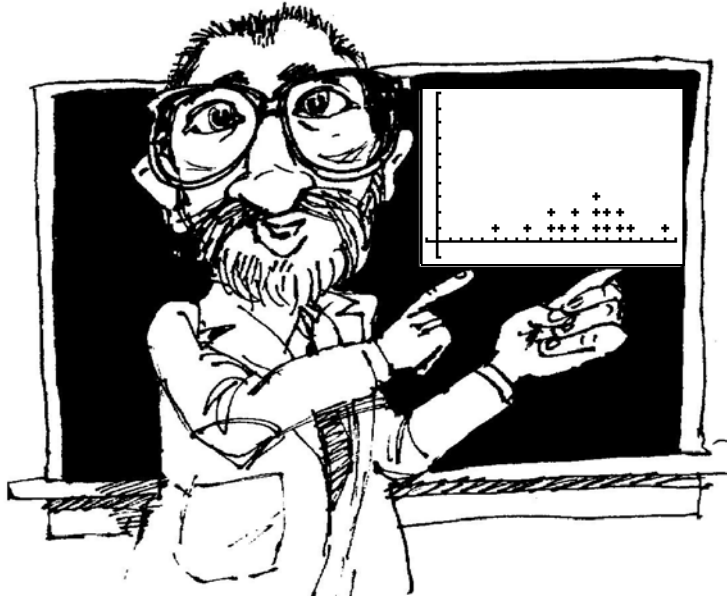


# Data Exploring Activities with the TI-73



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**14<sup>th</sup> Annual T<sup>3</sup> Conference**

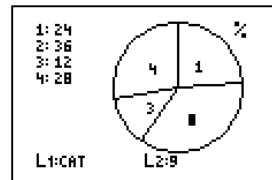
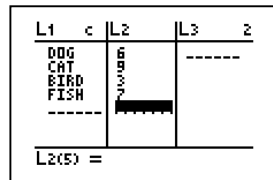
**Calgary, Alberta**

**Friday, March 15, 2002**

## Data Exploring Activities with the TI-73 by Dave Bradley



**Statistical Plots on the TI-73:** There are seven statistical plots on the TI-73: scatter plots, pictographs, pie charts, bar charts, box-whisker plots, and more. We will use the following activities and data sets to explore these plots.



Using representations to organize and record data helps students make sense of complex problems and enables them to find patterns. The first step in analyzing a set of data is to organize and record the data, using some form of representation such as a table, chart, graph, or equation.

**Activity 1:** This table gives the initial seed position of the winners of the NCAA men's basketball tournament from 1979 through 1997. Display the data with a pie graph and a pictogram.

Men's NCAA Basketball Tournament

Seed Position	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	6 <sup>th</sup>	8 <sup>th</sup>
Winners	9	4	2	1	2	1

*(Source: NCAA as reported in USA Today on 3/19/98)*

**Activity 2:** Middle grades students often find it interesting to pose questions and collect data about their peer group. Suppose, for example, they are trying to determine which of two brands of frozen pizza has the most pepperoni. The students decide to collect data on the number of pepperoni slices on a sample of each brand of pizza by visiting several supermarkets and examining samples in the frozen food section. Here is a compilation of the data collected by students in the class:

Brand 1: 4,2,3,3,1,5,2,5,5,7,10,2,8,13,1,5,12,7,9,4,13,4,4,3

Brand 2: 3,8,10,6,4,11,9,8,5,9,7,10,3,10,7,5,9,8,7,5,6,4,7,8

Use box and whisker plots to compare the data.

*(Source - Standards 2000)*

**Activity 3:** Sixteen students estimated how much television they watched each week, to the nearest hour. Here are there results:

14,16,12,14,14,11,20,12,8,10,16,15,17,5,15,10

Find the mean, median, mode of the data and draw a line plot.

(Source: *Math on Call, Great Source*)

**Activity 4:** Is Babe Ruth an outlier?

This chart appeared in an article written by Branch Rickey, August 2, 1954, in Life Magazine, "Good-bye to Some Old Baseball Ideas." The article included the on-base average (OBA), extra-base power (EBP), and their *sum*, which Rickey used to identify leading baseball hitters of the period 1920 - 1950. Draw a box and whisker plot of the *sum* to determine if Babe Ruth was an outlier.



