LESSON MAKER PRO

Count the Combos

Build sample spaces to find probabilities.

GRADE 7 · 7.DSP.C.16.a

7.DSP.C.16.a "Represent sample spaces for compound events using methods such as organized lists, tables, and tree diagrams, and determine the probability of an event by finding the fraction of outcomes in the sample space for which the compound event..."

NAME _____ DATE _____

THE BIG IDEA

For two random choices, use a table, list, or tree to show every possible outcome. When outcomes are equally likely, probability is favorable outcomes divided by all outcomes.

WORKED EXAMPLE

Flip a fair coin twice. What is the probability of heads, then tails?

TWO COIN FLIPS

First flip	Second H	Second T
H	HH	HT
T	TH	TT

1. The table shows all 4 outcomes.
2. Only HT is heads, then tails.
3. Probability = 1/4.

Answer: 1/4

PRACTICE 4 problems

1 Spin two equal-section spinners. One shows A, B, C; the other shows 1, 2, 3. Make a table. What is the probability of A and an odd number?

ANSWER _____

2 Flip a fair coin and spin an equal-section wheel labeled red, blue, green, yellow. List the outcomes. What is the probability of tails and blue?

ANSWER _____

3 Spin an equal-section wheel labeled X, Y, Z twice. Make a table. What is the probability of matching letters?

ANSWER _____

4 A game pairs one of 3 songs, pop, rock, or jazz, with one of 4 moves, jump, slide, spin, or clap. Each pair is equally likely. Make a tree. What is the probability of rock with spin or clap?

ANSWER _____

APPLY IT Show your work

1 A game randomly gives you one shirt and one badge from the table. Each pair is equally likely. List the pairs. What is the probability of a teal shirt with a moon or star badge?

AVATAR CHOICES

Shirts	Badges
teal	moon
orange	star
gray	bolt

ANSWER _____

2 Two independent prize wheels have equal sections. One shows sticker, pin, keychain, patch; the other shows red, blue, green. Make an organized list. What is the probability of a blue pin or blue patch?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Flip a fair coin three times. Make a tree or organized list. What is the probability of exactly two heads? Explain using your sample space.

WORK SPACE AND ANSWER

ANSWER KEY

Count the Combos

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Spin two equal-section spinners. One shows A, B, C; the other shows 1, 2, 3. Make a table. What is the probability of A and an odd number?	**9 outcomes; A1 and A3 are favorable; 2/9**
2	Flip a fair coin and spin an equal-section wheel labeled red, blue, green, yellow. List the outcomes. What is the probability of tails and blue?	**8 outcomes; only tails and blue is favorable; 1/8**
3	Spin an equal-section wheel labeled X, Y, Z twice. Make a table. What is the probability of matching letters?	**9 outcomes; XX, YY, and ZZ are favorable; 1/3**
4	A game pairs one of 3 songs, pop, rock, or jazz, with one of 4 moves, jump, slide, spin, or clap. Each pair is equally likely. Make a tree. What is the probability of rock with spin or clap?	**12 outcomes; rock with spin and rock with clap are favorable; 1/6**

PART 2 · APPLY IT

1. **2/9** There are 3 × 3 = 9 pairs. Teal with moon and teal with star are the 2 favorable pairs.
2. **1/6** The list has 4 × 3 = 12 outcomes. Blue pin and blue patch are favorable, so the probability is 2/12 = 1/6.

CHALLENGE

The 8 outcomes are HHH, HHT, HTH, HTT, THH, THT, TTH, and TTT. Exactly two heads occurs in HHT, HTH, and THH, so the probability is 3/8.

Accept equivalent fractions and any complete, organized sample space. For each coin flip, order matters.