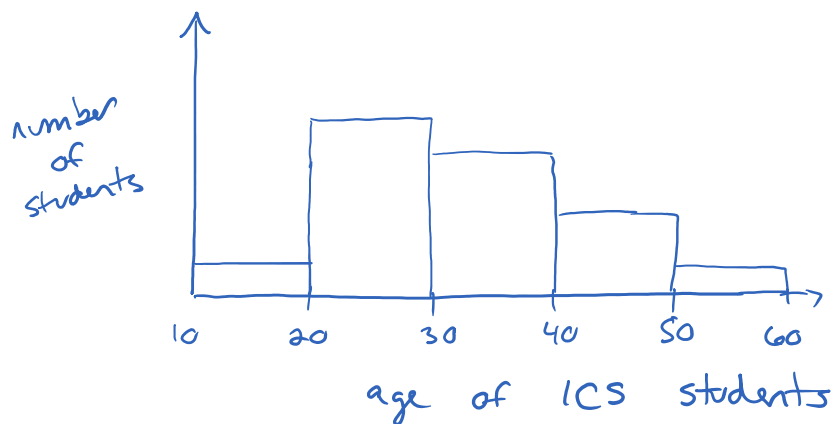


# Section 1.4: Misleading Graphs

Thursday, October 24, 2019 9:26 AM

ways that graphs can mislead (or at the very least, be badly designed) include but are not limited to:

① poorly defined categories

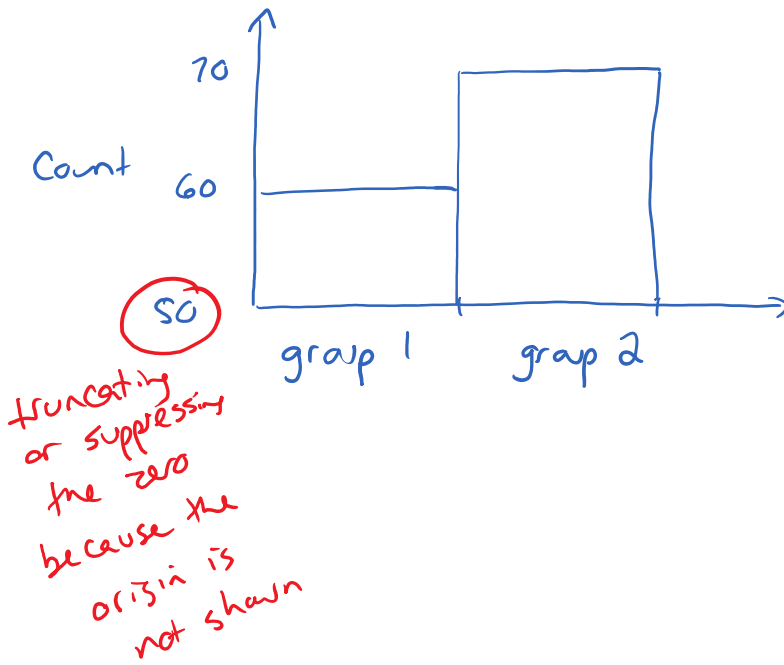


~  
which students are aged 10-20 years

- the chances of an ICS student being younger than 15 years are so very small that having a bin from 10-20 is misleading

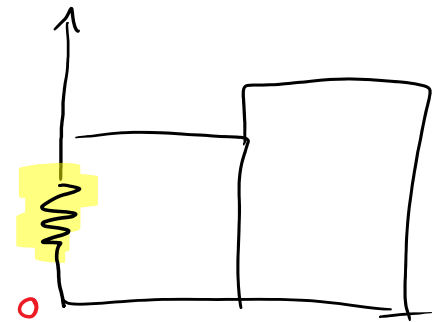
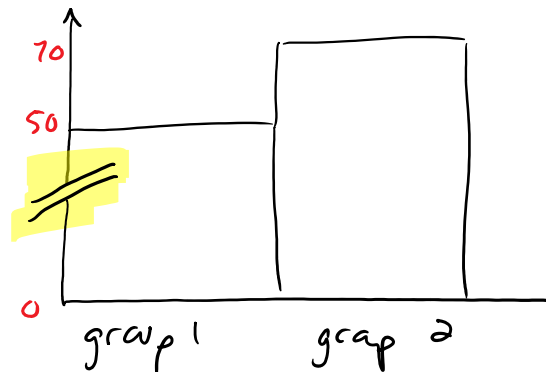
② manipulating the vertical scale

a) suppressing zero (also known as truncating zero)



