales went down.

No Correlation

No trend - the points are scattered randomly with no visible pattern.

For example, as the temperature went up there was no apparent effect on coffee sales.

A line of best fit or trend line is a straight line that best represents the values on a scatter plot.

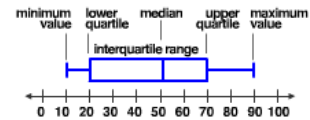
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Box-and-whisker plot, box plot

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A box plot is a diagram or graph using a number line to show the distribution of a set of data. It displays the median, upper and lower quartiles, and the maximum and minimum values of the data.

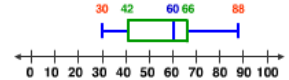


- the box shows the interquartile range.
- a line in the box marks the median.
- the 'whiskers' are lines running from the box to the maximum and minimum values.

- the lower quartile - median of the lower half of the scores.
- the upper quartile - median of the upper half of the scores.

EXAMPLE: 60 60 40 74 63 65 88 41 42 57 30 58 66 66 68

1. Arrange the values in ascending order.
30 40 41 42 57 58 60 60 63 65 66 66 68 74 88
2. Identify the **median** (the value in the middle).
30 40 41 42 57 58 60 **60** 63 65 66 66 68 74 88
3. Identify the **lower quartile** (median of the lower half) and the **upper quartile** (median of the upper half).
30 40 41 **42** 57 58 60 **60** 63 65 66 **66** 68 74 88
4. Draw a box - from the lower to the upper quartile.
5. Draw a line in the box to show the median.
6. Draw the whiskers - to the minimum and maximum.



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Stem-and-leaf plot

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A stem-and-leaf plot is a graph where the values in a set of data are arranged by place value.

A stem-and-leaf plot is similar to a histogram but provides more detail because the individual values are shown.

EXAMPLE: Dolphin sightings - last 12 days.

A stem-and-leaf plot for the set of data
3, 6, 7, 24, 25, 29, 31, 34, 40, 42, 42, 49

stem	leaves
0	3 6 7
1	
2	4 5 9
3	1 4
4	0 2 2 9

stems = 10 leaves = 1

If a stem is displayed only once, the leaves are counted as ones.

A stem may be displayed 1, 2 or 5 times depending on the data.

Usually the leaf contains the last digit of the number and the stem contains all the other digits.

To make a stem-and-leaf plot:

1. Sort the values in ascending order.
2. Draw a vertical line.
3. Determine what place value the stem(s) and leaves will represent.
4. Write the stem values without skipping any numbers.
5. Write the leaf values in order (in a row to the right of each stem value).
6. Add a key and a title.

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