

9.1 Introduction to Statistics

ESSENTIAL QUESTION: How can you tell whether a question is a statistical question?

Statistics is the science of collecting, organizing, analyzing, and interpreting information.

A statistical question is a question where you do not get a single answer, you get different answers.


EXAMPLE 1->Answering a Statistical Question

You conduct a science experiment on house mice. Your teacher asks you, "What is the weight of a mouse?"

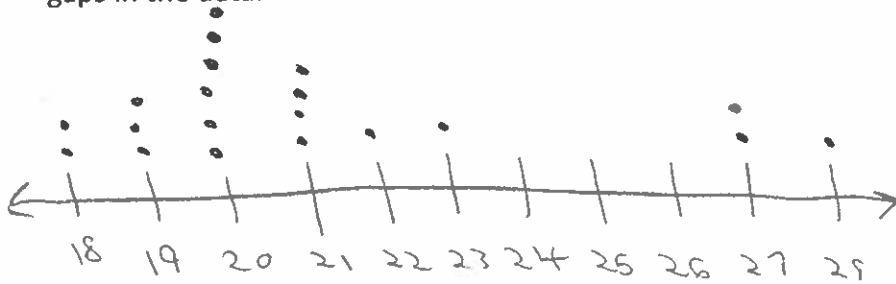
a. Is this a statistical question? Explain.

Yes, because not all mice weigh the same

b. You weight some mice and record the weights (in grams) in the table. Display the data in a dot plot. Identify any clusters, peaks, or gaps in the data.



Weights (grams)			
20	19	21	20
18	20	27	21
28	23	20	19
20	21	18	27
19	22	21	20



Cluster is from 18 to 21
Peak
Peak is at 20.
Gap between 23 to 27.

c. Use the distribution of the data to answer the question.

Most mice weigh about 20 grams.

A dot plot uses a number line to visually show the number of times each value in a data set occurs.

Cluster -> Where the numbers are located close together.

Peak -> The number(s) that occur the most.

Gap -> Place where there are no numbers.

ON YOUR OWN

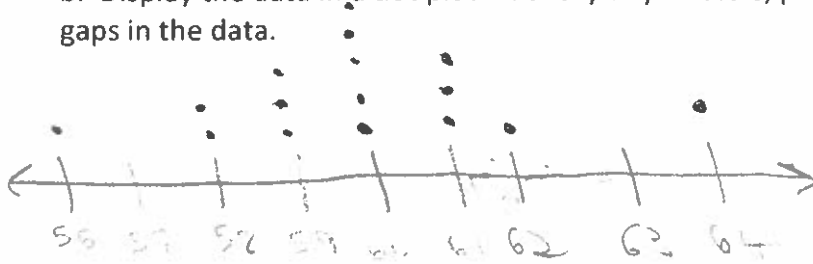
a. The table shows the ages of some people who retired early. You are asked, "How old are people who retire early?"

Ages			
60	61	59	60
62	56	64	59
58	60	61	60
59	60	58	61

Is this a statistical question?

Yes, because people retire at different ages.

b. Display the data in a dot plot. Identify any clusters, peaks, or gaps in the data.



Cluster → around 60 (58-61)

Peak → 60

Gap → between 58 and 59 and between 62 and 64

c. Use the distribution of the data to answer the question.

Most of the people who retired early were around 60.

EXAMPLE 2 -> Using a Dot Plot

You record the high temperature every day while at summer camp in August. Then you create a vertical dot plot.

a. How many weeks were you at summer camp?

You were there 4 weeks.

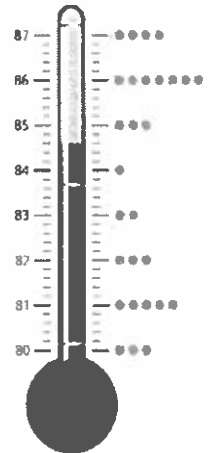
b. How can you collect these data? What are the units?

You can collect the data with a thermometer. The units are degrees.

c. Write a statistical question that you can answer using the dot plot. Then answer the question.

What is the daily high temperature?

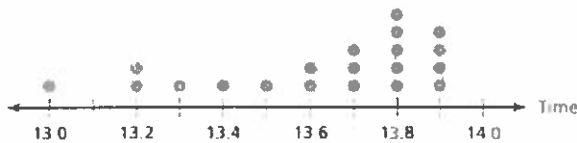
In August - Half of the temperature are around 81 degrees and half are around 86 degrees.



There are 28 days.

ON YOUR OWN

The dot plot shows the times of sixth grade students in a 100-meter race.



a. How many students ran in the race?

20 students are in the race.

b. How can you collect these data? What are the units?

You can use a stopwatch. The units would be in seconds.

c. Write a statistical question that you can answer using the dot plot. Then answer the question.

How long does it take a sixth grader to run a 100-meter race? It takes about 13.8 seconds.