

DESCRIBING DATA

IMPORTANT TERMS:
 DATA: FACTS AND STATISTICS COLLECTED TO HELP YOU LEARN ABOUT SOMETHING
 MEAN: "AVERAGE" ADD UP ALL NUMBERS THEN DIVIDE BY NUMBER OF ADCEENDS
 MEDIAN: "MIDDLE" WHEN YOU LIST THE NUMBERS IS ASCENDING ORDER IT IS THE MIDDLE NUMBER. IF THERE ARE TWO NUMBERS IN THE MIDDLE ADD AND DIVIDE BY 2

IMPORTANT TERMS
 MODE: THE NUMBER THAT OCCURS THE MOST. SOMETIMES THERE ARE MORE AND SOMETIMES MORE THAN ONE
 RANGE: THE DIFFERENCE BETWEEN THE HIGHEST AND LOWEST VALUE

EXAMPLE #1

Movie	# Awards	Academy Awards	# Awards
It Happened One Night	5	Grand Hotel	1
Modern Times	1	The Hurt Locker	6
Key West	11	Ordinary People	4
Crash	3	Forrest Gump	6
The English Patient	9	Amadeus	8
		West Side Story	10
		Mrs. Miniver	6
		Rebecca	2
		From Here to Eternity	8
		The Apartment	5

Mean = 5.67 Median = 6

Mode = 6 Range = 10

EXAMPLE #2

Single Family Home Prices

325,700	312,500	333,300	339,000
322,900	343,800	326,100	332,400
344,000	350,000	341,200	340,600
343,500	334,600	346,200	334,200

EXAMPLES #3

Annual Precipitation (Inches)

20.6	60	26.2	63	56
82.1	30.8	16	49	61.8
20.6	22.2	19.4	68.6	112

Mean = 37.9
 Median = 38
 Mode = 20.6
 Range = 60.9

FINDING THE MISSING VALUE

3, 9, 10, 8, 7, x The mean is 7.

$$\frac{3+9+10+8+7+x}{6} = 7$$

$$3+9+10+8+7+x = 42$$

$$x = 5$$

FIND THE MISSING VALUE

35, 20, x, 90 The median is 41.

$$20 \leq 35 \leq x \leq 90$$

$$\frac{35+x}{2} = 41.2$$

$$35+x = 82$$

$$x = 47$$

Find the mode, median, mean, and range for each data set.

1) Goals in a Hockey Game

6	9	6	9	5	5	7	5
5	5	5	6	1	1	9	
5	5	5	5	6	1	1	9
6.75	6.75	6.75	6.75	6.5	5.5	6.75	6.25

2) Hours Slept

6.75	6.75	6.75	6.75	6.75	6.75	6.75	6.75
5	8	5	8.25	7.75	7.75	6.75	6.75

3) Minutes to Run 5km

30.2	37.2	24.7	29.6	27.3	44.6	47	17	26.8	68.8
28.5	30	34	43.3	31	45.8	23.4	45.8	65.2	27.2
42.8	32.6	29.6	47	36.1	17.2	67.4	56.2	34.6	15.2
34.6					34.6				

4) Annual Precipitation (Inches)

34.6									
------	--	--	--	--	--	--	--	--	--

5) Basketball Tournament Champions

School	Times Won	School	Times Won	School	Times Won	School	Times Won
Syracuse	1	Villanova	1	Stanford	1	Marquette	1
UCLA	11	UNLV	1	NY City College	1	Michigan State	2
Georgetown	1	California	1	San Francisco	2	Utah	1
Louisville	3	Wyoming	1	Ohio State	1		

6) Sales Tax

State	Percent	State	Percent	State	Percent	State	Percent
Michigan	6	New York	4	Florida	6	Kansas	6.15
Pennsylvania	6	New Hampshire	0	Mississippi	7	New Jersey	7
Ohio	5.75	Montana	0	District of Columbia	5.75	Wyoming	4
Idaho	6	Arizona	5.6	Illinois	6.25	Minnesota	6.875
Washington	6.5						

7) Sales Tax

State	Percent	State	Percent	State	Percent	State	Percent
Maryland	6	Arizona	5.6	Alabama	4	North Dakota	5
Kansas	6.15	New Hampshire	0	District of Columbia	5.75	Indiana	7
Michigan	6	Virginia	4.3	Connecticut	6.35	Alaska	0
Wyoming	4	New York	4	Washington	6.5	North Carolina	4.75

