LESSON MAKER PRO

Choice by Chance

Count outcomes to find compound probabilities.

GRADE 8 · 8.DS.C.6

8.DS.C.6 "Find probabilities of compound events by representing or simulating the sample space or simulating events. Represent the sample space for a compound event using organized lists, tables, or tree diagrams..."

NAME _____ DATE _____

COUNT THE PAIRS

For two choices, an organized table can show every possible pair. If all pairs are equally likely, probability is the number of pairs that match the event divided by the total number of pairs.

WORKED EXAMPLE

Choose a letter, A or B, and a drink, tea or juice. What is the probability of B and juice?

ALL POSSIBLE PAIRS

Letter	Tea	Juice
A	A, tea	A, juice
B	B, tea	B, juice

1. The table shows 4 equally likely pairs.
2. Only (B, juice) matches the event.
3. Probability = 1/4.

Answer: 1/4

PRACTICE 4 problems

1 Choose one letter from A, B, C and flip a coin. What is the probability of a consonant and tails?

ANSWER _____

2 Choose one letter from X, Y, Z and one digit from 7, 8, 9. What is the probability of X and an odd digit?

ANSWER _____

3 Choose a design, cat, dog, owl, or fox, and a background, blue or yellow. List the outcomes with cat or yellow, then find the probability.

ANSWER _____

4 Choose a color, red, blue, green, or gold, and an icon, sun, moon, or star. What is the probability of blue or star?

ANSWER _____

APPLY IT Show your work

1 A game profile pairs one of 3 equally likely avatars with one of 5 equally likely frames. What is the probability of getting the dragon avatar with either the silver or gold frame?

WORK SPACE

ANSWER _____

2 A smoothie shop randomly pairs one of 2 flavors, mango or berry, with one of 5 toppings. One topping is granola. What is the probability of mango or granola?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A game badge pairs one of 4 equally likely colors, red, blue, green, or yellow, with one of 5 equally likely icons, star, moon, bolt, heart, or wave. List the outcomes with green, red and star, or blue and moon. What is the probability?

WORK SPACE AND ANSWER

ANSWER KEY

Choice by Chance

GRADE 8 · 8.DS.C.6

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Choose one letter from A, B, C and flip a coin. What is the probability of a consonant and tails?	**2/6 = 1/3**
2	Choose one letter from X, Y, Z and one digit from 7, 8, 9. What is the probability of X and an odd digit?	**2/9**
3	Choose a design, cat, dog, owl, or fox, and a background, blue or yellow. List the outcomes with cat or yellow, then find the probability.	**(cat, blue), (cat, yellow), (dog, yellow), (owl, yellow), (fox, yellow); 5/8**
4	Choose a color, red, blue, green, or gold, and an icon, sun, moon, or star. What is the probability of blue or star?	**6/12 = 1/2**

PART 2 · APPLY IT

1. **2/15** There are 3 × 5 = 15 possible pairs. Two pairs match.
2. **6/10 = 3/5** Five pairs have mango, and two have granola. Count the mango-granola pair only once: 5 + 2 - 1 = 6 favorable pairs out of 10.

CHALLENGE

(green, star), (green, moon), (green, bolt), (green, heart), (green, wave), (red, star), (blue, moon); 7/20

Accept equivalent fractions. In problem 3 and the challenge, accept the favorable pairs in any order.