LESSON MAKER PRO

Chance Choice Lab

Build a sample space, then find the chance.

GRADE 5 · 5.PS.3.a

5.PS.3.a "Determine the probability of an outcome by constructing a sample space (with a total of 24 or fewer equally likely possible outcomes), using a tree diagram, list, or chart to represent and determine all possible outcomes."

NAME _____ DATE _____

MAP EVERY OUTCOME

When each choice is equally likely, list every possible outcome with a tree, list, or chart. Probability = favorable outcomes / total outcomes. Simplify the fraction when you can.

WORKED EXAMPLE

A cafe lets you choose 1 soup, tomato, bean, or vegetable, and 1 bread, roll or pita. What is the probability of choosing bean soup?

1. List the outcomes: tomato-roll, tomato-pita, bean-roll, bean-pita, vegetable-roll, vegetable-pita.
2. There are 6 total outcomes.
3. Bean soup appears in 2 outcomes, so 2/6 = 1/3.

Answer: 1/3

PRACTICE 5 problems

1 Choose 1 sticker, cat, dog, fish, or owl, and 1 marker color, red, blue, green, or yellow. Use a chart. What is P(cat and blue)?

ANSWER _____

2 A spinner has 5 equal sections labeled A, A, B, C, and D. Write the sample space. What is P(A)?

ANSWER _____

3 Choose 1 letter card, A, B, C, or D, and 1 shape card, circle, square, triangle, star, or heart. Use a chart. What is P(B and heart)?

ANSWER _____

4 A hiking app randomly pairs 1 trail, North, East, South, or West, with 1 snack from 5 choices. What is P(East trail)?

ANSWER _____

5 A code uses 1 letter from A, B, C, or D and 1 symbol from star, heart, circle, square, or triangle. Use a chart. What is P(C and circle)?

ANSWER _____

APPLY IT Show your work

1 In a game design club, Leo randomly chooses 1 avatar from Nova, Pixel, Orbit, and Blaze and 1 badge from lightning, rocket, crown, leaf, and paw. What is the probability he chooses Nova or the lightning badge, or both?

WORK SPACE

ANSWER _____

2 At a book fair, Jada randomly chooses 1 comic series from 4 choices and 1 bookmark design from 5 choices. What is the probability of choosing the mystery comic and the striped bookmark?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A digital pet maker randomly chooses 1 pet type from cat, dog, dragon, and rabbit and 1 accessory from hat, wings, glasses, cape, ball, and crown. What is the probability of getting a cat or wings, or both? Explain how you avoid counting one outcome twice.

WORK SPACE AND ANSWER

ANSWER KEY

Chance Choice Lab

GRADE 5 · 5.PS.3.a

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Choose 1 sticker, cat, dog, fish, or owl, and 1 marker color, red, blue, green, or yellow. Use a chart. What is P(cat and blue)?	**1/16**
2	A spinner has 5 equal sections labeled A, A, B, C, and D. Write the sample space. What is P(A)?	**Sample space: A, A, B, C, D; P(A) = 2/5**
3	Choose 1 letter card, A, B, C, or D, and 1 shape card, circle, square, triangle, star, or heart. Use a chart. What is P(B and heart)?	**1/20**
4	A hiking app randomly pairs 1 trail, North, East, South, or West, with 1 snack from 5 choices. What is P(East trail)?	**5/20 = 1/4**
5	A code uses 1 letter from A, B, C, or D and 1 symbol from star, heart, circle, square, or triangle. Use a chart. What is P(C and circle)?	**1/20**

PART 2 · APPLY IT

1. **8/20 = 2/5** A chart has 20 outcomes. There are 5 Nova outcomes and 4 lightning outcomes, but Nova-lightning is counted twice, so 5 + 4 - 1 = 8 favorable outcomes.
2. **1/20** There are 4 x 5 = 20 equally likely pairs. Only 1 pair has both the mystery comic and the striped bookmark.

CHALLENGE

9/24 = 3/8. There are 6 cat outcomes and 4 wings outcomes. The cat-with-wings outcome is in both groups, so subtract it once: 6 + 4 - 1 = 9.

Accept equivalent unsimplified fractions when the favorable and total counts are correct. Students may organize the sample spaces with a tree, list, or chart.