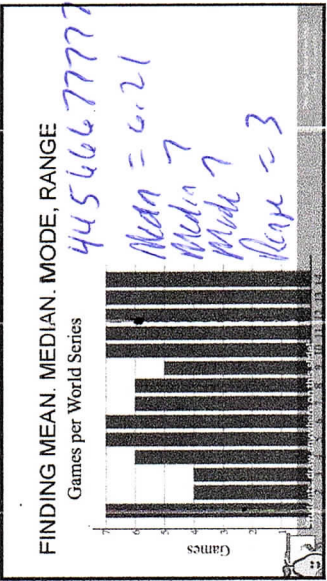
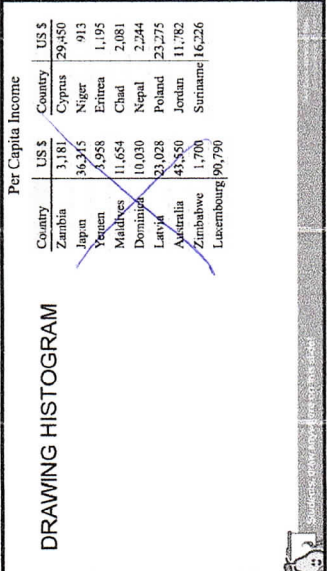
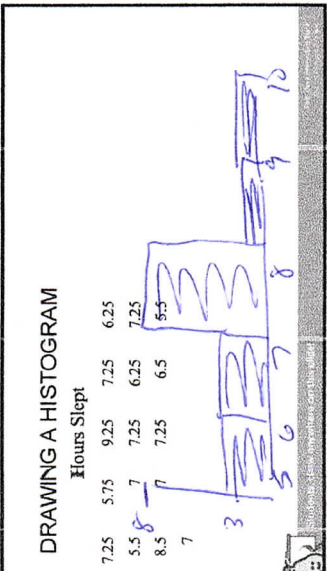
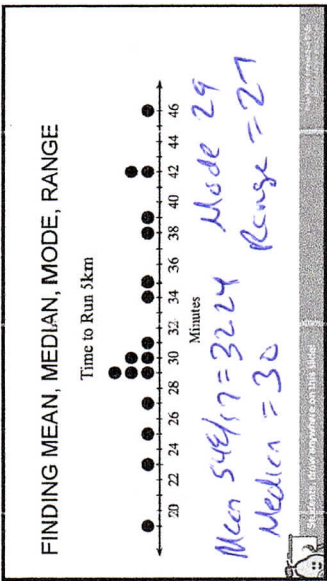
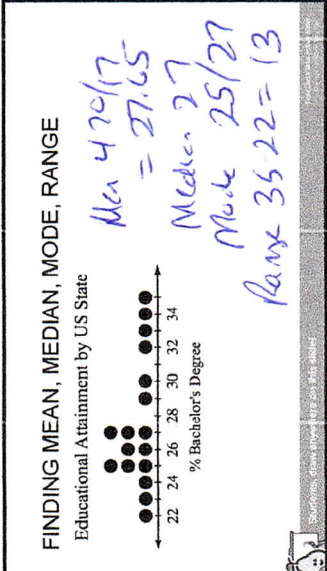
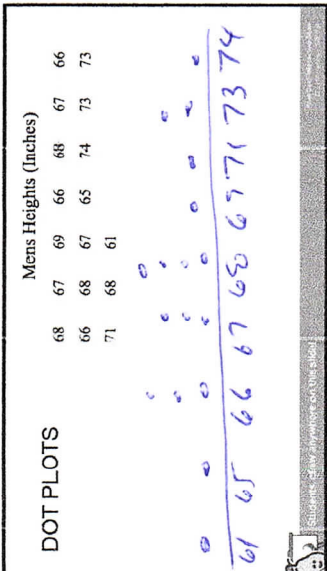
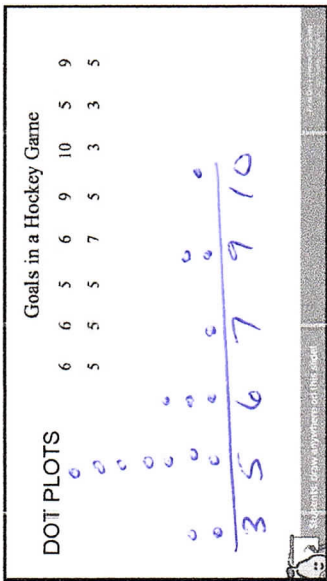
Plant	Days	Plant	Days	Plant	Days	Plant	Days
Corn (Silver Queen)	92	Brussel Sprouts	90	Kohlrabi	55	French Bean	75
Kentucky Wonder Bean	65	Red Lettuce	50	Beet	59	Yukon Gold Potato	65
Sweet Potato	90	Honeydew	80	Sugar Pumpkin	102	Arugula	35
Artichoke	95	Rutabaga	90	Pumpkin	120	Cowpeas	80
Radicchio	90						

