LESSON MAKER PRO

Chance Counts

Build a fair model, then count the outcomes.

GRADE 7 · 7.PR.6.4

7.PR.6.4 "Develop a uniform probability model by assigning equal probability to all outcomes and use the model to determine probabilities of events."

NAME _____ DATE _____

FAIR OUTCOMES

When every outcome is equally likely, probability = favorable outcomes / total outcomes. Count all possible outcomes, then count the outcomes that match the event. Simplify the fraction when possible.

WORKED EXAMPLE

A game spinner has 17 equal sections. Six sections show a star. What is the probability of spinning a star?

1. Total equally likely outcomes: 17.
2. Favorable outcomes, star: 6.
3. Probability = 6/17.

Answer: 6/17

PRACTICE 6 problems

1 A fair coin is flipped once. What is the probability that it lands on tails?

ANSWER _____

2 A spinner has 8 equal sections. Three sections are purple. What is the probability of not landing on purple?

ANSWER _____

3 One card is chosen at random from cards numbered 1 through 14. What is the probability that the card number is a multiple of 5?

ANSWER _____

4 A box has 10 raffle tickets. Seven tickets are for music downloads, and 3 tickets are for art supplies. What is the probability of choosing an art-supply ticket?

ANSWER _____

5 A fair number spinner has 8 equal sections labeled 1 through 8. What is the probability of spinning an odd number?

ANSWER _____

6 A bag has 15 marbles. Ten are striped, and 5 are solid. What is the probability of choosing a solid marble?

ANSWER _____

APPLY IT Show your work

1 At a school gaming event, a prize wheel has 20 equal sections. Eight sections offer a game-theme sticker, 5 offer a keychain, 3 offer a phone grip, and 4 offer a snack voucher. What is the probability of winning a phone grip or a snack voucher?

WORK SPACE

ANSWER _____

2 Twenty-one students sign up to open a talent show. Their order is chosen randomly. Nine perform dance, 7 perform music, and 5 perform comedy. What is the probability that the opening performer is not a music performer?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A random generator selects one number from 1 through 25, with each number equally likely. Find the probability that the selected number is even or a multiple of 5. Explain how you avoid counting any number twice.

WORK SPACE AND ANSWER

ANSWER KEY

Chance Counts

GRADE 7 · 7.PR.6.4

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A fair coin is flipped once. What is the probability that it lands on tails?	**1/2**
2	A spinner has 8 equal sections. Three sections are purple. What is the probability of not landing on purple?	**5/8**
3	One card is chosen at random from cards numbered 1 through 14. What is the probability that the card number is a multiple of 5?	**1/7**
4	A box has 10 raffle tickets. Seven tickets are for music downloads, and 3 tickets are for art supplies. What is the probability of choosing an art-supply ticket?	**3/10**
5	A fair number spinner has 8 equal sections labeled 1 through 8. What is the probability of spinning an odd number?	**1/2**
6	A bag has 15 marbles. Ten are striped, and 5 are solid. What is the probability of choosing a solid marble?	**1/3**

PART 2 · APPLY IT

1. **7/20** There are 3 phone-grip sections and 4 snack-voucher sections. Add the favorable sections, 3 + 4 = 7, then divide by 20.
2. **2/3** There are 9 + 5 = 14 performers who are not music performers. The probability is 14/21, which simplifies to 2/3.

CHALLENGE

3/5

Accept equivalent fractions when they represent the same probability. For the challenge, students should subtract the overlap before dividing by the total number of outcomes.