

Asking Statistical Questions and Showing Data

Grade 6 math · Worksheet · Standards: 6.SP.A.1, 6.SP.A.2, 6.SP.B.4, 6.SP.B.5a, 6.SP.B.5b

Name: _____ Date: _____ Class: _____

These twenty problems train standards 6.SP.A.1, 6.SP.A.2, 6.SP.B.4 and 6.SP.B.5a and b: recognizing statistical questions, reading and drawing dot plots, histograms and box plots, and describing a data set.

The problems begin with sorting questions and counting dots, then move to drawing displays and describing center, spread and shape, and finish with comparisons and multi-step surveys. Always name the unit.

Standards: 6.SP.A.1, 6.SP.A.2, 6.SP.B.4, 6.SP.B.5a, 6.SP.B.5b · **Level:** Grade 6

Problem 1 Statistical or not? (easy)

Decide whether each question is statistical. Explain each answer in one sentence.

- How old is the principal of Westfield Middle School?
- How many hours of sleep do sixth graders at Westfield get on school nights?
- How tall are the players on a girls' basketball team?
- How tall is the Eiffel Tower?

Problem 2 Write a statistical question (easy)

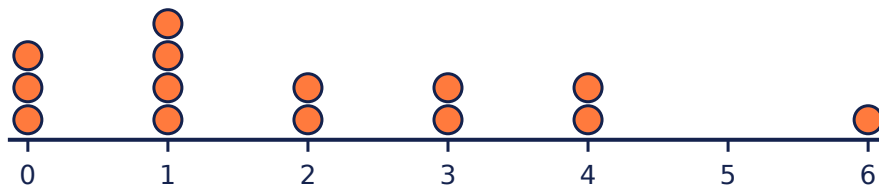
Write a statistical question about the number of pets owned by students in a sixth-grade class. Name the attribute and its unit.

Problem 3 Describe the data set (easy)

A teacher records the number of books 12 students read last month: 3, 5, 2, 4, 4, 6, 1, 3, 5, 4, 2, 7. State the number of observations, the attribute and its unit.

Problem 4 Reading a dot plot (easy)

The dot plot shows the days absent for 14 students.



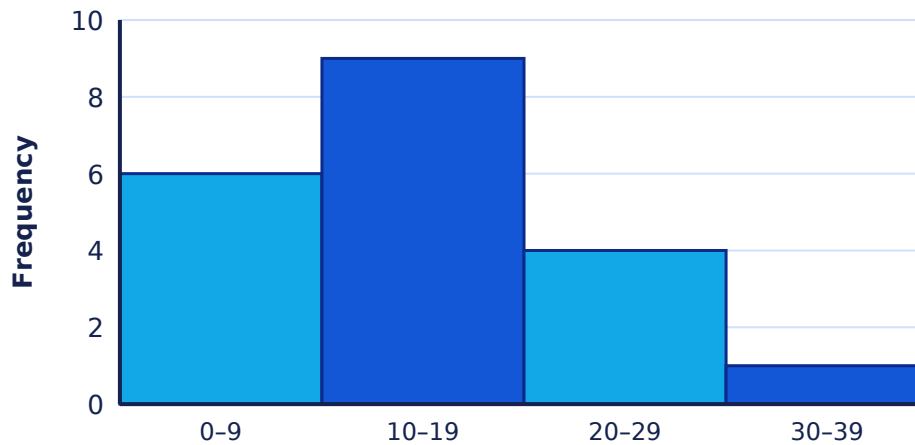
Days absent

Days absent last semester.

- How many students are shown?
- How many students were absent exactly 1 day?
- How many students were absent more than 2 days?

Problem 5 Reading a histogram (easy)

The histogram shows the time 20 students take to walk to school.



Minutes to walk to school

Minutes to walk to school.

- Which interval has the most students?
- How many students take 20 minutes or more?