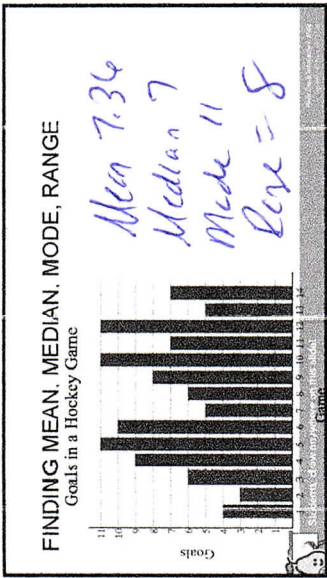
Average Time to Maturity

DATA DISTRIBUTIONS

VOCABULARY TERMS

DATA DISTRIBUTIONS: A GRAPH SHOWING HOW FREQUENTLY DATA VALUES OCCUR
 DOT PLOTS: USED WITH SIMPLE DATA SETS OF ABOUT 20 POINTS
 HISTOGRAMS: USED WHEN THERE IS A LARGE AMOUNT OF DATA, GREATER THAN 20





2 4 5 5 6 6 7 7 8 9 10 11 11 11 11

Data Distributions

Draw a dot plot for each data set.

1) Hits in a Round of Hacky Sack

4	5	10	14	6	13	12
3	8	11	5	18	13	14
3	8	11	5	18	13	14
5						

2)

Sales Tax

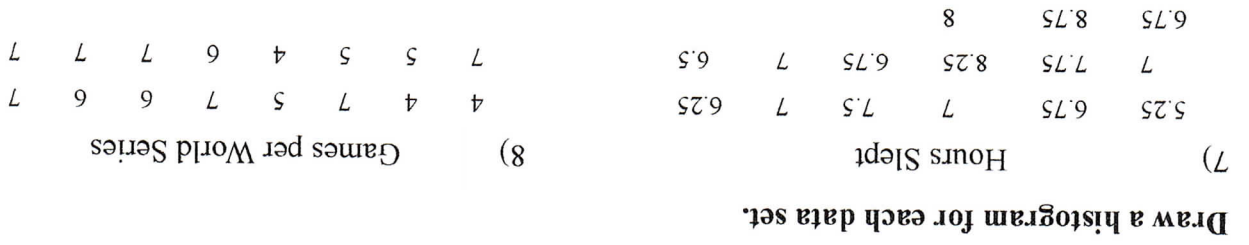
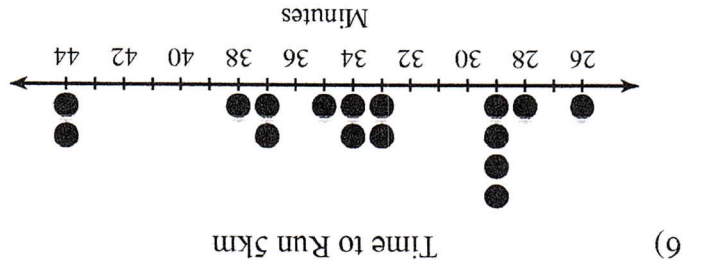
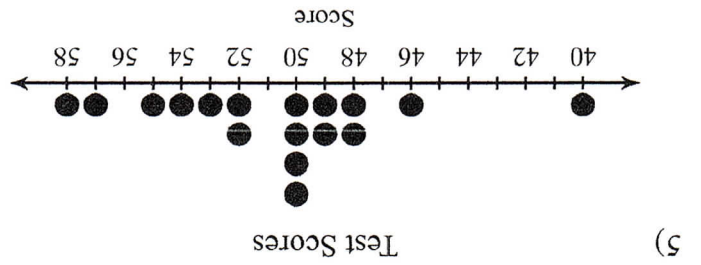
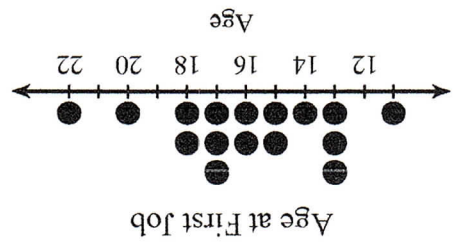
State	Percent	State	Percent	State	Percent	State	Percent
New Hampshire	0	Georgia	4	District of Columbia	6	Montana	0
Nebraska	6	Tennessee	7	Delaware	0	Washington	7
Vermont	6	Florida	6	Michigan	6	Utah	5
Ohio	6	Colorado	3	Mississippi	7	Louisiana	4
Wyoming	4						

3)

Birth Rate

Country	Births/woman	Country	Births/woman	Country	Births/woman
Cook Islands	2	Iran	2	South Korea	1
Philippines	3	Senegal	5	Saudi Arabia	2
Serbia	1	Guatemala	3	Lesotho	3
San Marino	1	Malaysia	3	Sierra Leone	5
Pakistan	3	Australia	2	Laos	3

Find the mode, median, mean, and range for each data set.



