Grade 7 Math

Unit #8 - Probability and Sampling

Unit Description
In this unit, students understand and use the terms “event,” “sample space,” “outcome,” “chance experiment,” “probability,” “simulation,” “random,” “sample,” “random sample,” “representative sample,” “overrepresented,” “underrepresented,” “population,” and “proportion.” They design and use simulations to estimate probabilities of outcomes of chance experiments and understand the probability of an outcome as its long-run relative frequency. They represent sample spaces (that is, all possible outcomes of a chance experiment) in tables and tree diagrams and as lists. They calculate the number of outcomes in a given sample space to find the probability of a given event. They consider the strengths and weaknesses of different methods for obtaining a representative sample from a given population. They generate samples from a given population, e.g., by drawing numbered papers from a bag and recording the numbers, and examine the distributions of the samples, comparing these to the distribution of the population. They compare two populations by comparing samples from each population.

Unit Essential Questions
1) Can I orally describe how we can use the outcomes from previous experiments to help determine the relative likelihood of future events? 2) Can I describe the likelihood of events? 3) Can I use the sample space to calculate the probability of an event? 4) Can I estimate the probability of an event based on the results from repeating an experiment? 5) Can I calculate the probability of an event when the outcomes in the sample space are not equally likely? 6) Can I simulate a real world situation using a simple experiment that reflects the probability of the actual event? 7) Can I use a simulation to estimate the probability of a multi-step event? 8) Can I write out the sample space using a list, table, or tree diagram? 9) Can I use the sample space to calculate the probability of an event in a multi-step experiment?

Main Content Standards Covered in Unit
7.SP.C.6 Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative

frequency given the probability. For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.
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 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.
7.SP.C.7 Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.
7.SP.C Investigate chance processes and develop, use, and evaluate probability models.
7.SP.C.8.a Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.
7.SP.B Draw informal comparative inferences about two populations.
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. For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability (mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable.
7.SP.A Use random sampling to draw inferences about a population.

Books, Articles or Other Resources
Family Letter Parent Resources (Imagine Learning Resources)(Maybe Khan Academy?)

Unit Assessments (80% of overall unit letter grade)	
Assessment Name	*Assessment Type*
Quiz	Formative
Test	Summative
Skill Quiz	Formative

Unit PRIDE Score (20% of overall unit letter grade)
PRIDE will be assessed through: ● Homework ● Classwork ● PRIDE Reflections ● Class Participation ● DeltaMath