LESSON MAKER PRO

No Replacement Chance

Multiply probabilities when the first draw changes the next one.

GRADE 8 · 8.PS.1.d

8.PS.1.d "Determine the probability of two dependent events."

NAME _____ DATE _____

DEPENDENT DRAWS

When you do not replace the first item, the second probability changes. Multiply the probability of the first event by the probability of the second event after the first draw.

WORKED EXAMPLE

A bag has 11 red tiles and 10 blue tiles. Draw a red tile, then a blue tile, without replacement.

1. P(red first) = 11/21.
2. After a red tile is drawn, 20 tiles remain, including 10 blue tiles.
3. P(blue second) = 10/20.
4. 11/21 x 10/20 = 11/42.

Answer: 11/42

PRACTICE 5 problems

1 A bag has 6 red tiles and 2 blue tiles. Draw two without replacement. What is P(blue, then blue)?

ANSWER _____

2 A deck has 9 music cards and 3 sports cards. Draw two without replacement. What is P(music, then sports)?

ANSWER _____

3 A box has 4 orange counters and 5 green counters. Draw two without replacement. What is P(green, then green)?

ANSWER _____

4 A pack has 7 comic cards and 6 game cards. Draw two without replacement. What is P(comic, then comic)?

ANSWER _____

5 A container has 3 grape candies and 5 lemon candies. Draw two without replacement. What is P(lemon, then grape)?

ANSWER _____

APPLY IT Show your work

1 A student council has 4 eighth graders and 5 seventh graders. It randomly chooses two speakers without replacement. What is the probability both speakers are eighth graders?

WORK SPACE

ANSWER _____

2 A music contest has 6 hip-hop tracks and 8 pop tracks. Two different tracks are chosen at random for review. What is the probability both tracks are hip-hop?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A bag has 5 red, 4 blue, and 3 green tiles. Draw two without replacement. What is the probability the tiles are different colors?

WORK SPACE AND ANSWER

ANSWER KEY

No Replacement Chance

GRADE 8 · 8.PS.1.d

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A bag has 6 red tiles and 2 blue tiles. Draw two without replacement. What is P(blue, then blue)?	**1/28**
2	A deck has 9 music cards and 3 sports cards. Draw two without replacement. What is P(music, then sports)?	**9/44**
3	A box has 4 orange counters and 5 green counters. Draw two without replacement. What is P(green, then green)?	**5/18**
4	A pack has 7 comic cards and 6 game cards. Draw two without replacement. What is P(comic, then comic)?	**7/26**
5	A container has 3 grape candies and 5 lemon candies. Draw two without replacement. What is P(lemon, then grape)?	**15/56**

PART 2 · APPLY IT

1. **1/6** Multiply 4/9 by 3/8 because one eighth grader is no longer available after the first choice.
2. **15/91** Multiply 6/14 by 5/13 because the first hip-hop track is not chosen again.

CHALLENGE

47/66

Accept equivalent fractions. For the challenge, students may subtract the probability of drawing two tiles of the same color from 1.