LESSON MAKER PRO

Prediction Check

Compare model predictions with real results.

GRADE 7 · 7A.DSP.C.30.b

7A.DSP.C.30.b "Compare probabilities from a model to observe frequencies, explaining possible sources of discrepancy."

NAME _____ DATE _____

PREDICT, THEN COMPARE

Multiply the model probability by the number of trials to predict how many times an event will happen. Compare that prediction with the actual count. Chance variation or a model that does not fit the situation can cause a difference.

WORKED EXAMPLE

A spinner's model gives red a probability of 1/5. Compare the prediction with the results in the table. Give one reason they might differ.

SPINNER RESULTS

Spins	Red
30	8

1. Predicted red: 30 × 1/5 = 6.
2. Actual red: 8, which is 2 more than predicted.
3. Chance variation could explain the difference.

Answer: The spinner landed on red 2 more times than predicted. Chance variation is one possible reason.

PRACTICE 4 problems

1 A game predicts a prize on 1/4 of plays. In 20 plays, there are 7 prizes. How does the prize count compare with the prediction?

ANSWER _____

2 A model predicts rain on 3/10 of days. It rains on 9 of 40 days. How does the rain count compare with the prediction?

ANSWER _____

3 A model predicts a hit on 2/3 of tries. There are 11 hits in 15 tries. How does the hit count compare with the prediction?

ANSWER _____

4 A model predicts a win on 1/2 of plays. There are 6 wins in 18 plays. Compare the counts and give one possible reason for the difference.

ANSWER _____

_____

APPLY IT Show your work

1 A playlist model predicts a pop song on 3/8 of plays. Use the table to compare expected and actual pop songs. Why might they differ?

PLAYLIST RESULTS

Plays	Pop songs
32	15

ANSWER _____

2 A basketball player models making 4/5 of free throws. Compare the table's results with the prediction. Give a possible reason besides chance for the gap.

FREE THROWS

Attempts	Made
25	16

ANSWER _____

CHALLENGE One step up

A game gives a sticker, pin, or badge, each with model probability 1/3. In 60 plays, players get 26 stickers and 18 pins. Find the badge count. Compare all three counts with the model, then explain why these results do not prove the model is wrong.

WORK SPACE AND ANSWER

ANSWER KEY

Prediction Check

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A game predicts a prize on 1/4 of plays. In 20 plays, there are 7 prizes. How does the prize count compare with the prediction?	**2 more prizes than predicted (7 actual, 5 predicted).**
2	A model predicts rain on 3/10 of days. It rains on 9 of 40 days. How does the rain count compare with the prediction?	**3 fewer rainy days than predicted (9 actual, 12 predicted).**
3	A model predicts a hit on 2/3 of tries. There are 11 hits in 15 tries. How does the hit count compare with the prediction?	**1 more hit than predicted (11 actual, 10 predicted).**
4	A model predicts a win on 1/2 of plays. There are 6 wins in 18 plays. Compare the counts and give one possible reason for the difference.	**There are 3 fewer wins than predicted (6 actual, 9 predicted). Chance variation could explain the difference.**

PART 2 · APPLY IT

1. **15 pop songs played, 3 more than the 12 predicted. Chance variation could explain the difference.** Multiply 32 × 3/8 to predict 12 pop songs. Compare 15 with 12.
2. **The player made 16 free throws, 4 fewer than the 20 predicted. Fatigue may have affected the player's shots.** Multiply 25 × 4/5 to predict 20 makes. The actual count is 4 lower.

CHALLENGE

There were 16 badges. The model predicts 20 of each prize, so there were 6 more stickers, 2 fewer pins, and 4 fewer badges than predicted. Chance variation can cause these differences even if the model is correct.

Accept equivalent comparisons using counts. For reasons, accept chance variation where allowed, and a plausible change in conditions or an inaccurate model for the free-throw problem.