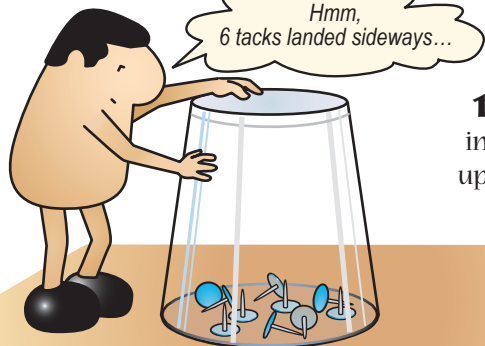


Another FREE SAMPLE LAB from TOPS LEARNING SYSTEMS!

This TOPS Idea is taken from an original series of black-and-white line masters, adapted to stand alone as an independent mini-lesson. Please purchase our original book to get the whole in-depth program.

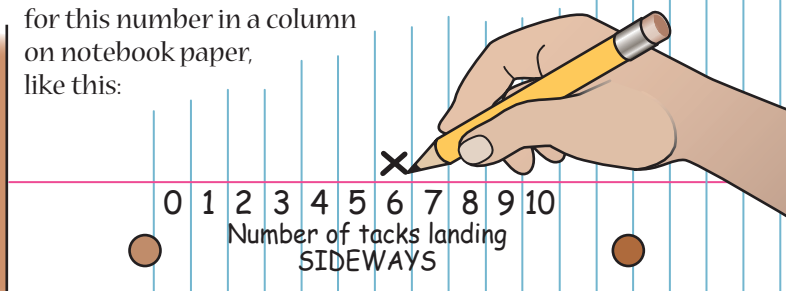
tack toss

...adapted from **PROBABILITY #08**
by TOPS Learning Systems



1. Put 10 tacks in a cup. Turn it upside down on your table.

2. How many tacks land sideways? Mark an X for this number in a column on notebook paper, like this:



3. Repeat 100 times to graph a frequency distribution. What is your **mode**, **median** and **mean**?

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OBJECTIVE

To develop a probability distribution for 10 randomly tossed tacks landing sideways. To express the central tendency as a mode, median, and mean.

LAB NOTES

Step 3. Write these definitions on the board:

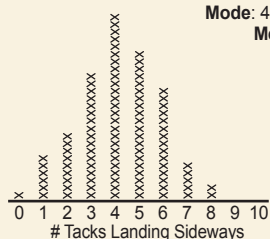
Mode: The **most frequent** outcome. This appears more often than any other number.

Median: The **central number**. It has an equal number of outcomes above and below it.

Mean: The **average** outcome. Add all numbers and divide by the total.

ANSWERS

2-3. Our sample distribution shows a classic bell-shaped curve. Generally, small samplings of 100 are more skewed and "lumpy."



Mode: 4 is the most frequent outcome.

Median: 4 is the central number.

Mean: $0 \times 1 = 0$

$1 \times 2 = 2$

$2 \times 4 = 8$

$3 \times 8 = 24$

$4 \times 16 = 64$

$5 \times 25 = 125$

$6 \times 32 = 192$

$7 \times 25 = 175$

$8 \times 8 = 64$

$8 \times 2 = 16$

$8 \times 2 = 16$

$10 \times 1 = 10$

$10 \times 1 = 10$

Mean = $416 / 100 = 4.16$

EXTENSION

Pool student results into a class histogram. *The larger the sampling, the more closely it will conform to a classic bell curve.*

EVALUATION

Q: Shake 4 pennies in your cup and count how many land head up. Graph 16 outcomes on lined paper.

A. Here is the most probable distribution:

MATERIALS

- A cup. Styrofoam is quieter than plastic or paper.
- Ten thumbtacks. Use the same brand for uniformity.

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- 35 METRIC MEASURING (gr 5-9)
- 36 MORE METRICS (gr 6-10)
- 37 ANIMAL SURVIVAL (gr 3-8)
- 38 Green Thumbs: RADISHES (gr 3-8)
- 39 Green Thumbs: CORN & BEANS (gr 4-12)
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- 41 PLANETS & STARS (gr 7-12)
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