

AP Statistics · Collecting Data: Sampling and Experiments · Test

Common Core AP Statistics Unit 1 (2026-27) · mathovore.fr

Name: _____ Date: ____/____/____ Score: _____

This ap statistics collecting data test checks collecting data: sampling and experiments in 45 minutes, with 9 questions for a total of 20 points.

This test has 9 free-response questions worth 20 points in total and takes about 45 minutes. Answer in complete sentences and refer to the context. Calculators are allowed, and a random digit table is printed where one is needed.

Test information

- **Grade:** AP Statistics
- **Chapter:** Collecting Data: Sampling and Experiments
- **Common Core:** AP Statistics Unit 1 (2026-27)
- **Time:** 45 minutes
- **Total:** 20 points (Question 1: 2 pts; Question 2: 2 pts; Question 3: 2 pts; Question 4: 2 pts; Question 5: 2 pts; Question 6: 3 pts; Question 7: 2 pts; Question 8: 2 pts; Question 9: 3 pts)

AP Statistics Collecting Data Test: questions 1-5

Question 1: Principal's survey (2 points)

A principal wants student opinions about a new lunch schedule. She lists all 1,200 students by ID number, picks a random number from 1 to 12, and surveys that student and every 12th student after.

- Name this sampling method and give the sample size. (1 point)
- Explain why this is not a simple random sample. (1 point)

Question 2: Random digit selection (2 points)

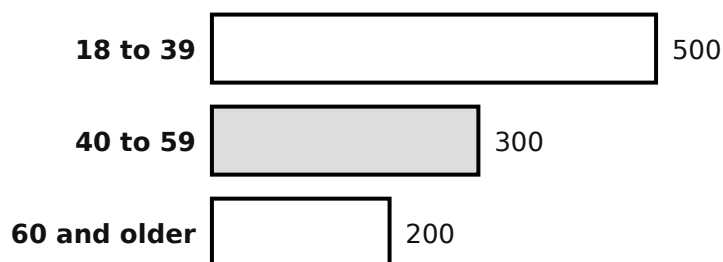
A club has 30 members numbered 01 to 30. The random digits below are read as two-digit numbers from left to right. Select a simple random sample of 4 members, and show which numbers you used or skipped.

Line	1	2	3	4	5	6	7	8	9	10
101	74	25	26	94	82	25	05	24	57	51

Line 101 of random digits.

Question 3: Stratified allocation (2 points)

A gym has 1,000 members: 500 adults ages 18 to 39, 300 adults ages 40 to 59, and 200 members ages 60 and older. The manager will take a stratified random sample of 50 members, proportional to the size of each age group.



Members by age group.

- Find the number to sample from each group. (1 point)
- Describe how to select the members from one group. (1 point)

Question 4: Two sources of bias (2 points)

A newspaper mails a survey to 3,000 households. Question 4 reads, “Don’t you agree that the wasteful school budget should be cut?” Only 420 households return the survey.

- Identify one source of bias related to the question, and one related to the response. (1 point)
- Calculate the response rate and explain how it could affect the result. (1 point)

Question 5: Study or experiment (2 points)

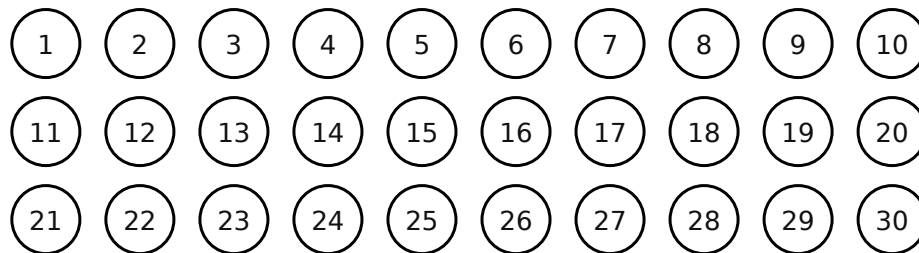
Researchers asked 400 adults about their daily coffee habits and recorded their blood pressure.

- Is this an observational study or an experiment? Explain. (1 point)
- The study finds that heavy coffee drinkers have higher blood pressure. Explain why the researchers cannot conclude that coffee raises blood pressure. (1 point)

AP Statistics Collecting Data Test: questions 6–9

Question 6: Tomato experiment (3 points)

Aisha has 30 identical tomato plants on a bench, numbered 1 to 30, and wants to compare fertilizer A, fertilizer B and plain water.

