7th Grade Module 5 – Statistics and Probability

	4 - Mastery	3 - Proficient	2 - Basic	1 - Below Basic	0 - No Evidence
Topic A and B (7.SP.5, 7.SP.6, 7.SP.7, 7.SP.8)	Can extend thinking beyond the standard, including tasks that may involve one of the following: • Designing • Connecting • Synthesizing • Applying • Justifying • Critiquing • Analyzing • Creating • Proving	Given a probability, **explain** the likelihood of the event occurring and use it to approximate relative frequency **Compare probabilities** from a model to observed frequencies and **explain** any discrepancies **Design and use a simulation** to generate frequency of compound events and find the probability of events	Given a probability, **identify** the likelihood of the event occurring **and** use it to approximate relative frequency Develop and **use** a probability model to find the probability of events from: • a uniform probability scenario • given relative frequency Represent and describe sample space using lists, tables and tree diagrams and/or **find the probability of a compound event**	Given a probability, **identify** the likelihood of the event occurring **or** use it to approximate relative frequency Develop a probability model to find the probability of events from: • a uniform probability scenario • given relative frequency **Represent and describe sample space for compound events** using lists, tables and/or tree diagrams.	**Little evidence of** reasoning or application to solve the problem Does not meet the criteria in a level 1
Topic C and D (7.SP.1, 7.SP.2, 7.SP.3, 7.SP.4)		Examine multiple samples of a population to draw inferences about the population and **explain** if inferences are valid Compare the differences in the measure of central tendency and variability in two data distributions **and draw inferences** about the two populations.	Examine **multiple** samples of a population to draw inferences about the population and **determine** if a given inference is valid **Compare** the differences in the measure of central tendency or variability in two data distributions.	Examine a sample of a population to **draw inferences** about the population and **determine** if a given inference is valid **Determine** the measures of central tendency (mean, median, and mode) and variation (range, mean deviation, variance, and standard deviation) in data.	

7.SP.A.1 - Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.

7.SP.A.2 -Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions

7.SP.B.3 - Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability.

7.SP.B.4 - Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.

7. SP.C.5 Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around ½ indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.

7.SP.C.6 Approximate the probability of a chance event by collecting data on the chance process that produces it and observing is long-run relative frequency, and predict the approximate relative frequency given the probability.

7.SP.C.7 Develop a probability model and use it to find the probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources for the discrepancies.
   a.   Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events.
   b.   Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.

7.SP.C.8 Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.
   a.   Understand that, just as with simple events, the probability of a compound event is the fractions of outcomes in the sample space for which compound events occur.
   b.   Represent sample spaces for compound events using methods such as organized lists, tables, tree diagrams. For an event described in everyday language identify the outcomes in the sample space with compose the event.
   c.   Design and use a simulation to generate frequencies for compound events