FST NOTES 1-3
TOPIC: Creating and Using Histograms
GOAL
Examine distributions as a whole using histograms.

You need graphing calc

Vocabulary

distribution

histogram

bins

frequency histograms
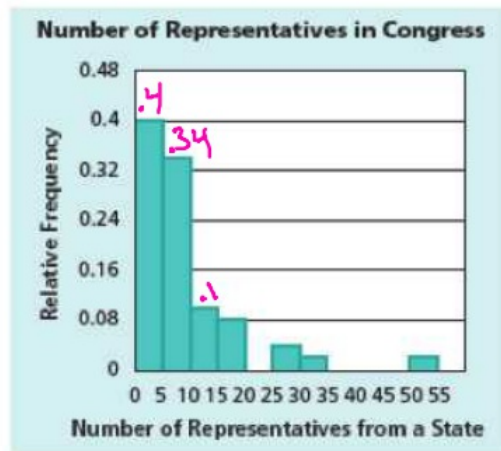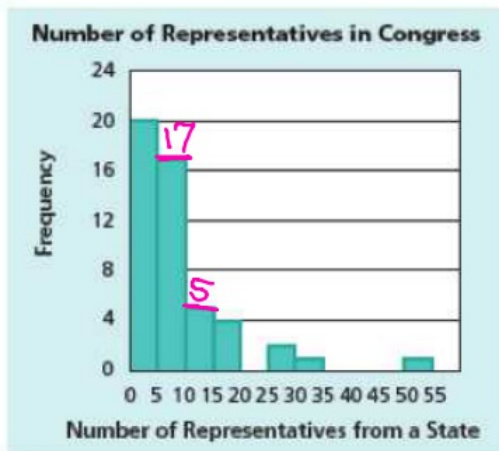
relative frequency histograms

skewed

symmetric

population pyramid

We strongly recommend not discussing this lesson until students have had an opportunity to read it and try the questions on their own. Reading mathematics may be a new expectation for some students. To be most effective, the reading of mathematics should be an active, not passive, process. Students should read with a pencil in hand and paper to write on, watching for important terms and symbols.
After Reading the Notes
Answer the following:

1) What do I already know?

2) What did I learn?

3) Where will I use it?

Number of Representatives in Congress

17
5

Frequency

0 5 10 15 20 25 30 35 40 45 50 55
Number of Representatives from a State

Number of Representatives in Congress

.4
.34
.1

Relative Frequency

0 5 10 15 20 25 30 35 40 45 50 55
Number of Representatives from a State

Use the histograms on congressional data for the following questions.

1) About how many states have 5 to 14 representatives?

$17 + 5 = 22$ states

2) What percent of states have fewer than 15 representatives?

$.1 + .34 + .4 = 0.84 = 84\%$

3) Look at the raw data set, which appears before the histograms (Pg 22). Are you surprised that the bar spanning $0 \leq x < 5$ is the tallest? Why or why not?

The numbers 1, 2, 3, and 4
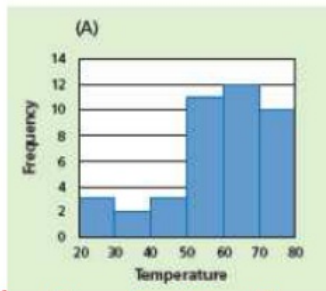Seem to dominate distribution

Mode
is 1

Histograms on your Calculator

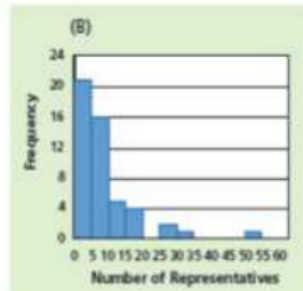Below are the daily high temperatures in March one year in Lincoln, Nebraska.

69, 60, 34, 41, 36, 44, (27,) 45, 43, 49 (71,) 67, 64, 54, 43, 40
42, 58, 61, 68, 56, 45, 45, 64, 61, 60, 49, 51, 58, 53, 42

1) Enter List   STAT – EDIT – L1   *STAT #1*

2) Graph   *2nd Y=*
                2ND STAT PLOT – 1: On - Type – histogram
                ZOOM – 9: ZoomStat

3) adjust bin width   WINDOW – What should Xmin & Xmax be?
   (bin width = 5)   Xscl = 5   *9 bars*

4) bin width = 2   How does this affect the graph? (adjust Xscl) *Xscl = 2*
               Too many bars

5) bin width = 10   How does this affect the graph?
          Too few bars

6 Which bin width is best? How should you choose?
Set bin width so there is 5-10 bars

Analyzing Histograms- Describe the shape of distribution

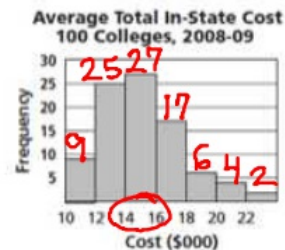*left tailed Skewed left*   *right tailed Skewed right*   *Symmetric ~balanced on both sides*

Reading Histograms

In 7-11, refer to the histogram at the right of the total in-state cost of 100 public colleges.

7. About how many colleges had total costs between $10,000 and $12,000? _____ *9*

8. What is the bin width? _____ *2*

9. Approximately how many colleges had total costs between $14,000 and $18,000? _____ *27+17 = 44*

Average Total In-State Cost
100 Colleges, 2008-09

90/2 = 45

10. In what interval is the median cost? 14-16
11. What % of colleges cost more than $18,000? *12/90 = 13%*