

Basic Definitions

with Detailed Explanations and Examples

Charts: A chart is a diagram, pictorial representation, or list of information. This can include numbers that are not represented in columns or rows.

T-Chart

Example: Classroom survey: "How many of you like to eat peas?" *

Yes	No
x	x
x	
	x
	x
	x
	x

* This activity could have been done without a T - Chart, if the teacher just tallied the numbers in her head or just wrote down the votes without headings. But, by trying to use them in as many circumstances as possible, students can see everyday items as "data collection."

Basic Charts – can come in many forms, some may include pictures.

Example: Create a chart showing the different types of pets we have in the classroom. Place them in categories.

Our classroom

Rodents



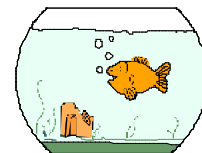
mouse

Reptiles

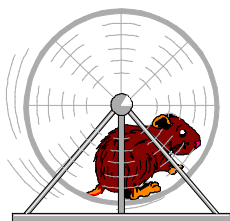


iguana

Fish



goldfish



hamster

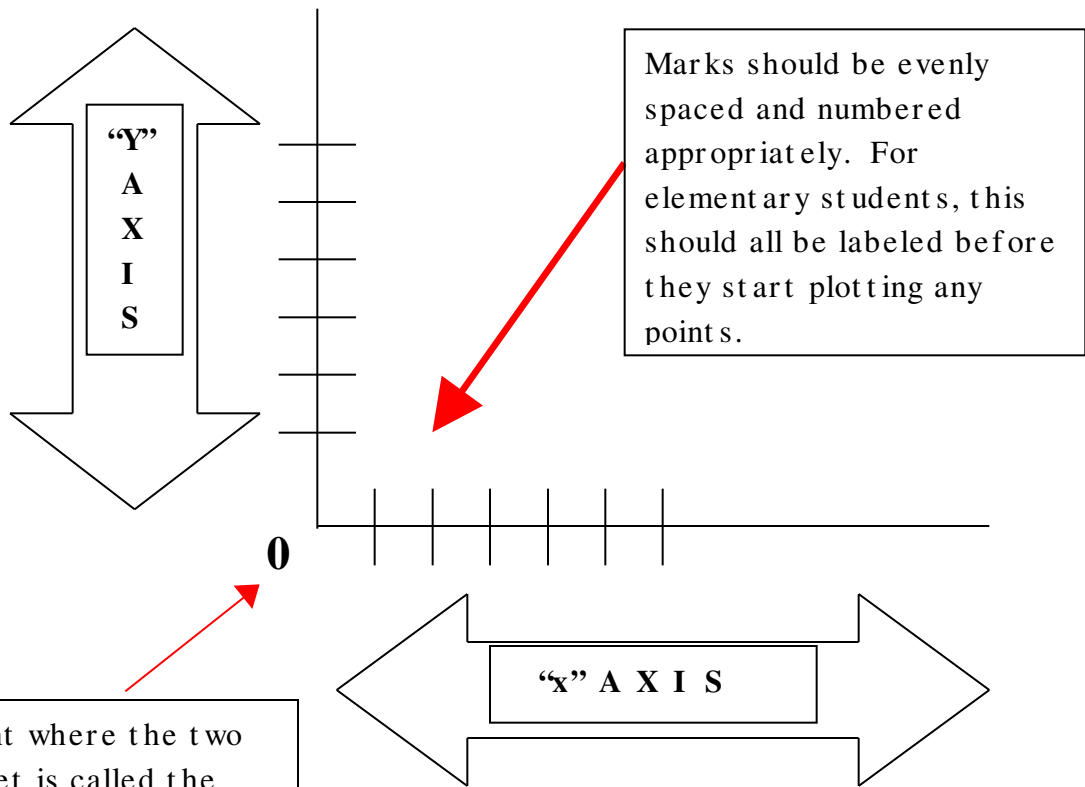


snake

Graphs: A graph contains an "x" and "y" axis showing the relationship between two variables.

The "x" axis is ALWAYS the horizontal axis and is used for the independent variable (the one that you control). The "y" axis is ALWAYS the vertical axis and is used for the dependent variable (the one that you have no control over). The "y" axis should always display the numbers (this is how coordinate geometry sets up graphs, so if we do it this way in science as well, it will help not to confuse students).

Graph title should go here



Marks should be evenly spaced and numbered appropriately. For elementary students, this should all be labeled before they start plotting any points.

