**1.Probability or Chance:**A probability is a number that reflects the chance or likelihood that a particular event will occur. Probabilities can be expressed as proportions that range from 0 to 1, and they can also be expressed as percentages ranging from 0% to 100%. A probability of 0 indicates that there is no chance that a particular event will occur, whereas a probability of 1 indicates that an event is certain to occur. A probability of 0.45 (45%) indicates that there are 45 chances out of 100 of the event occurring.

2.**Experiment**  
An experiment is an operation which can produce well-defined outcomes.

3.**Random Experiment**  
If all the possible outcomes of an experiment are known but the exact output cannot be predicted in advance, that experiment is called a random experiment.  
**Examples**

* **Tossing of a fair coin**  
  When we toss a coin, the outcome will be either Head (H) or Tail (T)
* **Throwing an unbiased die**  
  Die is a small cube used in games. It has six faces and each of the six faces shows a different number of dots from 1 to 6. Plural of die is dice.  
  When a die is thrown or rolled, the outcome is the number that appears on its upper face and it is a random integer from one to six, each value being equally likely.
* **Drawing a card from a pack of shuffled cards**  
  A pack or deck of playing cards has 52 cards which are divided into four categories as given below  
  Spades (♠), Clubs (♣), Hearts (♥), Diamonds (♦)

Each of the above mentioned categories has 13 cards, 9 cards numbered from 2 to 10, an Ace, a King, a Queen and a jack  
Hearts and Diamonds are red faced cards whereas Spades and Clubs are black faced cards.  
Kings, Queens and Jacks are called face cards

* **Taking a ball randomly from a bag containing balls of different colours.**

**4.Sample Space**  
Sample Space is the set of all possible outcomes of an experiment. It is denoted by S.  
**Examples**

* When a coin is tossed, S = {H, T} where H = Head and T = Tail  
  When a dice is thrown, S = {1, 2 , 3, 4, 5, 6}  
  When two coins are tossed, S = {HH, HT, TH, TT} where H = Head and T = Tail

**5.Event**  
Any subset of a Sample Space is an event. Events are generally denoted by capital letters A, B , C, D etc.  
**Examples**

* When a coin is tossed, outcome of getting head or tail is an event
* When a die is rolled, outcome of getting 1 or 2 or 3 or 4 or 5 or 6 is an event

**6.Equally Likely Events**  
Events are said to be equally likely if there is no preference for a particular event over the other.  
**Examples**

* When a coin is tossed, Head (H) or Tail is equally likely to occur.
* When a dice is thrown, all the six faces (1, 2, 3, 4, 5, 6) are equally likely to occur.

**7.Mutually Exclusive Events**  
Two or more than two events are said to be mutually exclusive if the occurrence of one of the events excludes the occurrence of the other

* When a coin is tossed, we get either Head or Tail. Head and Tail cannot come simultaneously. Hence occurrence of Head and Tail are mutually exclusive events.

**8.Independent Events**  
Events can be said to be independent if the occurrence or non-occurrence of one event does not influence the occurrence or non-occurrence of the other.

* When a coin is tossed twice, the event of getting Tail(T) in the first toss and the event of getting Tail(T) in the second toss are independent events. This is because the occurrence of getting Tail(T) in any toss does not influence the occurrence of getting Tail(T) in the other toss.

**9.Simple Events**  
In the case of simple events, we take the probability of occurrence of single events.

* Probability of getting a Head (H) when a coin is tossed  
  Probability of getting 1 when a die is thrown

**10.Compound Events**  
In the case of compound events, we take the probability of joint occurrence of two or more events.

* When two coins are tossed, probability of getting a Head (H) in the first toss and getting a Tail (T) in the second toss.

**11.Exhaustive Events**  
Exhaustive Event is the total number of all possible outcomes of an experiment.

* When a coin is tossed, we get either Head or Tail. Hence there are 2 exhaustive events.
* When two coins are tossed, the possible outcomes are (H, H), (H, T), (T, H), (T, T). Hence there are 4 (=22) exhaustive events.

**12.Probability of en Event**  
Let E be an event and S be the sample space. Then probability of the event E can be defined as

**P(E) = n(E)/n(S)** 

Where

* P(E) = Probability of the event E,
* n(E) = number of ways in which the event can occur and
* n(S) = Total number of outcomes possible.