

**Section 17.2 notes (day 2)**  
**Frequency and Relative Frequency Tables**

Words per minute

Class	Frequency	Cumulative Frequency
100-149	3	3
150-199	14	17
200-249	21	38
250-299	10	48
300-349	2	50

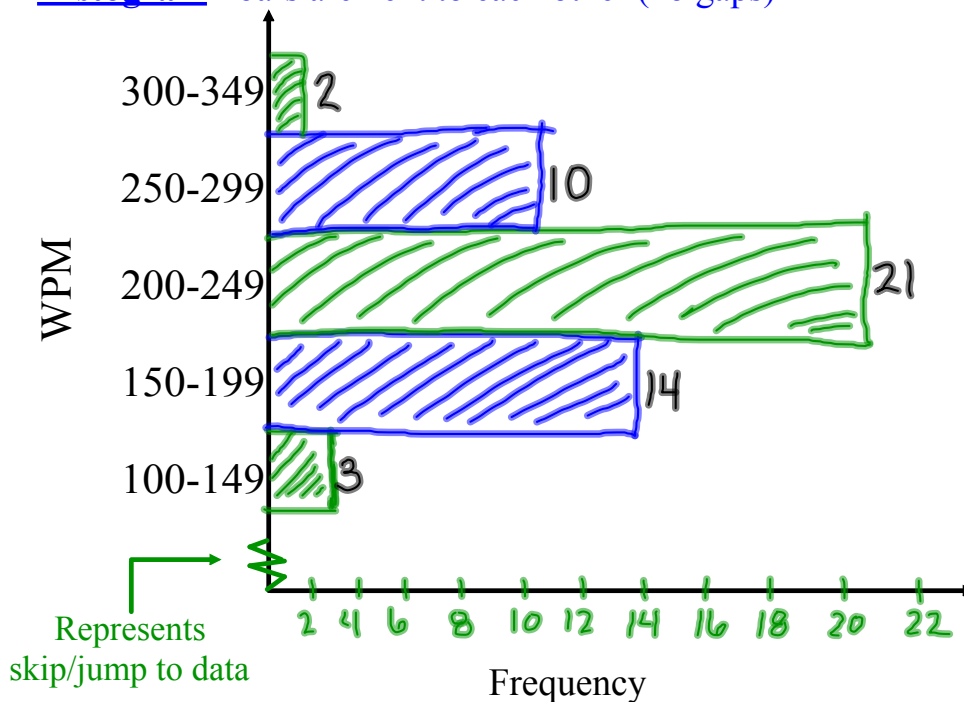
↪ Total # of items

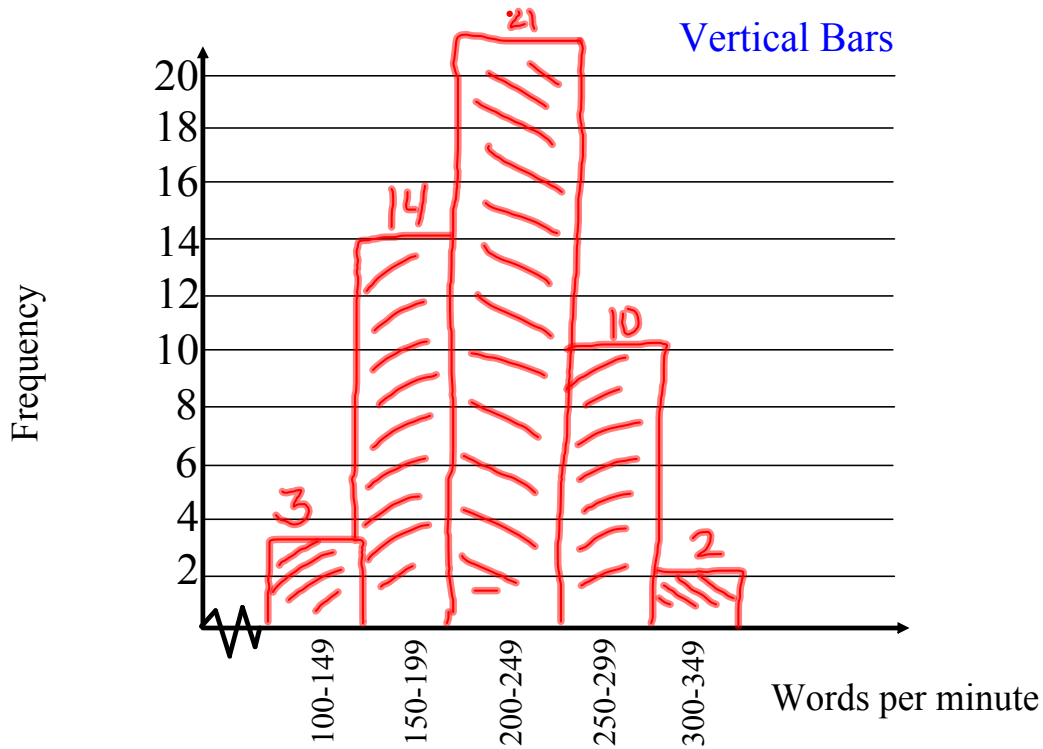
Words per minute

Class	Relative Frequency	Relative Cumulative Frequency
100-149	6%	6%
150-199	28%	34%
200-249	42%	76%
250-299	20%	96%
300-349	4%	100%