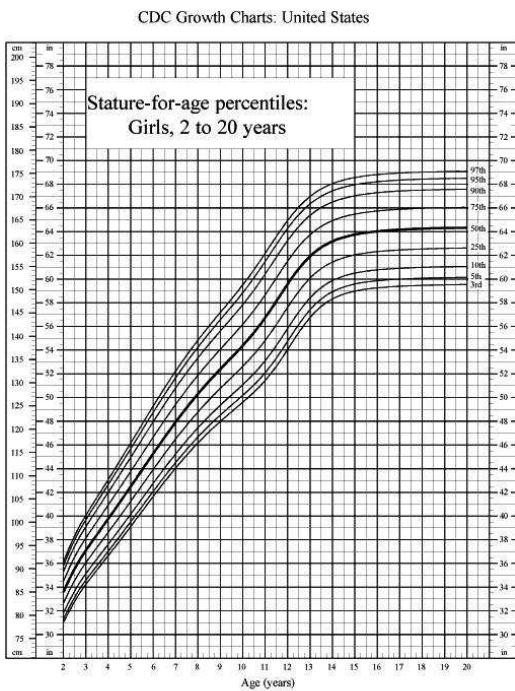
The point where the two axis' meet is called the **ORIGIN**. For Elementary students, this should always be zero.

Both the "y" and "x" axis should be labeled. In elementary grades, the teacher can provide the label when appropriate. Secondary students should be able to come up with their own labels, for example; the "y" axis might be "time in seconds" and the "x" axis might be "distance traveled in centimeters." Always require units!

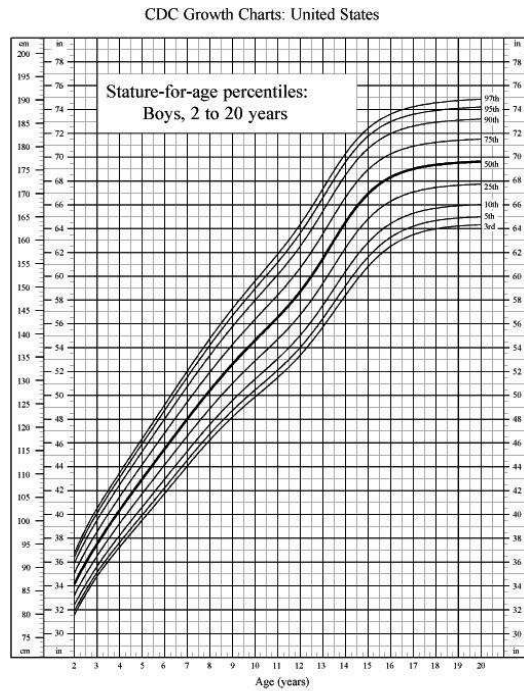
There are three basic types of graphs; **LINE**, **BAR**, and **PIE**.

◆ A **LINE graph** is typically used when showing change over time.

A good example is a growth chart. Each time the student visits the doctor, their height is recorded. When these measurements are plotted on growth chart (sorry – it’s called a chart, but it’s really a graph – Americans are strange...why is there no “ham” in a “hamburger”?) they can show a pattern over time. Doctor’s can even predict what height the student will attain when full grown.



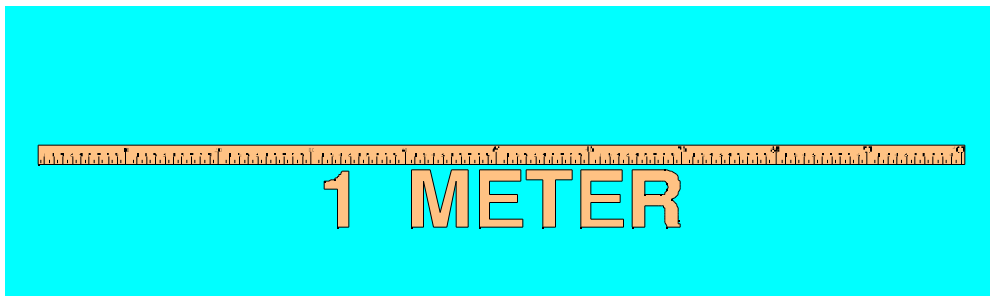
SOURCE: Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000).



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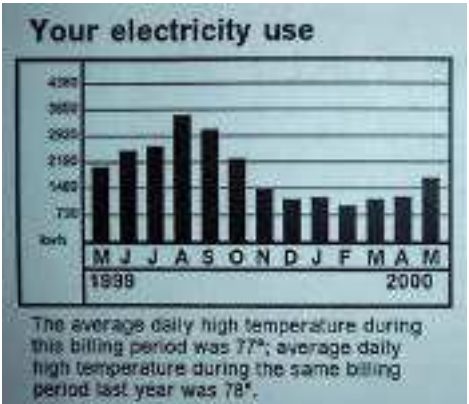
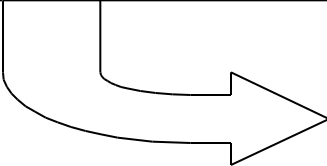


As an activity, students can plot their height on the chart and see what percentile they are in. You could have them create a comparison between other students in class as well. Also, this is a great way to practice using the meter stick! Centimeters and inches are both on the chart, so it is a great comparison.



