

Tally Charts, Histograms & Frequency Polygons

Pre skills: creating a tally chart.

1. Given the following test scores.

42 49 56 54 42 51 45  
 47 55 51 51 50 45 35  
 45

- a) Find the mean and standard deviation.

$\bar{X} = 47.9$        $\sigma = 5.5$

$n = 15$

- b) Complete the tally chart for the data:

Test Score	Tally
35-39	
40-44	
45-49	
50-54	
55-59	

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2. Given the following student heights (inches).

72 83 84 75 83 67 66  
 70 70 76 73 71 59 76  
 67 76

- a) Find the mean and standard deviation.

$\bar{X} = 70.5$        $\sigma = 5.9$

I. Clear Lists  
 II. new data  
 III. 1-VAR STATS

$n = 16$

- b) Complete the tally chart for the data:

Height	Tally
50-59	
60-69	
70-79	
80-89	

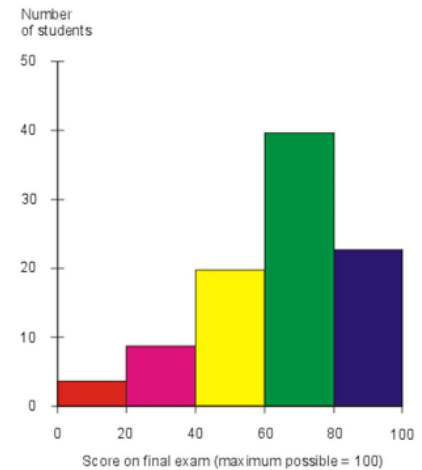
## 2.0 Histograms Freq Polys.2019

Statistics 2.0

Example of a tally chart → frequency table

Weekly wages in \$ of 25 workers	Tally marks	Frequency
220 - 234		2
235 - 249		3
250 - 264		7
265 - 279		3
280 - 294		8
295 - 309		1
310 - 324		1
Total		25

Example of a histogram



- Set up a tally chart (intervals, tally, and frequency). Work through the data - tally the interval for each value. Record tally value as a number. If you are not given the number of intervals to use, we will use a maximum of 10 intervals.
  - The last number in the row is the end value for that interval. If using 10 intervals, divide the range by 10 and round up to a nice number to work with.
- For the Histogram:
  - Set up the horizontal axis to represent the interval widths and the vertical axis for the frequency.
  - Give your graph a title. Draw the bars for the histogram.
- Frequency curve
  - Method 1: replicate the horizontal and vertical axis from the histogram; plot a point at the median value and frequency height for each interval; join the points (smooth or straight line)
  - Method 2: place a point in the top middle of each interval on the histogram; join the points (smooth or straight line)

Create Histograms & Frequency Polygons:

3. Given the following data:

Goals in a Hockey Game

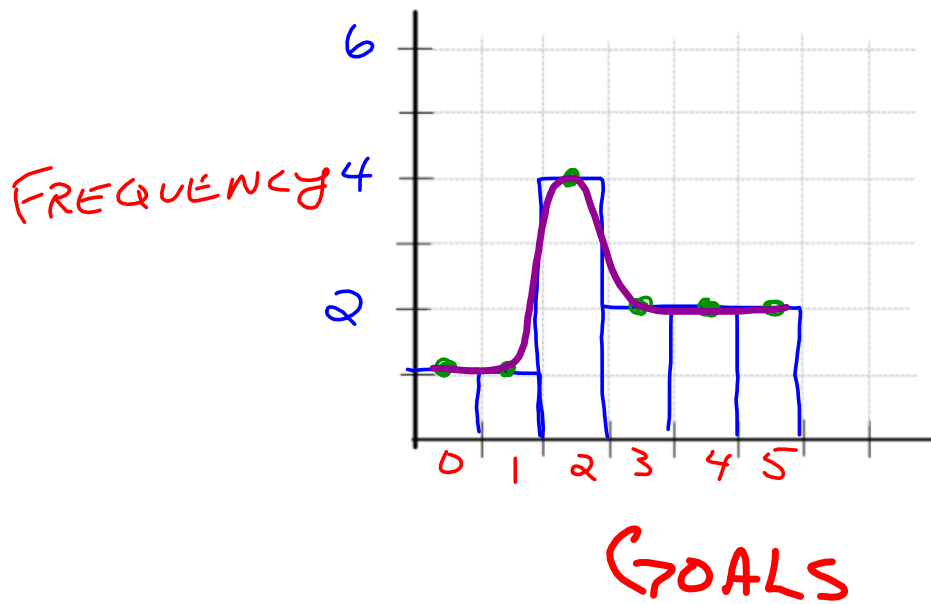
<del>5</del>	<del>5</del>	<del>3</del>	<del>2</del>
<del>2</del>	<del>2</del>	<del>2</del>	<del>1</del>
<del>2</del>	<del>4</del>	<del>4</del>	<del>2</del>

