LESSON MAKER PRO

Who Gets Picked?

Compare chances in different samples.

GRADE 7 · 7.SP.1b

7.SP.1b "Solve real-world and mathematical problems involving: Differentiate between random and non-random sampling."

NAME _____ DATE _____

THE BIG IDEA

In a random sample, every member of the group has the same chance to be picked. When names are drawn from one mixed box, divide the number picked by the total number of names to find one member's chance. A fixed choice, such as picking names from only part of a list, is not random.

WORKED EXAMPLE

A club mixes every member's name in a box and draws 3 names without looking. Is the sample random? What is each member's chance?

CLUB MEMBERS

Group	Members
Chess	7
Other	11

1. Count all members: 7 + 11 = 18.
2. Every name is in the mixed box, so the sample is random.
3. Each member's chance is 3/18 = 1/6.

Answer: Yes; each member's chance is 1/6.

PRACTICE 4 problems

1 A club mixes all 20 members' names and draws 4. Is the sample random? What is each member's chance?

ANSWER _____

2 Of 25 students, the first 5 to enter class answer a poll. Is this a random sample? Explain briefly.

ANSWER _____

3 A school uses a random number generator to pick 8 of its 32 numbered lockers. Is the sample random? What is each locker's chance?

ANSWER _____

4 A coach polls the 10 players nearest the door on a team of 40. Is this a random sample? Explain briefly.

ANSWER _____

APPLY IT Show your work

1 An esports club has 36 members. Plan A draws 9 names from a mixed box. Plan B asks the first 9 members to arrive. Which plan is random? In that plan, what is each member's chance?

WORK SPACE

ANSWER _____

2 For a school dance poll, a DJ selects every fourth name from a list of 48 students, always starting with the first. Is this random? What is the chance the student second on the list is selected?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A class of 50 wants 10 opinions. Plan A draws 10 names from the whole class. Plan B draws 10 names from the 25 basketball players. Find a basketball player's chance in each plan. Which plan is random for the whole class? Explain.

WORK SPACE AND ANSWER

ANSWER KEY

Who Gets Picked?

GRADE 7 · 7.SP.1b

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A club mixes all 20 members' names and draws 4. Is the sample random? What is each member's chance?	**Yes; 4/20 = 1/5.**
2	Of 25 students, the first 5 to enter class answer a poll. Is this a random sample? Explain briefly.	**No. Students who enter later have no chance to be picked.**
3	A school uses a random number generator to pick 8 of its 32 numbered lockers. Is the sample random? What is each locker's chance?	**Yes; 8/32 = 1/4.**
4	A coach polls the 10 players nearest the door on a team of 40. Is this a random sample? Explain briefly.	**No. Players farther from the door have no chance to be picked.**

PART 2 · APPLY IT

1. **Plan A; 9/36 = 1/4.** Plan A gives every member a chance. Divide 9 by 36 to find one member's chance.
2. **No; the chance is 0.** The starting place is fixed, so only certain positions can be selected. The second name is never one of them.

CHALLENGE

Plan A: 10/50 = 1/5. Plan B: 10/25 = 2/5. Only Plan A is random for the whole class because students who do not play basketball have no chance in Plan B.

Accept equivalent fractions. For explanations, look for whether every member of the full group has a chance to be selected.