LESSON MAKER PRO

Outcome Hunt

List the possibilities, then find the probability.

GRADE 7 · 7A.DSP.C.32.a

7A.DSP.C.32.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 _____

COUNT EVERY OUTCOME

For two random actions, pair each result of the first action with each result of the second. When all pairs are equally likely, probability is the number of pairs that fit the event divided by the total number of pairs.

WORKED EXAMPLE

Spin 7, 8, or 9 with equal chances, then flip a fair coin. Find P(odd number and heads).

ALL OUTCOMES

Spin	Heads	Tails
7	7H	7T
8	8H	8T
9	9H	9T

1. The table shows 6 equally likely outcomes.
2. 7H and 9H fit the event.
3. Divide: 2/6 = 1/3.

Answer: 1/3

PRACTICE 4 problems

1 Spin 1, 2, or 3 with equal chances, then flip a fair coin. List all outcomes. Find P(even number or heads).

ANSWER _____

2 Flip a fair coin twice. List all outcomes in order. Find P(exactly one heads).

ANSWER _____

3 Spin 4, 5, or 6 with equal chances, then flip a fair coin. List all outcomes. Find P(number greater than 4 and tails).

ANSWER _____

4 Spin 1, 2, or 3, then spin 4, 5, or 6. Each spin has equal chances. List all ordered pairs. Find P(sum of 7).

ANSWER _____

APPLY IT Show your work

1 An avatar app randomly picks a red or blue hat and a star, moon, or bolt badge. Each choice is equally likely. List all outfits. What is P(blue hat and moon or bolt badge)?

WORK SPACE

ANSWER _____

2 A music app randomly pairs a beat, jazz, or rock track with a dark or light theme. Each choice is equally likely. List all pairs. What is P(rock track or dark theme)?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Flip a fair coin twice, then spin 1, 2, or 3 with equal chances. Find P(exactly one heads and a spin other than 2). Show how you counted all outcomes.

WORK SPACE AND ANSWER

ANSWER KEY

Outcome Hunt

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Spin 1, 2, or 3 with equal chances, then flip a fair coin. List all outcomes. Find P(even number or heads).	**1H, 1T, 2H, 2T, 3H, 3T; 4/6 = 2/3**
2	Flip a fair coin twice. List all outcomes in order. Find P(exactly one heads).	**HH, HT, TH, TT; 2/4 = 1/2**
3	Spin 4, 5, or 6 with equal chances, then flip a fair coin. List all outcomes. Find P(number greater than 4 and tails).	**4H, 4T, 5H, 5T, 6H, 6T; 2/6 = 1/3**
4	Spin 1, 2, or 3, then spin 4, 5, or 6. Each spin has equal chances. List all ordered pairs. Find P(sum of 7).	**(1, 4), (1, 5), (1, 6), (2, 4), (2, 5), (2, 6), (3, 4), (3, 5), (3, 6); 3/9 = 1/3**

PART 2 · APPLY IT

1. **(red, star), (red, moon), (red, bolt), (blue, star), (blue, moon), (blue, bolt); 2/6 = 1/3** There are 6 equally likely outfits. The blue hat with a moon badge and the blue hat with a bolt badge fit.
2. **(beat, dark), (beat, light), (jazz, dark), (jazz, light), (rock, dark), (rock, light); 4/6 = 2/3** There are 6 equally likely pairs. Both rock pairs and the two other dark pairs fit.

CHALLENGE

There are 4 coin outcomes and 3 spin outcomes, for 12 equally likely outcomes. HT and TH each pair with spins 1 and 3, giving 4 outcomes. P = 4/12 = 1/3.

Accept outcomes in any order and equivalent fractions. For the challenge, accept an organized list, table, or tree diagram that shows all 12 outcomes.