LESSON MAKER PRO

Whose Voice Counts?

Compare samples before making a claim.

GRADE 7 · 7.DSP.A.10.b

7.DSP.A.10.b "Compare sampling techniques to determine whether a sample is random and thus representative of a population, explaining that random sampling tends to produce representative samples and support valid inferences."

NAME _____ DATE _____

THE BIG IDEA

In a random sample, everyone in the population has an equal chance of being picked. When names are drawn without replacement, divide the number picked by the total number of names to find one person's chance. Random samples tend to reflect the population, but a sample can differ by chance.

WORKED EXAMPLE

A shelter writes each cat's name on a slip and draws slips without replacement. Use the table. What is each cat's chance of being picked? Is the sample random?

SHELTER SAMPLE

Cats at shelter	Slips drawn
90	9

1. Chance = 9/90 = 1/10.
2. Each cat has one slip, so each has the same chance.

Answer: Each cat has a 1/10 chance. Yes, the sample is random.

PRACTICE 4 problems

1 A club draws 6 names from all 30 members. What is each member's chance of being picked?

ANSWER _____

2 A gym asks the first 12 of its 48 visitors to rate new equipment. What fraction is surveyed? Is this a random sample?

ANSWER _____

3 A game club draws 5 names from all 35 members. What is each member's chance of being picked?

ANSWER _____

4 A class draws 10 names from all 50 classmates. What is each classmate's chance? Can the sample support an inference about the class?

ANSWER _____

_____

APPLY IT Show your work

1 Your grade is picking music for a dance. Use the table. Which plan supports an inference about all seventh graders? What is each student's chance of being picked in that plan?

MUSIC SURVEY PLANS

Plan	How 20 of 100 students are chosen
A	Ask the first 20 ticket buyers
B	Draw 20 names from all 100 students

ANSWER _____

2 A skate park randomly picks visitors to ask about a beginner ramp. Use the table to estimate how many visitors want the ramp. Why is your result an estimate?

SKATE PARK SURVEY

All visitors	Visitors picked	Picked visitors who want the ramp
60	15	9

ANSWER _____

CHALLENGE One step up

A school has 40 band members and 80 other students. Plan A draws 12 names from all students. Plan B draws 8 band names and 4 other names. Find each group's chance under both plans. Which plan better supports an inference about the whole school? Explain.

WORK SPACE AND ANSWER

ANSWER KEY

Whose Voice Counts?

GRADE 7 · 7.DSP.A.10.b

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A club draws 6 names from all 30 members. What is each member's chance of being picked?	**6/30 = 1/5**
2	A gym asks the first 12 of its 48 visitors to rate new equipment. What fraction is surveyed? Is this a random sample?	**12/48 = 1/4. No, being among the first visitors is not a random draw.**
3	A game club draws 5 names from all 35 members. What is each member's chance of being picked?	**5/35 = 1/7**
4	A class draws 10 names from all 50 classmates. What is each classmate's chance? Can the sample support an inference about the class?	**10/50 = 1/5. Yes, the names were drawn randomly from the whole class.**

PART 2 · APPLY IT

1. **Plan B; each student's chance is 20/100 = 1/5.** Plan B draws from the whole grade, while Plan A includes only ticket buyers. Divide 20 by 100 to find each student's chance under Plan B.
2. **36 visitors. The random sample may not match all visitors exactly.** The sample fraction is 9/15 = 3/5, and 3/5 of 60 is 36. A random sample supports an inference, not an exact count.

CHALLENGE

Plan A: band members and other students each have a 12/120 = 1/10 chance. Plan B: band members have an 8/40 = 1/5 chance, and other students have a 4/80 = 1/20 chance. Plan A better supports an inference about the whole school because every student has the same chance.

Accept equivalent fractions or percentages. A random sample can support an inference without matching the population exactly.