Problem 6 Draw a dot plot (medium)

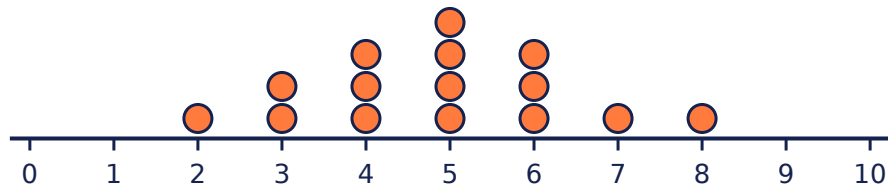
Quiz scores out of 10 are 6, 7, 7, 8, 8, 8, 9, 9, 10, 5, 7, 8. Draw a dot plot and name the most common score.

Problem 7 Fix the question (medium)

The question "How many minutes did Marcus play trumpet on Monday?" is not statistical. Rewrite it as a statistical question about the school band.

Problem 8 Describe the distribution (medium)

The dot plot shows the text messages 15 students sent in one hour. Describe the center, spread and shape.



Messages sent

Text messages sent in one hour.

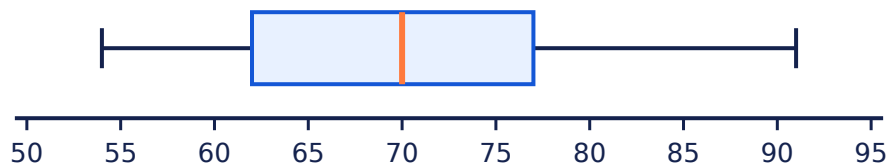
Problem 9 Draw a histogram (medium)

The table shows backpack weights for 25 students. Draw a histogram and tell which interval holds the most students.

Weight (pounds)	0-4	5-9	10-14	15-19	20-24
Students	2	6	9	6	2

Problem 10 Reading a box plot (medium)

The box plot shows daily high temperatures in September.



Temperature (°F)

Daily high temperatures in September.

- Give the median.
- Give the least and greatest temperatures.
- What fraction of the days had a high at or below 62°F?
- Between which two temperatures does the middle half of the days fall?

Problem 11 Draw a box plot (medium)

Commute times for a group of workers have a minimum of 12 minutes, a first quartile of 18, a median of 25, a third quartile of 31 and a maximum of 40. Draw the box plot.

Problem 12 Choose the display (medium)

Name the best display for each situation and give a reason: a dot plot, a histogram or a box plot.

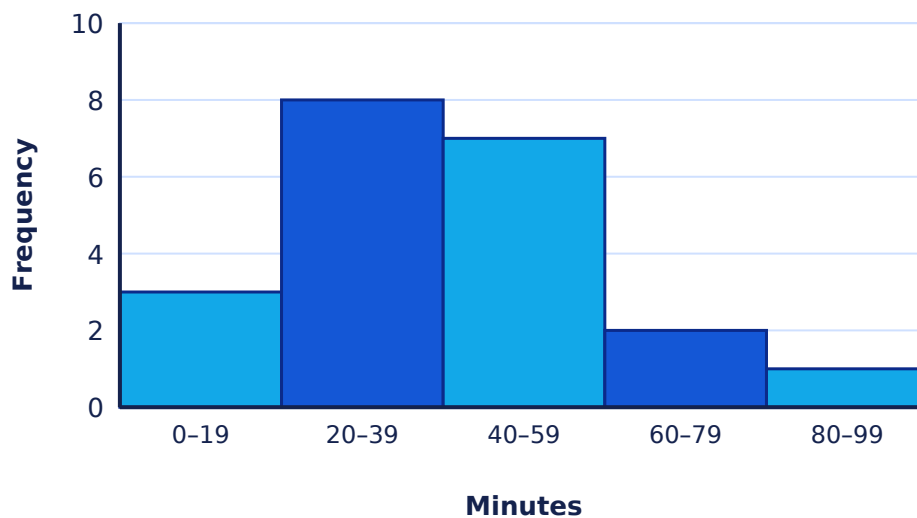
- The exact number of pets owned by each of 20 students.
- Test scores for 90 students, grouped in intervals of 10 points.
- A comparison of how spread out the middle half of two classes' scores is.

