

Chance Number Sense

Use fractions to describe how likely events are.

GRADE 6 • NY-6.SP.6

NY-6.SP.6 "Understand that the probability of a chance event is a number between 0 and 1 inclusive, that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event..."

NAME _____

DATE _____

PROBABILITY ON A SCALE

For equally likely outcomes, probability = favorable outcomes / total outcomes. Probability is from 0 to 1. Values near 0 are unlikely, values around $1/2$ are neither unlikely nor likely, and values near 1 are likely.

WORKED EXAMPLE

A box holds 7 teal cards and 9 white cards. One card is chosen at random. Find $P(\text{teal})$.

1. Count all cards: $7 + 9 = 16$.
2. Count favorable cards: 7 teal cards.
3. Write probability: $7/16$.

Answer: $P(\text{teal}) = 7/16$

PRACTICE 6 problems

- 1** A jar holds 2 blue beads and 3 green beads. One bead is chosen at random. Find $P(\text{blue})$.

ANSWER _____

- 2** A number is chosen at random from 1, 2, 3, 4, 5, and 6. Find $P(\text{even})$. Then describe the likelihood.

ANSWER _____

- 3** A raffle has 1 gold ticket and 11 silver tickets. One ticket is chosen at random. Find $P(\text{gold})$. Then describe the likelihood.

ANSWER _____

- 4** A folder has 8 nature backgrounds and 2 city backgrounds. One background is selected at random. Find $P(\text{nature})$. Then describe the likelihood.

ANSWER _____

- 5** Event A has probability $3/8$. Event B has probability $5/8$. Which event is more likely? How much greater is its probability?

ANSWER _____

- 6** A game has probability $1/10$ of giving a bonus level. Is this unlikely, neither unlikely nor likely, or likely? Explain using 0, $1/2$, and 1.

ANSWER _____

APPLY IT Show your work

- 1** At lunch, a DJ app will choose one song request at random from the requests in the table. What is the probability that it chooses a hip-hop request? Describe the likelihood.

SONG REQUESTS

Type of request	Number of requests
Hip-hop	8
Pop	6
Instrumental	4
Jazz	2

ANSWER _____

- 2** For an art club prize, a bag holds 3 holographic stickers, 1 glow-in-the-dark sticker, and 11 matte stickers. One sticker is chosen at random. What is the probability of choosing a holographic or glow-in-the-dark sticker? Describe the likelihood.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Two school dance giveaway games use random tickets. Game A has 6 winning tickets out of 18 tickets. Game B has 5 winning tickets out of 12 tickets. Which game gives a better chance of winning? Explain your reasoning with equivalent fractions.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	A jar holds 2 blue beads and 3 green beads. One bead is chosen at random. Find $P(\text{blue})$.	2/5
2	A number is chosen at random from 1, 2, 3, 4, 5, and 6. Find $P(\text{even})$. Then describe the likelihood.	1/2; neither unlikely nor likely
3	A raffle has 1 gold ticket and 11 silver tickets. One ticket is chosen at random. Find $P(\text{gold})$. Then describe the likelihood.	1/12; unlikely
4	A folder has 8 nature backgrounds and 2 city backgrounds. One background is selected at random. Find $P(\text{nature})$. Then describe the likelihood.	4/5; likely
5	Event A has probability $3/8$. Event B has probability $5/8$. Which event is more likely? How much greater is its probability?	Event B; 1/4 greater
6	A game has probability $1/10$ of giving a bonus level. Is this unlikely, neither unlikely nor likely, or likely? Explain using 0, $1/2$, and 1.	Unlikely. $1/10$ is closer to 0 than to $1/2$ or 1.

PART 2 • APPLY IT

- 2/5; neither unlikely nor likely** There are 20 requests total. Hip-hop has probability $8/20 = 2/5$, which is around $1/2$.
- 4/15; unlikely** There are 15 stickers total and 4 favorable stickers. The probability is $4/15$, which is closer to 0 than to $1/2$.

CHALLENGE

Game B. $P(A) = 6/18 = 1/3 = 4/12$, and $P(B) = 5/12$. Since $5/12 > 4/12$, Game B gives a better chance.

Accept equivalent fractions, such as $3/6$ for $1/2$ and $8/10$ for $4/5$. For likelihood descriptions, accept clearly equivalent language such as equally likely for neither unlikely nor likely.