5th Basic

6th Advanced

Helping With Math

USA GRADES

Probability of Random Events

Suitable for students **aged 9-11**

This pack is suitable for learners aged 9-11 years old or 5th to 6th graders (USA). The content covers fact files and relevant basic and advanced activities involving probability of random events.

Key Concepts:

- Probability refers to how likely an event will occur. It means the chance of something to happen.
- Random event pertains to something that is unpredictable.
- Since a random event is unpredictable, you cannot give an exact calculation for something to occur.
- The result of a random experiment is called an outcome.
- The set of all the possible outcomes of a random experiment is called Sample Space, and it is denoted by ‘S’.
- A subset of the sample space is called an Event.

ILLUSTRATIVE EXAMPLES

Based on a survey result, 56% of the carnival goers tend to buy at least 2 cups of ice cream whenever they visit a Carnival park. What is the probability that all of the five random visitors in the carnival bought 2 cups of ice cream?

Solution:

P(E) = (0.56)(0.56)(0.56)(0.56)(0.56) *Change 56% to decimal. Then multiply the value five times.*

P(E) = 0.550 or 5.50% *Simplify.*

Therefore, the probability that all five Carnival visitors will buy 2 cups of ice cream is 0.550 or 5.50%

Given the color wheel, calculate the probability that the outcome will be a blue color.

Solution:

There are 6 possible colors that may serve as an outcome: red, orange, yellow, blue, green, and violet.

Since we are calculating for the probability that a blue color will be chosen, we need to divide 1 over 6. Thus the probability is ⅙ or 16.67%!

TABLE OF ACTIVITIES

CARNIVAL ENTRANCE

G5
Basic

Get a 25% off in carnival entrance fee by answering all the items correctly. Write your answers on the space provided.

A. Identification.

1. It is the likelihood of the occurrences of the given event.

2. It is a process of doing something which will lead to results.

3. It is the result of a probability experiment.

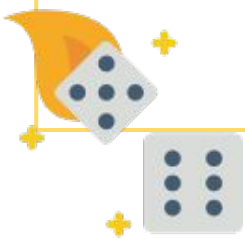
4. It is a list of all the possible results.

B. Enumeration. List all the possible outcomes of the following events.

1. Flipping a coin

2. Rolling a die

3. Getting a jack in a standard deck of cards



DOUBLE TREAT

G5 Basic

Would it be nice to get a double-treat promo? Answer all the questions correctly and your friend will have a free entrance fee!

A. Modified TRUE or FALSE.

1. A probability of 0 means an event is certain to happen.
2. Getting number 8 when rolling a die has a probability of 1.
3. In tossing a coin, there are two possible outcomes.
4. The probability of getting a tail in tossing a coin is 100%.

1.	2.
3.	4.

B. Essay. Give an example or situation for each probability below.

1. Certain event (100% or 1)
2. Even chance of event (50% or 1/2)
3. Impossible event (0% or 0)

THE NUMBER WHEEL

G5
Basic

Amelia and Sophia are in a carnival park and they decided to play a number wheel. Using your understanding of probability, help them win.

The wheel is numbered from 0 - 9 and is spun once. Help Amelia and Sophia to find the probability of their winning if they bet on the following numbers.

1.	1st game	2
2.	2nd game	3 and 5
3.	3rd game	4, 5, 7, and 8
4.	4th game	all even numbers
5.	4th game	they did not bet in any of the numbers
6.	5th game	0 to 9

COLOR WHEEL OF FORTUNE

G5 Basic

Help Amelia and Sophia again to carefully place their bet on this color wheel of fortune.

After playing the number wheel, Amelia and Sophia played another game which is called the color wheel of fortune. If they will bet on one color per game, find the probability of the following:

1. winning any amount
2. winning $10
3. not winning any amount
4. winning an amount greater than $15
5. Winning an amount less than $10.
6. if they bet on orange, green, and violet at the same time, what is the probability of winning?

THE BALLOON GAME

G5 Basic

These three people are excited to play the Balloon Game! Go and join them to win!

William, friend of Amelia and Sophia, is looking for a game which he thinks he will enjoy to play with. He saw the game balloon dart with 4 green balloons, 9 red balloons, and 11 blue balloons. If he is given 5 darts, find the probability of the following:

1. Popping a green balloon
2. Popping a red balloon
3. Popping a blue balloon
4. If he popped a green balloon on his 1st attempt, what is the probability of popping another green balloon on the 2nd attempt?
5. If he popped a red balloon on his 1st attempt, a blue balloon on his 2nd attempt, what is the probability of popping another blue balloon?
6. If he popped 4 green balloons, what is the probability of popping another green balloon on his 5th attempt?

CARNIVAL MOMENTS

G6 Advanced

Refer to the series of carnival events below and solve each given using the concepts of probability.

After playing, Amelia, Sophia and William decided to have a snack break in a food station inside the carnival park and they saw a vending machine with chocolate balls inside.

