LESSON MAKER PRO

Chance in Action

Use trial results to estimate what may happen next.

GRADE 7 · 7.DS.C.5.a

7.DS.C.5.a "Use data collection or simulation to approximate the probability of a chance event by observing its long-run relative frequency."

NAME _____ DATE _____

THE BIG IDEA

Count how many times an event happens, then divide by the total number of trials. This relative frequency estimates the event's probability. More trials usually give a more reliable estimate.

WORKED EXAMPLE

Use the spinner results to estimate P(glow).

SPINNER RESULTS

Result	Spins
Glow	8
Not glow	24

1. Find the total: 8 + 24 = 32 spins.
2. Divide glow spins by total spins: 8/32.
3. Simplify: 8/32 = 1/4.

Answer: P(glow) is about 1/4.

PRACTICE 4 problems

1 A spinner stops on purple in 9 of 30 spins. Estimate P(purple).

ANSWER _____

2 A mystery box contains a badge in 15 of 40 tests. Estimate P(badge).

ANSWER _____

3 A game wheel lands on coins in 21 of 60 spins. Estimate P(coins).

ANSWER _____

4 A snack machine gives a sticker in 14 of 50 tries. Estimate P(sticker). Is it less than 1/2?

ANSWER _____

APPLY IT Show your work

1 A player repeats a quest in a video game. Use the results to estimate the chance of finding a rare item on the next quest.

QUEST RESULTS

Result	Quests
Rare item	27
No rare item	63

ANSWER _____

2 In 100 random song picks, a music app picked your favorite artist 36 times. Estimate the chance that the next pick is by that artist.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A game gives a bonus in 6 of its first 12 plays and in 33 of its next 88 plays. Use all the plays to estimate P(bonus). Why is this estimate more reliable than using only the first 12 plays?

WORK SPACE AND ANSWER

ANSWER KEY

Chance in Action

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A spinner stops on purple in 9 of 30 spins. Estimate P(purple).	**9/30 = 3/10**
2	A mystery box contains a badge in 15 of 40 tests. Estimate P(badge).	**15/40 = 3/8**
3	A game wheel lands on coins in 21 of 60 spins. Estimate P(coins).	**21/60 = 7/20**
4	A snack machine gives a sticker in 14 of 50 tries. Estimate P(sticker). Is it less than 1/2?	**14/50 = 7/25; yes, it is less than 1/2.**

PART 2 · APPLY IT

1. **27/90 = 3/10** There were 27 + 63 = 90 quests. Divide 27 by 90 and simplify.
2. **36/100 = 9/25** Divide 36 picks by 100 total picks, then simplify.

CHALLENGE

There were 6 + 33 = 39 bonuses in 12 + 88 = 100 plays, so P(bonus) is about 39/100. The estimate uses more trials, so it is less affected by chance results in a small group.

Accept equivalent fractions or correct decimals and percents. For the challenge, accept an explanation that more trials generally give a more reliable estimate.