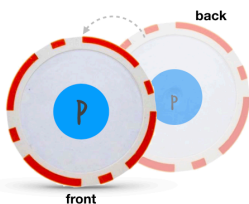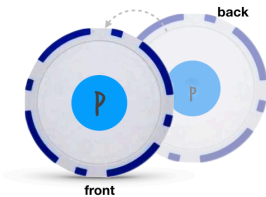## Punnett Square and Probability

Let's a 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.

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 and a mother carrying one dominant allele and one recessive allele?

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