



COIN FLIPS TEACH BASIC MATHEMATICAL CONCEPTS, LIKE FRACTIONS & PERCENTAGES, ALONG WITH STATISTICAL CONCEPTS LIKE PROBABILITY & RELATIVE FREQUENCY.

FLIP OUT FOR COINS GAME!

For this activity you will need:

- A coin, paper, and a pencil or pen

Practice flipping the coin. When you feel you are ready, make two columns on your paper. One “HEADS” and one “TAILS.” Start flipping the coin and record, on the paper, the number of times it lands on “heads” and “tails.”

When you decide to stop, count the number of times the coin landed on heads, the number of times it landed on tails and then add up the total number of times you flipped the coin.

Write the number of times it landed on heads above the total number of flips. You’ve just written a fraction! *Example: if the coin landed on heads 3 times out of 10 flips, the fraction is 3heads/10flips, or 3/10. If you multiply this number by 100 the percentage is 30%. So the coin landed on heads 30% of the time!*

Repeat the same process for tails.

MORE FUN...

Try flipping the coin 100 times. Does it land on one side more than the other? Does this change your percentage? Most likely it does. Why? Read on to find out!



The coin flip dates back to the Roman Empire, where it was originally know as “Heads or Ships.” In more recent years, it has been linked to probability and statistics. In 1903, Orville and Wilbur Wright tossed a coin to decide who would fly first in their historic flight in Kill Devil Hill, North Carolina. The city of Portland, Oregon is rumored to be named as such due to the flip of a coin! Today, a coin toss is used in some sporting events to determine which team will start the game.

PROBABILITY...

This measures the likelihood that an event will occur, such as how likely the coin will land on heads when you flip it. Probability can be represented as a fraction or a percentage. As a fraction, it is represented as:

$$\text{OUTCOME}/\# \text{ POSSIBLE OUTCOMES}$$

When you flip a coin, you choose your outcome (the side you want to land on - heads or tails.) You can only pick 1 outcome but a coin has 2 possible outcomes because it has 2 sides so the probability of landing on your choice is 1/2.

PERCENTAGE...

This means “out of 100” and can be expressed as:

$$\text{OUTCOME}/\# \text{ POSSIBLE OUTCOMES} \times 100$$

So the probability of landing on heads is $(1/2) \times 100$ which is 50%.

STATISTICS...

Based on the math we just did, you can expect that if you toss a coin 10 times, it will land on heads 50% of the time. If you test this with the coin flip game, you’ll see that is not always the case. Why? Try flipping the coin 100 times. Is that number closer to 50%? Most likely it is. It turns out that the more you do something, like toss a coin, the higher chance you have of reaching the expected probability, which, in this case is 50%. This is the concept of relative frequency. The more you flip a coin, the closer you will be towards landing on heads 50% - or half - of the time.