***Unit 6 Standards***

***Understand independence and conditional probability and use them to interpret data***

**S.CP.1** Describe categories of events as subsets of a sample space using unions, intersections, or complements of other events (or, and, not).

**S.CP.2** Understand that if two events A and B are independent, the probability of A and B occurring together is the product of their probabilities, and that if the probability of two events A and B occurring together is the product of their probabilities, the two events are independent.
 **S.CP.3**Understand the conditional probability of *A* given *B* as *P*(*A* and *B*)/*P*(*B*).  Interpret independence of *A* and *B* in terms of conditional probability; that is, the conditional probability of A given *B* is the same as the probability of *A*, and the conditional probability of *B* given *A* is the same as the probability of *B*.

**S.CP.4** Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities. For example, use collected data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in tenth grade. Do the same for other subjects and compare the results.

**S.CP.5** Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer.

***Use the rules of probability to compute probabilities of compound events in a uniform probability model***

**S.CP.6** Find the conditional probability of *A* given *B* as the fraction of *B’*s outcomes that also belong to *A*, and interpret the answer in context.

**S.CP.7** Apply the Addition Rule, *P*(*A* or *B*) = *P*(*A*) + *P*(*B*) – *P*(*A* and *B*), and interpret the answers in context.