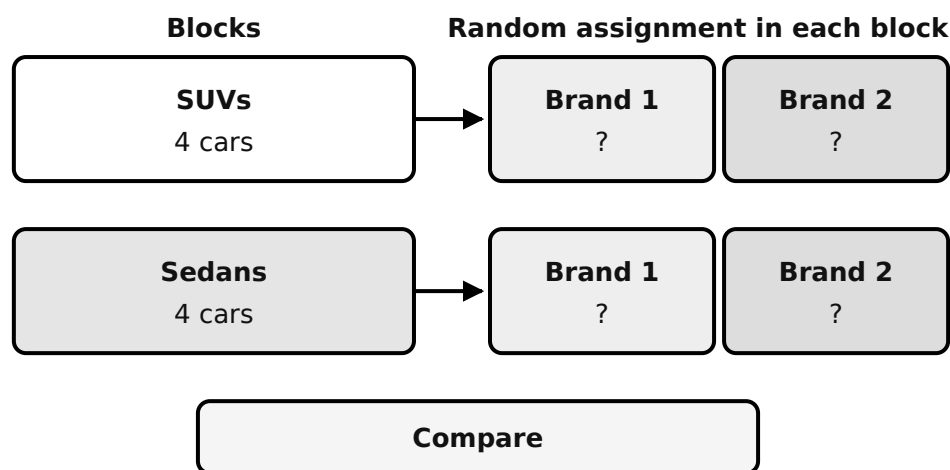


The 30 plants.

- a. Describe a completely randomized design, including how plants are assigned. (2 points)
- b. Explain the purpose of the plain-water group. (1 point)

Question 7: Tire experiment (2 points)

Noah compares the stopping distance of two tire brands using 8 cars: 4 SUVs and 4 sedans. The SUVs and sedans differ a lot in stopping distance.



The two types of car.

- a. Explain why Noah should block by type of car. (1 point)
- b. Describe how the tires should be assigned. (1 point)

Question 8: Scope of inference (2 points)

Study 1: A random sample of 500 high school students is selected, and each is randomly assigned to a morning or an evening study session; the evening group scores higher on the next quiz. Study 2: 60 student volunteers are randomly assigned to the same two sessions; the

evening group scores higher.

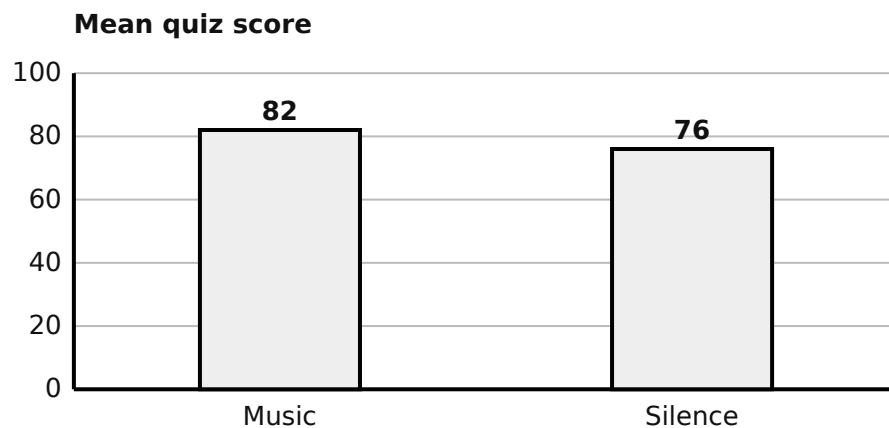
	Random sample	Random assignment
Study 1	Yes	Yes
Study 2	No (volunteers)	Yes

Features of the two studies.

For each study, state what conclusion about cause and effect and about the population is justified. (1 point each)

Question 9: Music while studying (3 points)

Sofia lets 24 students choose to study with music or in silence, then gives a quiz. The mean score is 82 for music and 76 for silence.



Mean quiz scores.

- Explain why Sofia cannot conclude that music caused the higher mean. (1 point)
- Describe how to redesign the study as an experiment. (1 point)
- If the redesigned experiment shows a significant difference, state what can be concluded about the 24 students and about all students. (1 point)

How to use this ap statistics collecting data test

Take this ap statistics collecting data test without notes, then grade it with the test answer key out of 20 points.

