

What are the odds?

Probability and Genetics

Let's do a probability experiment to simulate an important aspect of genetics. Get two poker chips (or something similar) and label one side of each of them with a capital letter to represent a **dominant trait**. Label the other side of each with the lower case of the same letter to represent a **recessive trait**.

Label two chips, each with a capital letter on one side and the same letter in lowercase on the other side.



To simulate two organisms having **offspring**, toss both poker chips in the air and see how they land on a table. Did they land with two capital letters facing up, simulating that the **offspring inherited** two **dominant** alleles? Or did they land with two lower case letters facing up (meaning two **recessive** alleles)? Or were they mixed (one of each)?

Try your experiment 12 times and record your results.

Questions:

1. What fraction of the new **generation** (the 12 trials) had two matching **dominant** alleles?
2. What fraction had two **recessive** alleles?
3. What fraction was mixed?
4. Using what you know about **dominant** and **recessive traits**, what fraction of the new **generation** should SHOW the **dominant trait**?
5. What percentage should SHOW the **recessive trait**?

Trial	Result
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	



How would you alter this experiment to predict the offspring from a father carrying two **recessive** alleles of gene A and a mother carrying one **dominant** allele and one **recessive** allele of gene A?