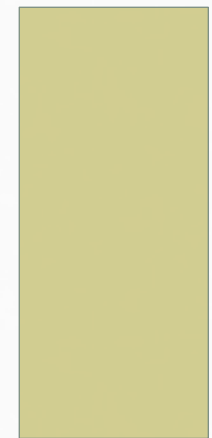


# TEACHING SAMPLING DISTRIBUTIONS

DOUG TYSON  
MICHAEL COSTELLO



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# WHY THIS TOPIC?

- They're foundational!
- They're confusing!



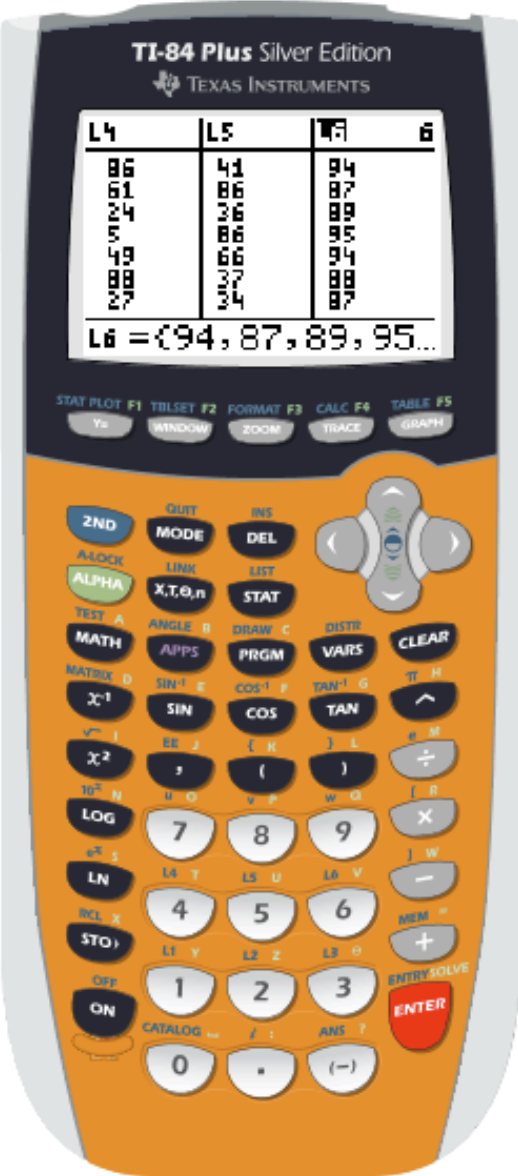
# NO TECHNOLOGY

- A fun(ny) activity!
- Great to show a complete distribution.
- Best used with means.

# GRAPHING CALCULATORS

- Allows a look at multiple statistics.
- Uses programs to put statistics in list 6.
- Shows students what a biased statistic looks like.

WHAT ARE THESE NUMBERS, ANYWAY?



Key Press History

Large Screen

L4	L5	L6
86	41	94
61	86	87
24	36	89
5	86	95
49	66	94
88	37	88
27	34	87

L6 = {94, 87, 89, 95...

Show Key Press History ▲

# A BIASED STATISTIC

TI-SmartView™ for the TI-84 Plus

Key Press History **Large Screen**

TI-84 Plus Silver Edition  
TEXAS INSTRUMENTS

STAT PLOT F1 TBLSET F2 FORMAT F3 CALC F4 TABLE F5  
F1 WINDOW F2 ZOOM F3 TRACE F4 GRAPH

2ND QUIT INS  
MODE DEL  
ALOCK LINK LIST  
ALPHA X,T,θ,n STAT  
TEST A ANGLE B DRAW C DISTR CLEAR  
MATH APPS PRGM VARS  
MATRIX D SIN E COS F TAN G ST H  
x<sup>-1</sup> SIN COS TAN  
x<sup>2</sup> ( ) ÷  
10<sup>N</sup> M O P W Q R  
LOG 7 8 9 X  
LN 4 5 6 MEM H  
PCL X STO 1 2 3 ENTER SOLVE  
OFF ON CATALOG 0 (-) ENTER

Show Key Press History ▲

# FATHOM

- We can now sampling 100 integers using different sample sizes.
- What do you see?



# FATHOM, BUT EVEN BETTER!

- You can create a population of any shape

## FILES ON THE WEBSITE

- Files used in this presentation can be found at:

<http://www.mrtysonstats.com>