

AP Statistics - Experimental Design and Random Assignment - Test

Common Core AP STAT 3.4, AP STAT 3.5, AP STAT 3.6, HSS-IC.B.3, HSS-IC.B.5 · maths-pdf.fr/en/

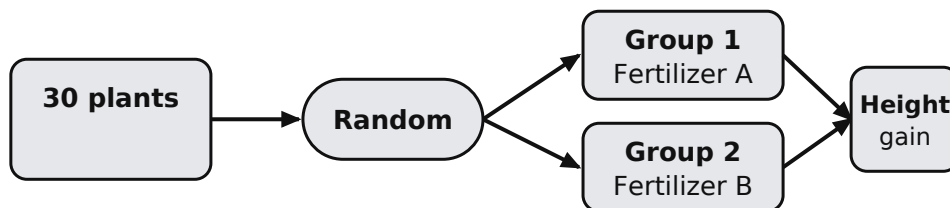
Name: _____ Class: _____ Date: ____/____/____

This 45-minute test covers experimental design vocabulary, random assignment, blocking, and scope of inference. Describe designs completely and justify each choice in the context of the study.

About this test

- Grade: AP Statistics
- Chapter: Experimental Design and Random Assignment
- Standards: AP STAT 3.4, AP STAT 3.5, AP STAT 3.6, HSS-IC.B.3, HSS-IC.B.5
- Time: 45 minutes
- Total: 20 points

Question 1 - Identify the design parts [3 pts]



A design diagram.

(a) Name the design. (1 point) (b) Identify the explanatory and response variables. (1 point) (c) How many plants are in each group, if the groups are equal? (1 point)

Question 2 - Confounding [2 pts]

A study shows that students who play an instrument have higher math grades. Explain how confounding affects a claim that music lessons raise math grades.

Question 3 - Random assignment [3 pts]

Random digits
07 41 15 22 03 38 09 14 26 30

Random digits.

Twenty students are labeled 01 to 20. Use the digits above in pairs to select 4 of them for the treatment group. Show your steps. (3 points)

Question 4 - Blocking [3 pts]

A researcher compares two reading apps with 40 students, 20 in grade 3 and 20 in grade 6. (a) Name a better design than a completely randomized design. (1 point) (b) Describe the randomization. (2 points)

Question 5 - Placebo [2 pts]

Explain the purpose of a placebo and of blinding in a drug trial.

Question 6 - Scope of inference [2 pts]

	Random assignment	No random assignment
Random selection	Generalize and cause	Generalize only
No random selection	Cause for the sample	Neither

Scope of inference.

An experiment randomly assigns 80 volunteers to two exercise plans. What can be concluded? What cannot?

Question 7 - Significance [2 pts]

In a clinical trial, the recovery rate was 78% with a new treatment and 64% with a placebo, and a simulation shows that a difference this large would happen about 1% of the time by chance. Interpret.

Question 8 - Evaluate a study [3 pts]

A school gives a new homework policy to Mr. Cho's class and keeps the old policy for Ms. Lee's class. The new-policy class has higher grades. List two problems with concluding that the policy raises grades. (2 *points*) Suggest an improvement. (1 *point*)