← Casual glance says that the second group has twice as many individuals as the first group

if you must, better to do this:



b) inconsistent scales / poor graphics

- when graphing software is not used

17%

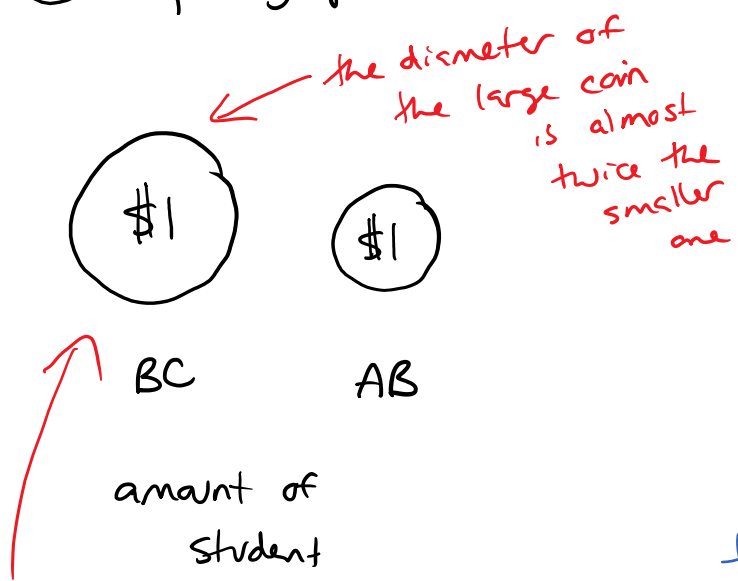
30%

41%

↑

300% is almost twice the size of 170% but the height of the 300% bar does not reflect this

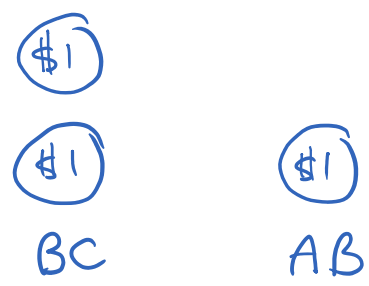
### ③ pictographs



but the area is almost 4 times the area of the small coin

we tend to use areas to compare the relative size of objects but that is not necessarily how these are plotted

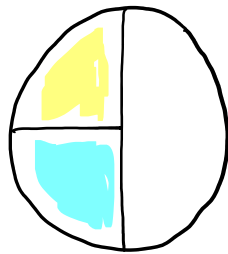
if you must, then do



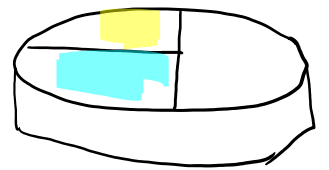
use the same size picture in each column, but have more pictures to show scale

④ inappropriate 3D

pie charts:

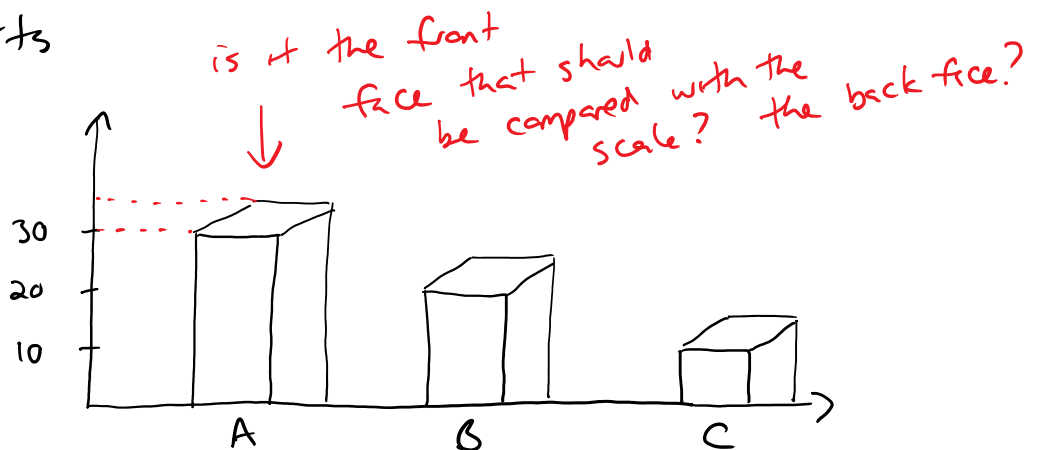


vs



it can be very difficult to estimate the relative sizes of each portion due to the perspective

bar charts



also, the 3D makes this one look larger than it actually is