

5a Probability

Probability

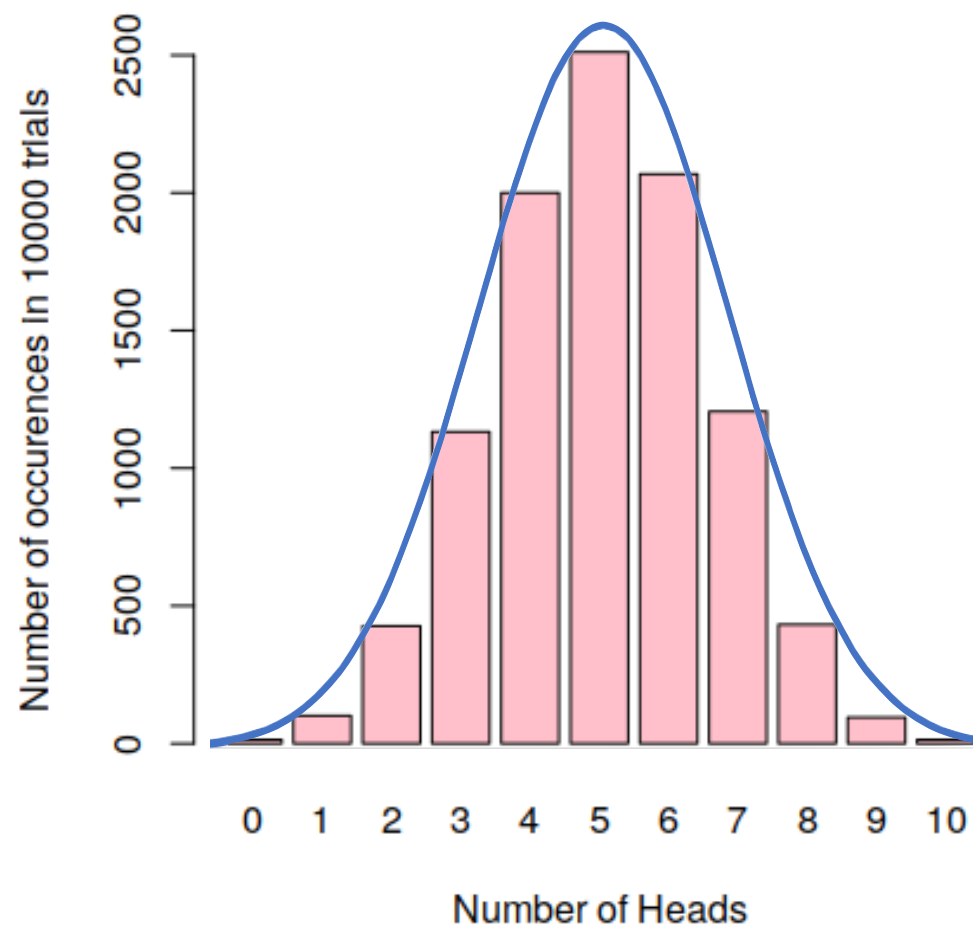
- Probability is the *expected* number of times that something happens, not the *guaranteed* number of times.
- Each time a fair coin is tossed there is a 50-50 chance of it landing heads or tails.
- And over time we'd expect to see it land the same number of times on heads as tails.
- But not exactly the same number.
- And not if we only toss it a small number of times.

Probability

- Suppose an experiment to toss a fair coin 10 times.
- The most common outcome is that it will land 5 times heads, 5 times tails.
- But it's not the only outcome.
- We could see 6 heads and 4 tails, or even 10 heads and 0 tails.
- But the chances of those outcomes are smaller.

Probability

- In fact, if we ran the experiment 10000 times, we'd expect to see a chart like this:



- And **this curve** should be familiar, because it's a **normal distribution** (also known as a **Bell Curve**).