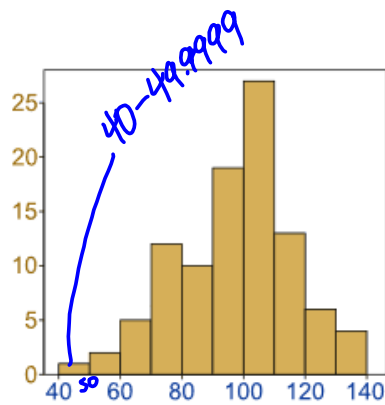


## Histograms

**Histogram:** a graphical display of data using bars of different heights.



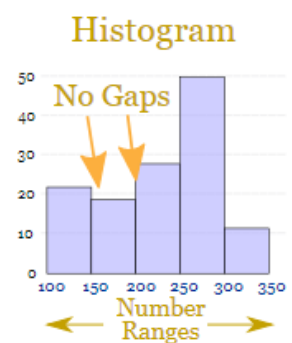
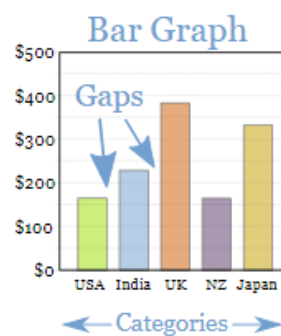
It is similar to a [Bar Chart](#), but a histogram groups numbers into **ranges**

And you decide what ranges to use!

Histograms are a great way to show results of continuous data, such as:

- weight
- height
- how much time
- etc.

But when the data is in **categories** (such as Country or Favorite Movie), we should use a Bar Chart.



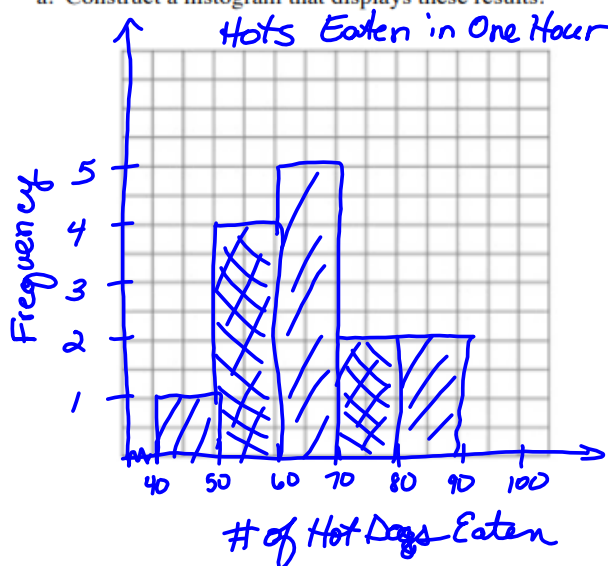
[https://sowlemathclass.files.wordpress.com/2017/05/histogram-packet-new\\_hayes-3.pdf](https://sowlemathclass.files.wordpress.com/2017/05/histogram-packet-new_hayes-3.pdf)

1. Peter and Chris Griffin go to a hot dog eating contest. The following data shows how many hotdogs each person ate in 1 hour.

Hot Dogs Eaten in One Hour *Quantitative Variable*

83 ✓ 76 ✓ 90 ✓ 58 ✓ 66 ✓ 44 ✓ 86 ✓ 66 ✓ 61 ✓ 59 ✓ 50 ✓ 53 ✓ 61 ✓ 64 ✓ 73 ✓

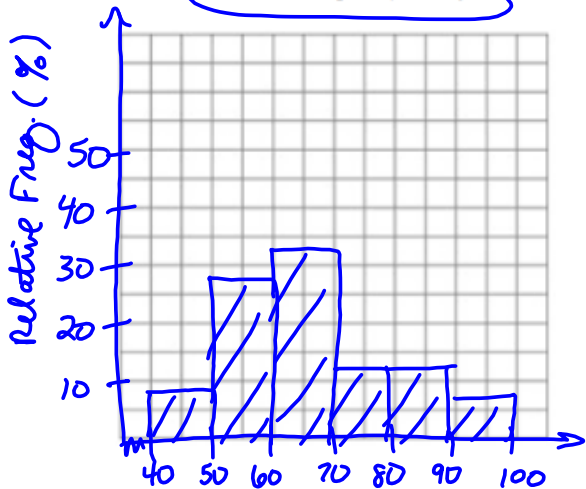
- a. Construct a histogram that displays these results.



