

Name _____

What are the **Odds**?

What does the word **'probability'** mean? Play the game to find out!

Paper Scissors & Rock

Get Started

- 1** With a partner, you will need
- two sets of hands
 - this Previsit Activity sheet
 - a pencil

Let's Play!

2 A rock is a closed fist. Paper is palm face down, and scissors is the number two horizontally. With your partner, both of you must simultaneously hit your other hand twice, and on the third time give the symbol you wish. Rock beats scissors. Paper beats rocks. Scissors beats paper. If you both give the same symbol then it's a tie.

In groups of two, play the 18 rounds of Paper, Scissors and Rock. Keep a record of your wins, losses and ties using the chart below.

3

	Win	Lose	Tie	
Round # 1				# of times I won <input type="text"/>
# 2				# of rounds <input type="text" value="18"/>
# 3				# of times I lost <input type="text"/>
# 4				# of rounds <input type="text" value="18"/>
# 5				# of times we tied <input type="text"/>
# 6				# of rounds <input type="text" value="18"/>
# 7				# of times we tied <input type="text"/>
# 8				# of rounds <input type="text" value="18"/>
# 9				# of times we tied <input type="text"/>
# 10				# of rounds <input type="text" value="18"/>
# 11				# of times we tied <input type="text"/>
# 12				# of rounds <input type="text" value="18"/>
# 13				# of times we tied <input type="text"/>
# 14				# of rounds <input type="text" value="18"/>
# 15				# of times we tied <input type="text"/>
# 16				# of rounds <input type="text" value="18"/>
# 17				# of times we tied <input type="text"/>
# 18				# of rounds <input type="text" value="18"/>
TOTAL				

The Score

4 With 2 players, this game has **9** different outcomes. List them below.

	Me	My partner	
1.	paper	rock	win
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			

- 6** How many ways can you win?
- How many ways can you lose?
- How many ways can you tie?

5 In the blanks above, label the 9 different outcomes as either a win, a loss, or a tie.

What is Probability?

It's the chance of some event happening. Expressed as a fraction, you can calculate the probability that you will win in a round of Paper, Scissors and Rock for example.

$$\text{PROBABILITY OF A SPECIFIC EVENT OCCURRING} = \frac{\text{\# OF WAYS THE SPECIFIC EVENT CAN OCCUR}}{\text{TOTAL \# OF OUTCOMES POSSIBLE}}$$

7 What is the probability I will win in any round? Using the probability formula above,

$$\text{Probability of me winning} = \frac{\text{\# of ways I can win} \quad \square}{\text{total \# of outcomes possible} \quad \square} = \square$$

How do these numbers compare to your actual wins, losses, and ties during the 18 rounds you played?

8 What is the probability I will lose in any round? Using the probability formula above,

$$\text{Probability of me losing} = \frac{\text{\# of ways I can lose} \quad \square}{\text{total \# of outcomes possible} \quad \square} = \square$$

Are they almost equal to your actual wins and losses?

The Result

9 You are in a Paper, Scissors and Rock marathon, playing 300 rounds, to raise funds for a school charity. For every time you win, your partner gives you 10¢. For every time you lose, you give 10¢ to your partner. If it's a tie, you and your partner give 10¢ to the charity.

On average after 300 rounds:

You will spend \$ and win \$.

Your partner will spend \$ and win \$.

The charity will spend \$ and win \$.



Problem Gambling Help Line

1-800-306-6789

You know what probability means now. (If not take a quick peek on the other side!) So it's time to take...

The Probability Quiz



Round #1: Coin flip

Probability is not psychic
Probability only tells you how likely an event is over many trials; it doesn't predict exactly what will happen on any given trial.

- 1 When you toss a coin, what are the chances of the coin landing heads up?
a) 1/1 b) 1/4 c) 1/3 d) 1/2
- 2 If you toss a coin and it lands heads up six times in a row, what is the chance it will land heads up on the seventh toss?
a) 1/1 b) 1/2 c) 1/6 d) 1/7
- 3 The chances of tossing 20 heads in a row with a regular coin is:
a) not possible
b) possible, but not common
c) possible and very likely



Round #2: Games of Skill

Chance has no memory
It doesn't matter if you haven't rolled a four in 10 tries or rolled a four 10 times in a row. The probability of a four on the next roll remains exactly the same.

- 4 Which of the following is NOT a game of skill?
a) bowling b) bingo c) basketball d) baseball
- 5 If you practice really hard at baseball you should be able to:
a) increase your skills and get better
b) stay about the same
c) get worse
- 6 If your best friend is the best basketball player in town and his team is playing against the worst team in town, you should:
a) borrow all the money you can to bet on the game
b) bet all the money you have, since you'll get it back anyway
c) only bet the amount of money you would be comfortable losing if you friend's team lost



Round #3: Games of Chance

Average of many trials
The more times you try a particular action the more likely it is that your results will fall close to what probability predicts.

- 7 You roll two regular six-sided dice. Your chance of rolling a combined total of 2 is:
a) 1 in 6 b) 1 in 2 c) 2 in 6 d) 1 in 36
- 8 A game of chance is a game where:
a) only naturally lucky people can win
b) the winner is determined by skill
c) the winner is randomly determined
- 9 The more you play a game of chance, the better you get.
a) true b) false
- 10 If you practice really hard at bingo you should be able to:
a) increase your skills and get better
b) stay about the same
c) get worse



Don't think you did too well on this session of "The Probability Quiz"? Have no fear! Watch out for...

The Probability Quiz



on a Postvisit Activity sheet near you!

▶ How many did you get right?