a) Complete the frequency chart.

Goals	Tally	Frequency
0		1
1		1
2		4
3		2
4		2
5		2
total		12

b) Draw a histogram.

GOALS in Hockey GAMES



c) Use the histogram to draw a frequency polygon.

dot ... top middle of each bar  
smooth curve ... dot to dot

## 2.0 Histograms Freq Polys.2019

Question for practice, text page 241-250:

The following data represents the flow rates of the Red River from 1950 to 1999, as recorded at the Redwood Bridge in Winnipeg, Manitoba.

Year	Flow Rate (m <sup>3</sup> /s)	Year	Flow Rate (m <sup>3</sup> /s)	Year	Flow Rate (m <sup>3</sup> /s)	Year	Flow Rate (m <sup>3</sup> /s)	Year	Flow Rate (m <sup>3</sup> /s)
1950	3058	1960	1965	1970	2280	1980	881	1990	396
1951	1065	1961	481	1971	1526	1981	159	1991	280
1952	1008	1962	1688	1972	1589	1982	1458	1992	1399
1953	357	1963	660	1973	530	1983	1393	1993	946
1954	524	1964	1002	1974	2718	1984	1048	1994	1121
1955	1521	1965	1809	1975	1671	1985	991	1995	1877
1956	1974	1966	2498	1976	1807	1986	1812	1996	3058
1957	654	1967	1727	1977	187	1987	2339	1997	4587
1958	524	1968	510	1978	1750	1988	564	1998	1557
1959	991	1969	2209	1979	3030	1989	1390	1999	2180

(\*assumes NO flood protection works in place, for data after 1969 when the floodway was in use)

