LESSON MAKER PRO

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(teal).

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

Answer: P(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(blue).

ANSWER _____

2 A number is chosen at random from 1, 2, 3, 4, 5, and 6. Find P(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(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(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

ANSWER KEY

Chance Number Sense

GRADE 6 · NY-6.SP.6

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A jar holds 2 blue beads and 3 green beads. One bead is chosen at random. Find P(blue).	**2/5**
2	A number is chosen at random from 1, 2, 3, 4, 5, and 6. Find P(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(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(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

1. **2/5; neither unlikely nor likely** There are 20 requests total. Hip-hop has probability 8/20 = 2/5, which is around 1/2.
2. **4/15; unlikely** There are 15 stickers total and 4 favorable stickers, so P = 4/15. This is below 1/2, so the event happens less often than it does not happen. It is actually slightly closer to 1/2 than to 0: the distances are 7/30 and 8/30. Accept a reasonable likelihood description supported by the fraction.

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. For Apply 2, accept unlikely or another reasonable justified description; do not claim that 4/15 is closer to 0 than to 1/2.