Hotdogs	Frequency
40-49	1
50-59	4
60-69	5
70-79	2
80-89	2
90-99	1

% or decimal

b. Construct a relative frequency histogram based on the same data.



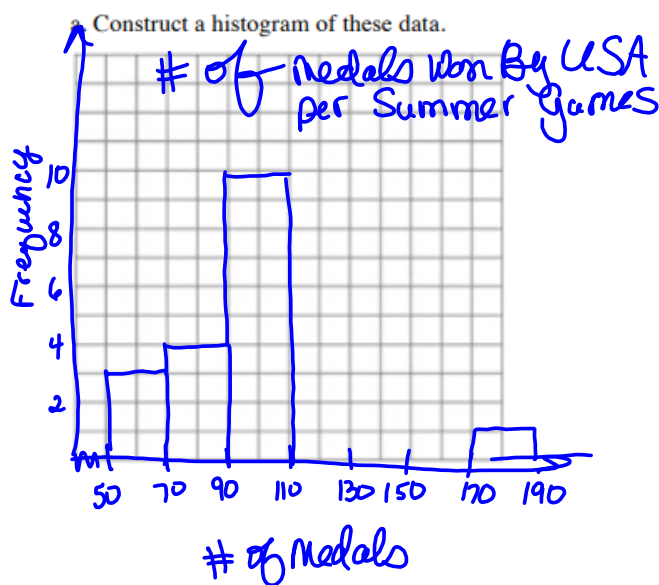
Hotdogs	Frequency	Rel. Frequency %
40-49	1	$\frac{1}{15} = 7\%$
50-59	4	$\frac{4}{15} = 27\%$
60-69	5	$\frac{5}{15} = 33\%$
70-79	2	$\frac{2}{15} = 13\%$
80-89	2	$\frac{2}{15} = 13\%$
90-99	1	$\frac{1}{15} = 7\%$
	15	

4. The numbers below indicate the number of Summer Olympic medals awarded to athletes from the United States during 18 Summer Olympic Games.

U.S. Summer Olympic Medals

55      56      62      71      74      76      84      90      94  
 94      96      101      103      103      103      107      108      174

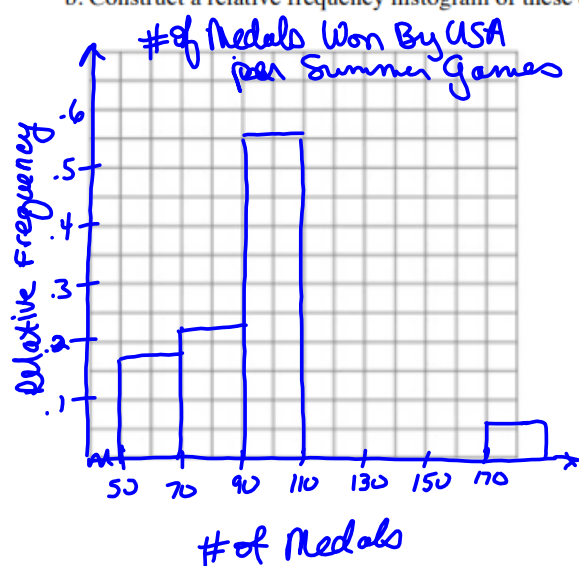
Construct a histogram of these data.



U.S. Medals	Frequency
50-69	3
70-89	4
90-109	10
110-129	0
130-149	0
150-169	0
170-189	1

18

b. Construct a relative frequency histogram of these data.



U.S. Medals	Frequency	Rel. Freq.
50-69	3	$\frac{3}{18} = .17$
70-89	4	$\frac{4}{18} = .22$
90-109	10	$\frac{10}{18} = .56$
110-129	0	0
130-149	0	0
150-169	0	0
170-189	1	$\frac{1}{18} = .06$
<u>18</u>		

Finish the Histogram Practice worksheets  
for classwork/homework.