1. Random Variables

2. You should be familiar with the basic definitions of probability. In this lesson, we will introduce the concept of a **random variable**.

3. The idea of a random variable is that the outcome of a random event will be a number, and since that number is not known, it behaves somewhat like an algebraic variable that can take on several possible values. When rolling one dice, there are six possible values that are the six possible outcomes. We generally use the variable X to represent this unknown value. That is X varies depending on the result of the dice roll. The six possible values are listed in the left hand column. We typically associate probabilities to the possible values of the random variable. Notice that the values of the random variable define events which are mutually exclusive. If you list all of the possible values, the probabilities should add to 1.

4. Here is a second example. If we flip two coins, we may wish to count the number of heads. Notice that the outcomes themselves are lists of heads and tails. We assign a numerical value to each string, based on the number of heads. We can find probabilities associated with each value of the random variable.

5. To recap, a random variable is a set of numbers associated with outcomes of a random experiment. A probability distribution assigns probabilities to the values in the set.