Problem 13 Noon temperatures (medium)

Maya recorded the temperature at noon for 10 days: 71, 73, 68, 75, 72, 70, 74, 73, 69, 75 degrees Fahrenheit. State the number of observations, the attribute and its unit, and give the least and greatest values.

Problem 14 Reading a histogram of reading time (hard)

The histogram shows the minutes 21 students read over a weekend.

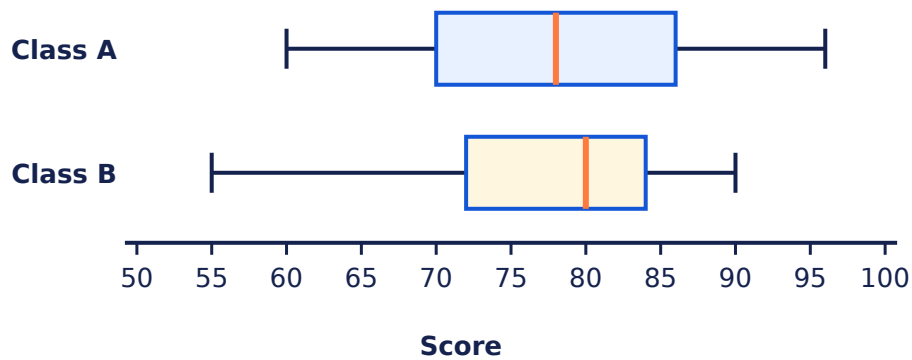


Weekend reading minutes.

- How many students read for less than 40 minutes?
- What fraction of the students read for 60 minutes or more?
- Can you tell the exact reading time of the student in the highest interval? Explain.

Problem 15 Comparing two classes (hard)

The box plots show quiz scores for two classes.



Quiz scores for two classes.

- Which class has the higher median?
- Which class has the greater range?
- Which class has a narrower middle half of scores?

Problem 16 Reading survey (hard)

A student asks, "How many minutes do my classmates read each day?" The answers from 12 classmates are 20, 35, 15, 40, 25, 30, 20, 45, 10, 35, 30 and 25. Make a frequency table with the intervals 10-19, 20-29, 30-39 and 40-49.

Problem 17 The bike club (hard)

The dot plot shows the miles 12 members of a bike club biked on Saturday.

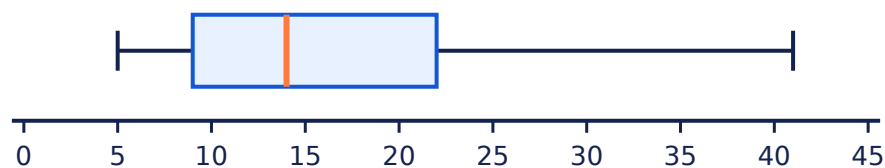


Miles biked on Saturday.

- Describe where most of the data cluster.
- Identify the unusual value.
- Describe the shape of the distribution.

Problem 18 Museum visitor ages (hard)

The box plot shows the ages of 48 visitors to a museum.



Age (years)

Ages of 48 museum visitors.

- About how many visitors are between the first and third quartiles?
- About how many visitors are younger than the median age?
- Give the range of the ages.

Problem 19 Shoe sizes (hard)

The shoe sizes of 20 students are 5, 5.5, 6, 6, 6, 6.5, 6.5, 6.5, 7, 7, 7, 7, 7.5, 7.5, 8, 8, 8.5, 9, 9 and 10. Draw a dot plot and describe its shape.

Problem 20 Survey histogram (hard)

A survey of 30 students asked how many texts they send per day. The table has one missing value.

Texts per day	0-9	10-19	20-29	30-39	40-49
Students	4	9	?	6	2

- Find the missing number of students.
- Draw a histogram.
- What fraction of the students send 20 or more texts per day?