LESSON MAKER PRO

Every Possible Pair

List outcomes and find the ones that fit a rule.

GRADE 8 · 8.DS.C.6.a

8.DS.C.6.a "Represent the sample space for a compound event using organized lists, tables, or tree diagrams. Given an event described in everyday language, identify the outcomes in the sample space that make up the event."

NAME _____ DATE _____

THE BIG IDEA

When you make two choices, pair each first choice with every second choice. Use an organized list, table, or tree to show each outcome once. An event contains the outcomes that fit its rule.

WORKED EXAMPLE

Spin 1 or 2, then flip a coin (H or T). Show all outcomes and those ending in T.

ALL OUTCOMES

Spin	H	T
1	(1, H)	(1, T)
2	(2, H)	(2, T)

1. Make one row for each spin result.
2. Pair each spin result with H and T.
3. Find the pairs ending in T.

Answer: All outcomes: (1, H), (1, T), (2, H), (2, T). Ending in T: (1, T), (2, T).

PRACTICE 4 problems

1 Choose an apple or pear, then choose dip or no dip. Make a table of all outcomes. Which outcomes have dip?

ANSWER _____

2 An avatar gets a red or green cape and black or white boots. List all outfits. Which have green capes?

ANSWER _____

3 Choose 3 or 4, then X or Y. Draw a tree showing all outcomes. Which outcomes end in Y?

ANSWER _____

4 Choose a star, moon, or sun sticker and a black or white background. Make a table of all outcomes. Which have white backgrounds?

ANSWER _____

APPLY IT Show your work

1 For a school dance, choose one playlist and one light color from the table. List all setups. Which use gold but not indie?

DANCE CHOICES

Playlists	Light colors
pop, hip-hop, indie	blue, gold

ANSWER _____

2 A game shop pairs one badge, comet or fox, with one frame, silver, neon, or plain. List all pairs. Which have a comet badge or a neon frame?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A game character gets a pet (cat or owl), a power (ice or fire), and a badge (A or B). List all outcomes. Which have an owl and either fire or badge A?

WORK SPACE AND ANSWER

ANSWER KEY

Every Possible Pair

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Choose an apple or pear, then choose dip or no dip. Make a table of all outcomes. Which outcomes have dip?	**All outcomes: (apple, dip), (apple, no dip), (pear, dip), (pear, no dip). With dip: (apple, dip), (pear, dip).**
2	An avatar gets a red or green cape and black or white boots. List all outfits. Which have green capes?	**All outfits: (red, black), (red, white), (green, black), (green, white). Green capes: (green, black), (green, white).**
3	Choose 3 or 4, then X or Y. Draw a tree showing all outcomes. Which outcomes end in Y?	**The tree shows (3, X), (3, Y), (4, X), (4, Y). Ending in Y: (3, Y), (4, Y).**
4	Choose a star, moon, or sun sticker and a black or white background. Make a table of all outcomes. Which have white backgrounds?	**All outcomes: (star, black), (star, white), (moon, black), (moon, white), (sun, black), (sun, white). White backgrounds: (star, white), (moon, white), (sun, white).**

PART 2 · APPLY IT

1. **All setups: (pop, blue), (pop, gold), (hip-hop, blue), (hip-hop, gold), (indie, blue), (indie, gold). Gold but not indie: (pop, gold), (hip-hop, gold).** Pair each playlist with both light colors. Keep the gold pairs whose playlist is not indie.
2. **All pairs: (comet, silver), (comet, neon), (comet, plain), (fox, silver), (fox, neon), (fox, plain). Comet or neon: (comet, silver), (comet, neon), (comet, plain), (fox, neon).** Pair each badge with all three frames. Include every comet pair and the fox pair with a neon frame.

CHALLENGE

All outcomes: (cat, ice, A), (cat, ice, B), (cat, fire, A), (cat, fire, B), (owl, ice, A), (owl, ice, B), (owl, fire, A), (owl, fire, B). Event: (owl, ice, A), (owl, fire, A), (owl, fire, B).

Accept outcomes in any order if each appears once. For events using "or," include outcomes that fit either condition or both.