LESSON MAKER PRO

Chance Data Detectives

Build probability models from trial results.

GRADE 6 · NY-6.SP.8.b

NY-6.SP.8.b "Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process"

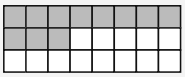
NAME _____ DATE _____

USE WHAT HAPPENED

To make a probability model from data, divide the number of times an outcome occurred by the total number of trials. Outcomes that occur more often have greater probabilities, and all probabilities in a complete model add to 1.

WORKED EXAMPLE

The array shows 24 spinner results. Each shaded square is orange, and each unshaded square is purple. Use the results to estimate P(orange).



1. Count all results: 24.
2. Count orange results: 11.
3. P(orange) = 11/24.

Answer: 11/24

PRACTICE 4 problems

1 A spinner lands on a star 10 times in 14 spins. What model estimates P(star)?

ANSWER _____

2 In 21 random draws, 6 are green and 15 are orange. Write a model for both colors.

ANSWER _____

3 A game bonus appears in 14 of 20 test rounds. Use the model to predict the number of bonus rounds in 30 more rounds.

ANSWER _____

4 A random weather app displays sun 10 times, rain 14 times, and clouds 16 times in 40 trials. Write a probability model for the three displays.

ANSWER _____

APPLY IT Show your work

1 A game club tests a random prize wheel 40 times. Use the table to write a model for each prize. Then predict the number of sticker prizes in 50 spins.

PRIZE WHEEL TRIALS

Prize	Times Landed On
Sticker	16
Avatar item	14
Coins	10

ANSWER _____

2 A music app is on shuffle. In 28 plays, it gives 14 pop songs and 14 rock songs. Write a probability model. Then predict the number of pop songs in 20 plays.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Two groups test the same mystery spinner. Group A gets blue 10 times in 16 spins. Group B gets blue 18 times in 30 spins. Combine the data to make one model for P(blue). Explain why using both groups is useful.

WORK SPACE AND ANSWER

ANSWER KEY

Chance Data Detectives

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A spinner lands on a star 10 times in 14 spins. What model estimates P(star)?	**5/7**
2	In 21 random draws, 6 are green and 15 are orange. Write a model for both colors.	**P(green) = 2/7; P(orange) = 5/7**
3	A game bonus appears in 14 of 20 test rounds. Use the model to predict the number of bonus rounds in 30 more rounds.	**21**
4	A random weather app displays sun 10 times, rain 14 times, and clouds 16 times in 40 trials. Write a probability model for the three displays.	**P(sun) = 1/4; P(rain) = 7/20; P(clouds) = 2/5**

PART 2 · APPLY IT

1. **P(sticker) = 2/5; P(avatar item) = 7/20; P(coins) = 1/4. In 50 spins, predict 20 sticker prizes.** Divide each count by 40 and simplify. Multiply 50 by 2/5 to predict the sticker prizes.
2. **P(pop) = 1/2; P(rock) = 1/2. Predict 10 pop songs.** Divide each genre count by 28. Multiply 20 by 1/2 for the prediction.

CHALLENGE

P(blue) = 28/46 = 14/23. Using 46 total spins gives more data, so one unusual result has less effect on the model.

Accept equivalent fractions for all probability models. For the challenge, accept a correct statement that the larger combined number of trials makes the estimate more reliable.