LESSON MAKER PRO

Outcome Hunt

List possible outcomes and find events within them.

HIGH SCHOOL · MT.CORE.DATA.PROB.1

MT.CORE.DATA.PROB.1 "Understand the concept of a sample space and describe events as subsets of a sample space."

NAME _____ DATE _____

SAMPLE SPACES AND EVENTS

A sample space, S, is the set of every possible outcome. An event is a subset of S containing only the outcomes that meet a stated condition.

WORKED EXAMPLE

Choose one color and one code from the table. List S and the event E: the code is 9.

CHOICES

Colors	Codes
amber, indigo	8, 9

1. Pair each color with each code.
2. Put every pair in S.
3. Keep only pairs with code 9 in E.

Answer: S = {(amber, 8), (amber, 9), (indigo, 8), (indigo, 9)}; E = {(amber, 9), (indigo, 9)}.

PRACTICE 4 problems

1 Choose a snack, sweet or salty, and a drink, water, tea, or juice. List S as (snack, drink) pairs.

ANSWER _____

2 Roll a standard six-sided die. Write the event A for an even roll as a subset of S = {1, 2, 3, 4, 5, 6}.

ANSWER _____

3 Shuffle one song from {pop, jazz, rock, rap}. List the event N: the song is not rock. How many outcomes are in N?

ANSWER _____

4 Choose a letter from {A, B, C} and a number from {0, 1}. List the event T: the letter is B or the number is 0.

ANSWER _____

APPLY IT Show your work

1 A concert app offers one poster design in one format. Using the table, list the event D: the format is digital. Give |D|.

CONCERT POSTERS

Design	Available formats
moon	print, digital
sun	print, digital
star	print, digital

ANSWER _____

2 A game app assigns one badge from {fox, owl, cat} and one mode from {solo, duo}. List the event F: fox badge or duo mode. Give |F|.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A raffle ticket has one letter from {A, B, C} and one digit from {1, 2, 3}. List E: letter A or digit 1. List F: letter A and digit 1. Explain why F is a subset of E.

WORK SPACE AND ANSWER

ANSWER KEY # Outcome Hunt

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Choose a snack, sweet or salty, and a drink, water, tea, or juice. List S as (snack, drink) pairs.	**S = {(sweet, water), (sweet, tea), (sweet, juice), (salty, water), (salty, tea), (salty, juice)}.**
2	Roll a standard six-sided die. Write the event A for an even roll as a subset of S = {1, 2, 3, 4, 5, 6}.	**A = {2, 4, 6}.**
3	Shuffle one song from {pop, jazz, rock, rap}. List the event N: the song is not rock. How many outcomes are in N?	**N = {pop, jazz, rap}; |N| = 3.**
4	Choose a letter from {A, B, C} and a number from {0, 1}. List the event T: the letter is B or the number is 0.	**T = {(A, 0), (B, 0), (B, 1), (C, 0)}.**

PART 2 · APPLY IT

1. **D = {(moon, digital), (sun, digital), (star, digital)}; |D| = 3.** Pair each design with digital. The event contains three outcomes.
2. **F = {(fox, solo), (fox, duo), (owl, duo), (cat, duo)}; |F| = 4.** Include both fox outcomes and the duo outcomes for the other badges. Count each pair once.

CHALLENGE

E = {(A, 1), (A, 2), (A, 3), (B, 1), (C, 1)}; F = {(A, 1)}. F is a subset of E because its only outcome is also in E.

Accept outcomes in any order. For paired outcomes, the first entry must match the order named in the question.