

Cargo Cubes and Boats

Statistics: the science of collecting, organizing, analyzing, and interpreting data.

Statistical Question:

STATISTICAL QUESTIONS		
Question	Yes/No	Reasoning
How many pets do you have?	Yes	Most people have a different amount
Where did you go on vacation?	Yes	Many people go to many places. of pets.
How many feet are in a mile?	No	There is only 5280-ft in a mile.
Is social studies the best subject?	No	There is not enough variety.
How many teeth does your grandma have?	Yes	Our grandmas have different amounts of teeth.
How many U.S. presidents have been in office?	No	Only 43 different presidents have been in office.
What is the daily temperature at noon in Houston?	Yes	The temp at noon in Houston can be different everyday throughout the year.

What is the best subject?

A statistical question is a question where you would not expect get a

single answer. You would expect to get a VARIETY of answers.

Statistical Question for Cargo Cubes and Boats:

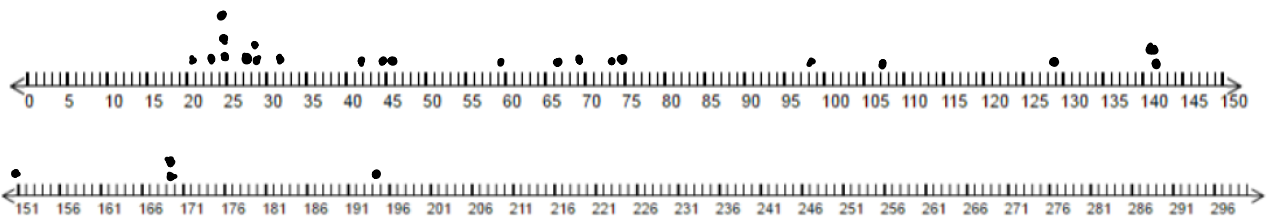
Collecting Data Trial #1: Group Data

Group Members (Names)	Number of Cargo Cubes

Line Plot (Dot Plot): a graph that shows the frequency of values along a number line. It shows the spread and the distribution including clusters, peaks, and gaps.
 (groups) (mountains) (spaces)

Collecting and Organizing Data Trial #1: Class Data

*24 boats were tested
 (# of observations)

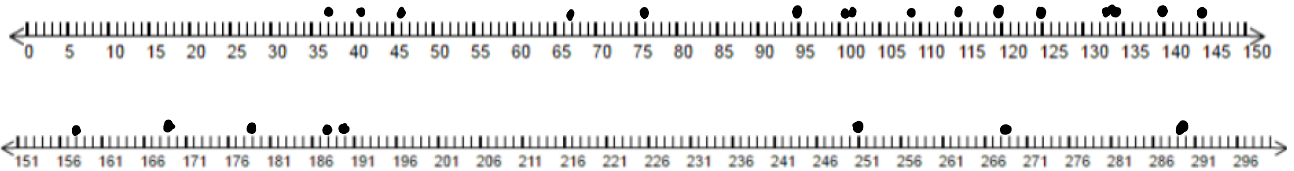


Initial Response to Trial #1: The data is spread from 21 cubes to 195 cubes. The data is scattered. There is a peak at 25 cubes and a cluster from 21 cubes to 33 cubes. There are many gaps in the data. One gap is 75 cubes to 99 cubes.

Collecting Data: Trial #2: Group Data

Group Members (Names)	Number of Cargo Cubes

Collecting and Organizing Data: Trial #2: Class Data



Initial Response to Trial #2

A boat was made out of tin foil (6in x 6in). 1cm x 1cm x 1cm cubes were placed on the boat until it took on water. The cubes were counted to determine the number it held.

What physical characteristic do the boats that held the most cargo cubes have in common? Describe these boats.

There are walls but they are short. They are square in shape. The boats have more area on the bottom. The walls are straight and the bottom is flat.

Does the physical characteristic that these boats share have a mathematical name? How can "it" be determined?

Area $A = l \times w$

Finish the following statement....

Based on the class's data from Trial 1 and Trial 2, the boats with the greater area held more cargo cubes.

Write a statement for each trial.

	Statistical Statements	
Statistical Qualities	Trial 1	Trial 2
Cluster		The is no significant cluster in the data.
Peak	See Trial #1 Initial Responses	The data shows no peaks.
Gap		There are many gaps in the data. One is from 190 cubes to 251 cubes.
Range		The data is spread from 37 cubes to 290 cubes. It has a range of 253 cubes.