(Source: *DASL - Data and Story Library*)

	PLAYER	OBA	EBP	SUM
1.	Babe Ruth	481	271	752
2.	Ted Williams	484	218	702
3.	Lou Gehrig	447	219	666
4.	Jimmy Foxx	429	213	642
5.	Rogers Hornsby	449	185	634
6.	Hank Greenberg	412	219	631
7.	Ralph Kiner	404	212	616
8.	Stan Musial	432	177	609
9.	Joe Dimaggio	398	191	589
10.	Mel Ott	414	172	586
11.	Charlie Keller	410	174	584
12.	Johnny Mize	397	187	584
13.	Harry Heilman	431	148	579
14.	Tris Speaker	441	135	576
15.	Hack Wilson	395	178	573
16.	Ken Williams	400	168	568
17.	Earl Averill	395	162	557
18.	Roy Campanella	375	178	553
19.	Lefty O'Doul	413	139	552
20.	Bob Johnson	393	157	550
21.	Chuck Klein	379	167	546
22.	Dolph Camilli	382	161	543
23.	Ty Cobb	431	111	542
24.	Jackie Robinson	414	125	539
25.	Tommy Henrich	382	157	539

**Activity 5:** The following data was compiled by the district testing director, Darryl Thomas. They show the results of the elementary math CRT for the spring of 1999, 2000 and 2001. Make a bar graph to compare the end of grade test for grades 1 through 6.

Grade	1	2	3	4	5	6
CRT '99	86	84	71	72	62	62
CRT '00	89	85	71	71	64	65
CRT '01	89	86	70	73	65	65

(Source: *Granite School District assessment office, Darryl Thomas*)

**Activity 6:** The following table shows statistics for the homerun leaders. Make a bar graph to compare the home runs of Mark McGwire, Sammy Sosa and Barry Bonds over the past seven years.

Year	Bonds	McGwire	Sosa
1995	33	39	36
1996	42	52	40
1997	40	58	36
1998	37	70	66
1999	34	65	63
2000	49	32	50
2001	73	29	64

(Source: *The Official Site of Major League Baseball - cbs.sportsline.com/u/baseball/mlb*)

**Activity 7:** Fisherman in the Finger Lakes Region have been recording the dead fish they encounter while fishing in the region. The Department of Environmental Conservation monitors the pollution index for the Finger Lakes Region. The data table below shows this information for the past 8 years. Draw a scatter plot of the data and manually fit a line to the data. Estimate the number of fish that would die as a result of a pollution index of 5.5.

Year	Index	Deaths
1987	2.5	147
1988	2.6	130
1989	8.3	210
1990	3.4	130
1991	1.3	114
1992	3.8	162
1993	11.6	208
1994	6.4	178

(Source: *Bill Caroscio, TI Web Site, [www.ti.com/calc/docs/act/bc02.htm](http://www.ti.com/calc/docs/act/bc02.htm)*)

**Activity 8:** This data table shows the number of people held in state prisons, federal prisons, and local jails on June 30 of each year. Draw a scatter plot of the data and manually fit a line to the data. Estimate the number of prisoners held on June 30, 2005.

Serving Time

Year	Number of Prisoners
1985	744,208
1990	1,148,702
1991	1,219,014
1993	1,369,185
1994	1,476,621
1995	1,585,586
1996	1,629,718
1997	1,725,842

(Source: US Justice Department as reported in USA Today, 1/19/98)

**Activity 9:** Concealed-Weapons permits have skyrocketed in Utah, at this rate about how many concealed-firearms permits will there be in 2005?

Year	Permits Issued
1991	399
1992	561
1993	922
1994	1498
1995	6281
1996	14587
1997	19028
1998	22431
1999	30267
2000	38044
2001	*44921

(Source: Utah Dept. of Public Safety/Bureau of Criminal Identification)

\* through November, 2001

## Probability and Statistics Bookmarks

### **Dave's Probability and Statistics**

Data and Story Library - DASL

<http://www.granite.k12.ut.us/Math/ProbabilityStatistics.html>

Quantitative Environmental Learning Project – QELP

<http://lib.stat.cmu.edu/DASL/>

<http://www.seattlecentral.org/qelp/index.html>

Climate Diagnostics Center

<http://www.cdc.noaa.gov/usclimate/states.scroll.html>

Datasets

<http://exploringdata.cqu.edu.au/datasets.htm>

Statistics - Related Resources

<http://www.learner.org/exhibits/statistics/resources.html>

The M & M's Network

<http://www.m-ms.com/>

WWW Resources for Teaching Statistics

<http://it.stlawu.edu/~rlock/tise98/>

U.S. Census Bureau

<http://www.census.gov/>

Dr. B's Wide World of Web Data

<http://seamonkey.ed.asu.edu/%7Ebehrens/siip/webdata/index.html>

MathLink - Probability and Statistics

<http://www-cm.math.uiuc.edu/MathLink/resources/prob.and.stat.html>

Math Forum - Probability and Statistics

<http://forum.swarthmore.edu/library/topics/probstat/>

Baseball Statistics

<http://cbs.sportsline.com/u/baseball/mlb>

Track and Field Statistics

<http://www.saunalahti.fi/~sut/eng/index.html>

Fast Food Facts

<http://www.kenkuhl.com/fastfood/>

TI InterActive Data Sites

<http://www.ti.com/calc/docs/interactive/docs/intacthome.html>

US Statistical Abstract

<http://www.census.gov/prod/3/98pubs/98statab/>