$$\frac{3}{50} = .06 \rightarrow 6\%$$

**Histogram** - bars are next to each other (no gaps)



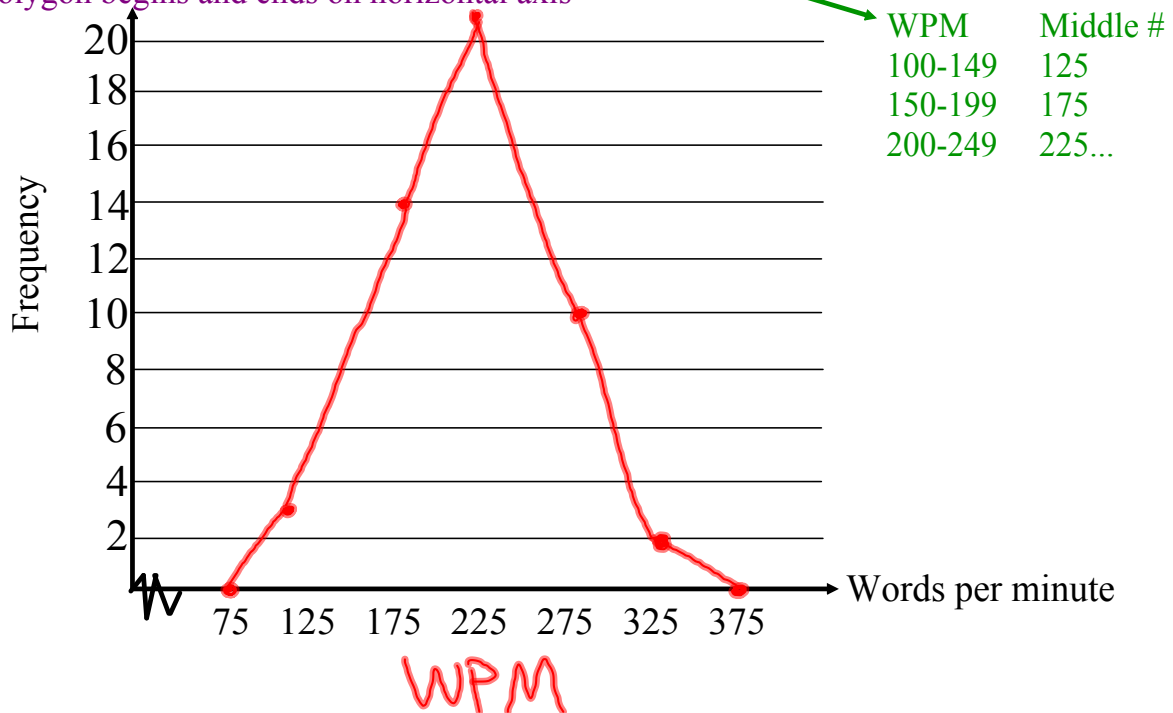


### Frequency Polygon

*Vertical Axis:* Label with integer frequencies or as relative frequencies %

*Horizontal Axis:* Shows middle score of each class

Polygon begins and ends on horizontal axis

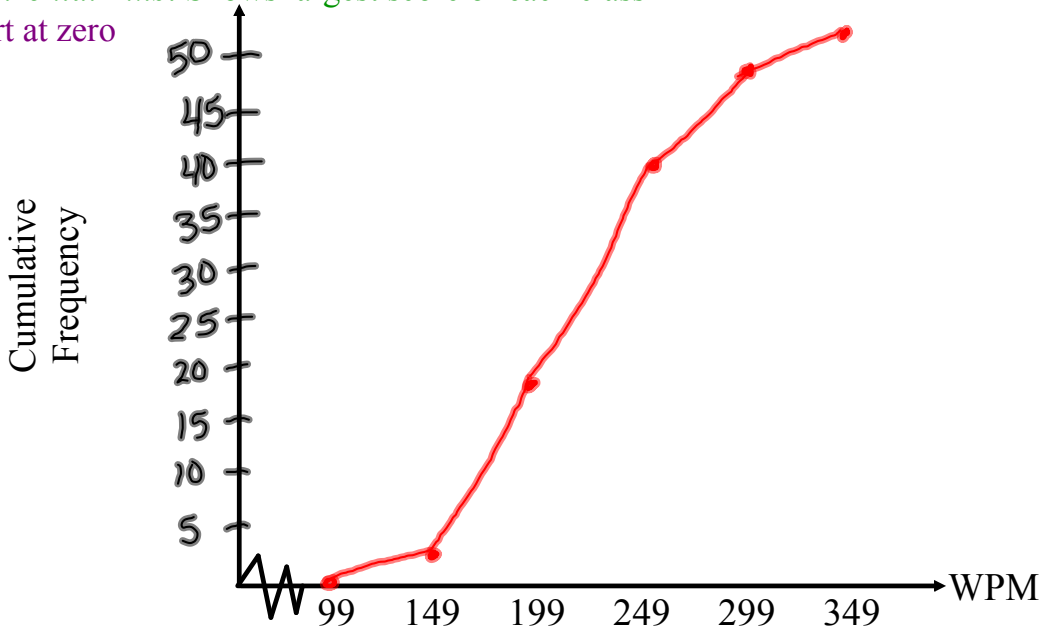


**Cumulative/Relative Cum. Frequency Polygon**

Vertical Axis: Label with integer frequencies OR percents

Horizontal Axis: Shows largest score of each class

Start at zero



**EXAMPLE**

Listed in the table are the sales-tax rates to the nearest whole percent for the 50 states in a recent year.

- a. Draw a frequency polygon and a cumulative frequency polygon.
- b. Find the mean, median, and mode.

% Rate	# of states	Cum
0	5	5
1	0	5
2	1	6
3	0	6
4	10	16
5	10	26
6	18	44
7	5	49
8	1	50