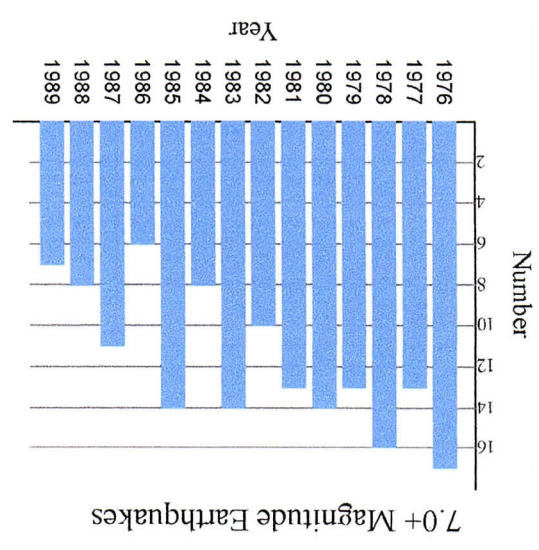
9) # Words in Book Titles

1	2	3	4	2	2	3	2
2	5	5	4	4	3	2	4

Find the mode, median, mean, and range for each data set.

10) Annual Precipitation (Inches)

33.2	60.6	5	33.2	27.4
34.4	36.2	18.6	26	19
58.8	34.4	19.4	37.2	16.4



12) Mens Heights (Inches)

76	72	70	69	69	68	75
69	69	71	64	62	65	75
73	71	65				

BOXPLOTS AND IQR

VOCABULARY TERMS

BOX PLOTS: USED WITH SIMPLE DATA SETS, ESPECIALLY DATA THAT IS SKEWED

5 NUMBER SUMMARY: USED TO DESCRIBE DATA SET; NEEDED TO DRAW BOX PLOT (MINIMUM, Q1, MEDIAN (Q2), Q3, MAXIMUM)

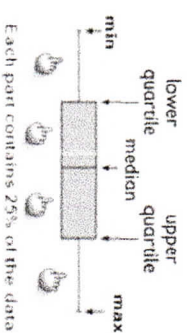
CONSTRUCTING A BOX PLOT

1. DRAW A NUMBER LINE. ADD A SCALE THAT BEGINS AT OR BELOW THE MINIMUM AND ENDS AT OR ABOVE THE MAXIMUM
2. DIRECTLY ABOVE THE NUMBER LINE, DRAW A RECTANGULAR BOX THAT EXTENDS FROM Q1 TO Q3. DIVIDE THE BOX WITH A VERTICAL LINE AT THE MEDIAN (Q2)
3. DRAW TWO WHISKERS ONE FROM THE MIDDLE LEFT SIDE OF THE BOX TO THE MINIMUM AND THE OTHER FROM THE MIDDLE RIGHT SIDE OF THE BOX TO THE MAXIMUM

Example Create a boxplot of the distribution of points scored by the 1997 - 1998 Chicago Bulls using the following 5 Number summary. Use the same graph.

Min = 157 **Q1** = 288 **Med** = 416 **Q3** = 841 **Max** = 2357

Interpreting Boxplots



EXAMPLE #1

135, 147, 284, 313, 388, 427, 470, 527, 574, 776, 1555, 1742, 1999

Handwritten annotations: 'u' above 135, 2965 above 313, 'Median' above 470, 1155.5 above 776, and 'u' above 1999.



EXAMPLE #2

Hits in a Round of Hacky Sack

5. ~~18~~ 8 7 5 6 9 22

3 3 4 (5) 5 5 6 7 8 9 9 18 22

Handwritten annotations: '5' above the circled 5, '6' above the 6, and '85' below the 8.

Box Plots/IQR

Date _____ Period _____

Draw a box-and-whisker plot for each data set.

1)

State	Percent	State	Percent	State	Percent	State	Percent
New Jersey	7	Kentucky	6	Minnesota	6.875	North Dakota	5
Oregon	0	Vermont	6	New Hampshire	0	Montana	0
Florida	6	District of Columbia	5.75	Colorado	2.9	Idaho	6
Wyoming	4	Alaska	0	Oklahoma	4.5		

2)

Mens Heights (Inches)

70	74	76	72	66	67	68			
70	62	67	70	71	79	69			
78	76	81							

3)

Test Scores

52	49	48	49	54	55	38			
52	49	48	49	55	52	47			
53									

4)

Mountain Heights

Name	Feet	Name	Feet	Name	Feet	Name	Feet
Skil Brum	24,311	Jannu	25,299	Dhaulagiri II	25,430	Porong Ri	23,924
Mana	23,858	K12	24,370	Jomolhari	24,035	Jengish Chokusu	24,406
Kabru N	24,318	Chogolisa	25,148	Momhil Sar	24,324	Nanga Parbat	26,660
Kirat Chuli	24,153	Himalchuli	25,896	Jongsong Peak	24,482	Mukur Parbat	23,760
Langtang Lirung	23,711						