National Research Council Canada

Monique's Solution: Creating a frequency pol

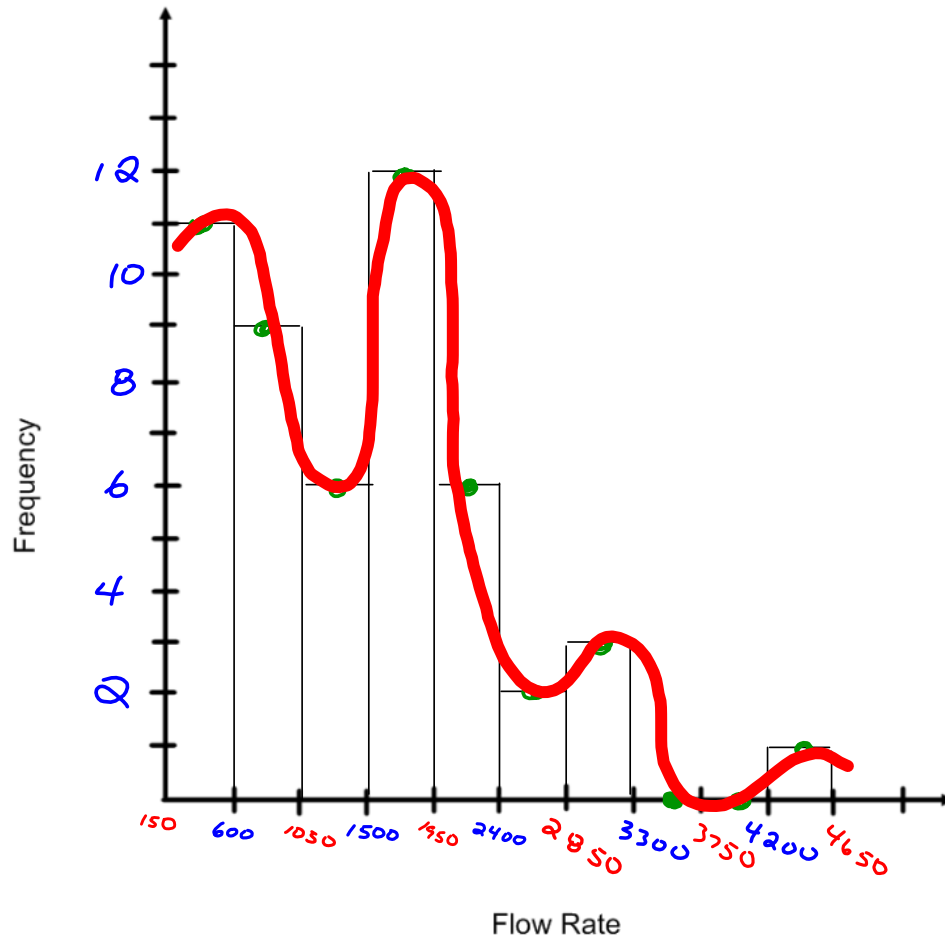
Flow Rate (m <sup>3</sup> /s)	Midpoint	Frequency (number of years)
150-600	375	11
600-1050	825	9
1050-1500	1275	6
1500-1950	1725	12
1950-2400	2175	6
2400-2850	2625	2
2850-3300	3075	3
3300-3750	3525	0
3750-4200	3975	0
4200-4650	4425	1

## 2.0 Histograms Freq Polys.2019

Statistics 2.0

In the space below, label and draw a *histogram* of Monique's data. Use as many sections (ticks) as necessary.

RED RIVER FLOW RATES



Use the histogram to draw a *frequency polygon* of the same data.

Page 250:

**PRACTISING**

3. A cherry orchard has 30 trees with these heights, given in inches.

78	70	83	79	74	81	80	65	66	76
85	82	74	63	75	76	86	80	72	72
80	69	71	80	77	81	75	75	64	87

a) Make a frequency table with six intervals to organize the heights.  
 b) Construct a histogram of the data.  
 c) Which range of heights occurs most frequently? Which occurs least frequently?

- Find the shortest tree, circle this height.
- Find the tallest tree, circle this height.
- Find the range and divide by 6 (six intervals). Round to a good number and start your table:

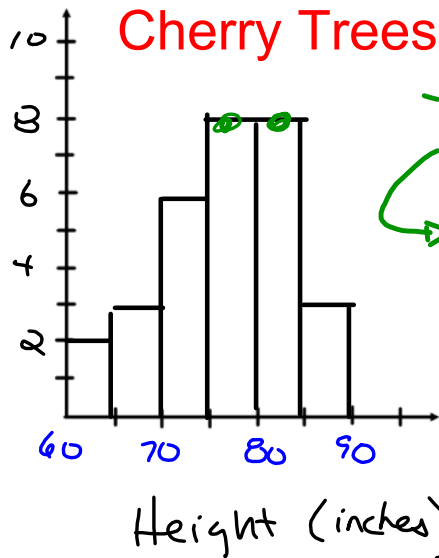
$$87 - 63 = 24 \div 6 = 4$$

Width "5"  
 Count by 5's

Height of Cherry Trees	Tally	Frequency
60 - 64		2
65 - 69		3
70 - 74		6
75 - 79		8
80 - 84		8
85 - 89		3

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Frequency



"Highest bars"  
 most frequent  
 75-79 and  
 80-84

Least frequent  
 60-64