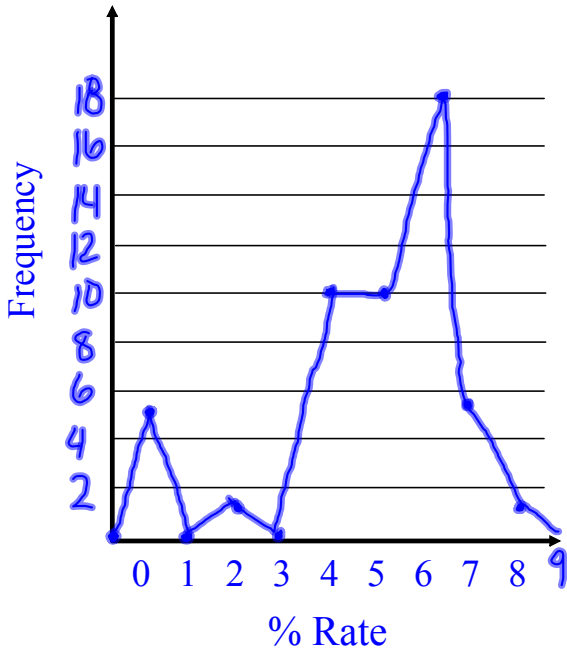
Mean =  $5(0) + 0(1) + 1(2) + 0(3) + 10(4) + 10(5) + 18(6) + 5(7) + 1(8) = \frac{243}{50}$

Median = 5%

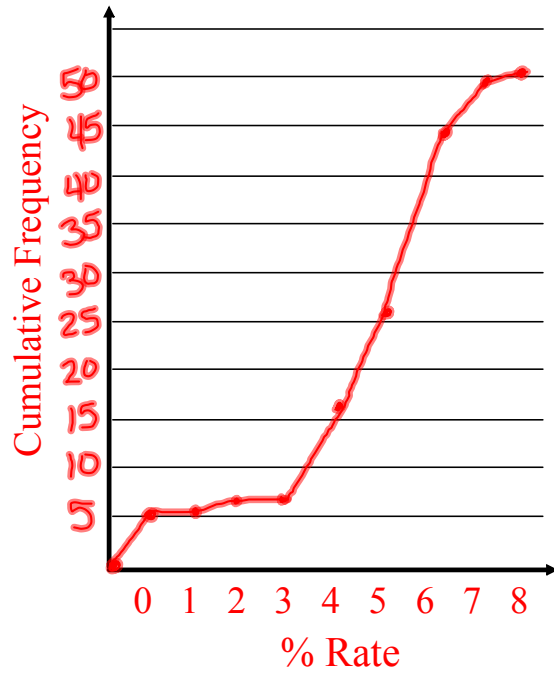
Mode = 6%  
(18 states have 6%)

0,0,0,0,0,2,4,4...

Frequency Polygon

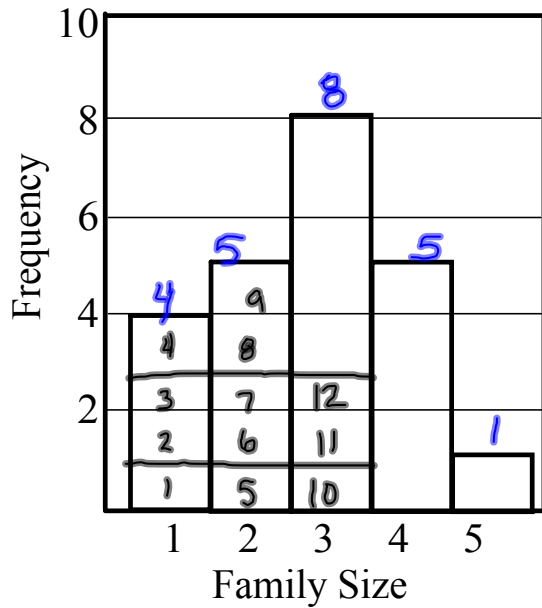


Cumulative Frequency Polygon



**EXAMPLE**

Find the three measures of central tendency for the given histogram.



$$\begin{aligned} \text{Mean} &= \bar{X} = \\ &= \frac{4(1) + 5(2) + 8(3) + 5(4) + 1(5)}{23} \\ &= \frac{63}{23} = \boxed{2.739} \end{aligned}$$

Median  $\rightarrow$  12<sup>th</sup> item  
3

Mode = 3

because 8 households have 3 people

$$4 + 5 + 8 + 5 + 1 = 23 \text{ items}$$