If there are 15 pink chocolate balls, 20 blue chocolate balls, 10 orange chocolate balls, and 25 yellow chocolate balls, and they decided to purchase some, find the probability of the following:

1. getting a blue chocolate ball
2. getting a yellow chocolate ball
3. getting a orange chocolate ball
4. getting a pink chocolate ball
5. getting a yellow and an orange chocolate ball at the same time
6. getting a pink chocolate ball after getting a blue chocolate ball at first
7. getting a yellow ball after getting an orange and a yellow chocolate ball at first
8. getting a gum ball

DIGITAL SOLITAIRE

G6 Advanced

After taking their snacks, William asked Amelia and Sophia to join and help him in playing digital solitaire game at the carnival park. Help them solve for the given probability.

A standard deck of 52 playing cards will be used in the game. If a player will draw a card at first, find the probability of the following:

1. drawing an ace of hearts
2. drawing a face card
3. drawing a diamond
4. drawing a king
5. drawing a black card
6. drawing a red card with numbers 2 - 5

CANDY MACHINE

G6 Advanced

The three decided to play another games at the carnival park and luckily they won a box of 50-piece gummy candies in different shapes. Solve each item.

Details: 12 are bears, 18 are fish, 15 are worms, and 5 are flowers. If they decided to eat the gummy candies, find the probability of the following:

1. getting a bear shape
2. getting a fish shape
3. getting a worm shape
4. getting a flower shape
5. getting a worm after getting a flower at first
6. If William already ate 3 bear shapes, 2, worm shapes, and 1 flower shape, what is the probability of getting another bear shape?

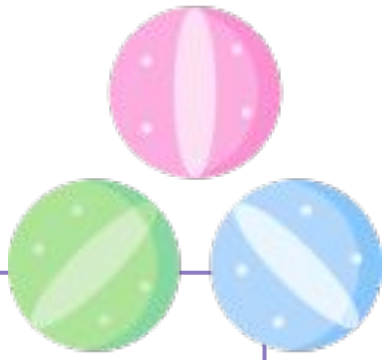
THE JUNGLE

G6
Advanced

Before they go home, they decided to play one last game named " The Jungle". Refer to the situation below and help Amelia and her friends to win.

There are numbers from 1 - 16. To win, they should fill in number 1, two even numbers, two odd numbers, and a two-digit number with marbles. Help them to know the probability of the following:

1. Getting number 1
2. Getting an even number
3. Getting an odd number
4. Getting a two-digit number
5. Getting an even or an odd number
6. Getting an odd or a two-digit number



PROBABILITY IN LIFE

G6 Advanced

As you have answered all the precious activities where probability can be applied in Carnival games, complete the task below.

1. State 3 examples or situations that probability is involved.

2. Why is probability important? How is it applied to real life?

ANSWER GUIDE

Activity 1

A. 1.) Probability
2.) experiment
3.) outcome
4.) sample space

B. 1.) head, tail
2.) 1, 2, 3, 4, 5, 6
3.) jack of hearts,jack of diamonds,jack of spades,jack of clubs

Activity 2

A. 1.) 1 2.) 0 3.) True 4.) 50%

B. 1 – 3 Answers may vary

Activity 3

1.) $\frac{1}{10}$ 2.) $\frac{1}{5}$ 3.) $\frac{2}{5}$ 4.) $\frac{1}{2}$ 5.) 0 6.) 1

Activity 4

1.) $\frac{1}{8}$ 2.) $\frac{1}{8}$ 3.) $\frac{7}{8}$ 4.) $\frac{1}{4}$ 5.) 0 6.) $\frac{3}{8}$

Activity 5

1.) $\frac{1}{6}$ 2.) $\frac{3}{8}$ 3.) $\frac{11}{24}$ 4.) $\frac{3}{23}$ 5.) $\frac{5}{11}$ 6.) $\frac{3}{8}$

ANSWER GUIDE

Activity 6

1.) $\frac{2}{7}$ 2.) $\frac{5}{14}$ 3.) $\frac{1}{7}$ 4.) $\frac{3}{14}$

5.) 0 6.) $\frac{5}{23}$ 7.) $\frac{6}{17}$ 8.) 0

Activity 7

1.) $\frac{1}{52}$ 2.) $\frac{3}{13}$ 3.) $\frac{1}{4}$ 4.) $\frac{1}{13}$ 5.) $\frac{1}{2}$ 6.) $\frac{2}{13}$

Activity 8

1.) $\frac{6}{25}$ 2.) $\frac{9}{25}$ 3.) $\frac{3}{10}$ 4.) $\frac{1}{10}$ 5.) $\frac{15}{49}$ 6.) $\frac{2}{11}$

Activity 9

1.) $\frac{1}{16}$ 2.) $\frac{1}{2}$ 3.) $\frac{1}{2}$ 4.) $\frac{7}{16}$ 5.) 1 6.) $\frac{3}{16}$

Activity 10

1.) Answers may vary.
2.) Answers may vary.

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