- ◆ A **BAR graph** is typically used when showing a **comparison** between items.

This **bar graph** appears every month on your utility bill. It compares the use of electricity at your home from month to month for a year! Graphs are everywhere!

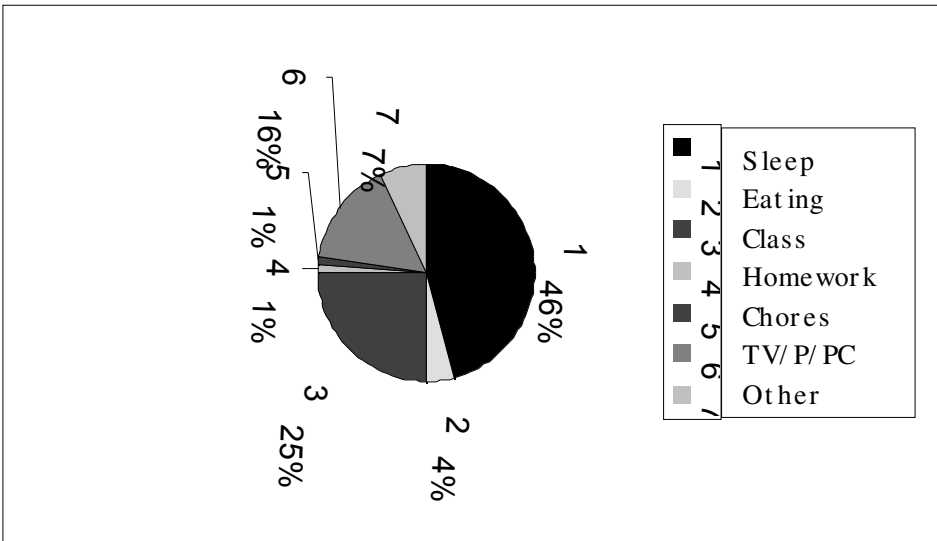


- ◆ A **PIE graph** is typically used to show how different parts make up a **whole**.

Example: What do you do most of the day? Make a data table to show how you spend your time, then make a pie graph with your data.

My Day

Type of activity	Approximate time spent in minutes
Sleeping	660
Eat ing	60
In class at School	360
Homework	15
Chores	20
T.V / Phone / Computer	225
Other	100



The **pie graph** gives an overall picture of how the whole is divided up. In this case, a whole day or 1440 minutes (24 hours).

Tables: A table is a numerical display made up of columns and rows.

Horizontal Headings or categories go on the top row.

Vertical Headings or categories could go here if appropriate.

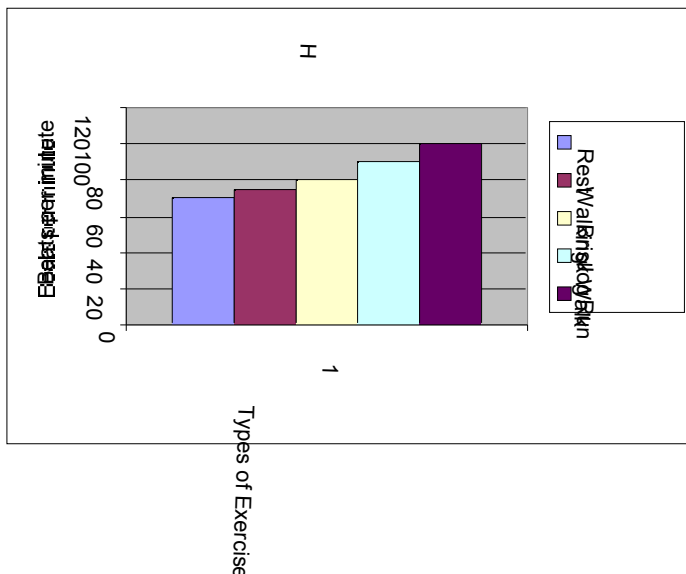
Example: How long did it take for the rat to complete the maze?

Without vertical headings	First Trial	Second Trial	Third Trial
	10min.	9min.	7min.

With vertical headings	Type of Rat	First Trial	Second Trial	Third Trial
	White	10min	9min	7min
	Hooded	9min	9min	6min

Example: What is my heart rate during different types of exercises?

Independent Variable	Dependent Variable
Type of Exercise	Heart Rate
@Rest	70
Walking	75
Brisk Walk	80
JOG	90
Run	100



From this **chart**, you could create a **graph**.