Hattiesburg Public School District
Grade 7 Mathematics Units
2015 – 2016

Unit 6: Theoretical and Experimental Probability	Time Frame: **15 Days** April 11-April 29, 2016
Content Standards	**Standards for Mathematical Practice**
Major Standards	(1) Make sense of problems and persevere in solving them.
Supporting Standards	(2) Reason abstractly and quantitatively.
7.SP.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.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.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. a. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. *For example, if a student is selected at random from a class, find the probability*	(3) Construct viable arguments and critique the reasoning of others. (4) Model with mathematics. (5) Use appropriate tools strategically. (6) Attend to precision. (7) Look for and make use of structure. (8) Look for and express regularity in repeated reasoning.

that Jane will be selected and the probability that a girl will be selected.

b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. *For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open- end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?*

7.SP.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 fraction of outcomes in the sample space for which the compound event occurs.

b. Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space that composes the event.

c. Design and use a simulation to generate frequencies for compound events. *For example, use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?*

Additional Standards:

Pre-requisite Standards:

*Determine the probability of an even occurring based on theoretical.

*Record experimental probability.
*Understand fractions and their relationships to zero and one.
*Solve proportions.
*Understanding theoretical probability.

Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5
Lesson Topic: Pre-Assessment **Standard Ref:** 7.SP.5, 7.SP.6, 7.SP.7, 7.Sp.8 **Resource/Strategy:** engageNY/Module 5-A Mathshell.org Grade 7 CCSS PrBL Curriculum Map https://docs.google.com/document/d/1KYgtd2q5x2clpDTwtJwpDeAoZw_M_O0R9Au5bkKXHsE/edit	**Lesson Topic:** Estimating Probabilities by Collecting Data **Standard Ref:** 7.SP.5, 7.SP.6 **Resource/Strategy:** engageNY/Module 5-A Mathshell.org Grade 7 CCSS PrBL Curriculum Map https://docs.google.com/document/d/1KYgtd2q5x2clpDTwtJwpDeAoZw_M_O0R9Au5bkKXHsE/edit	**Lesson Topic:** Chance Experiments with Equally Likely Outcomes **Standard Ref:** 7.SP.5, 7.SP.6 **Resource/Strategy:** engageNY/Module 5-A Mathshell.org Grade 7 CCSS PrBL Curriculum Map https://docs.google.com/document/d/1KYgtd2q5x2clpDTwtJwpDeAoZw_M_O0R9Au5bkKXHsE/edit	**Lesson Topic:** Calculating Probabilities for Chance Experiments with Equally Likely Outcomes **Standard Ref:** 7.SP.5, 7.SP.7 **Resource/Strategy:** engageNY/Module 5-A Mathshell.org Grade 7 CCSS PrBL Curriculum Map https://docs.google.com/document/d/1KYgtd2q5x2clpDTwtJwpDeAoZw_M_O0R9Au5bkKXHsE/edit	**Lesson Topic:** Chance Experiments with Outcomes That Are Not Equally Likely Outcomes **Standard Ref:** 7.SP.8 **Resource/Strategy:** engageNY/Module 5-A Mathshell.org Grade 7 CCSS PrBL Curriculum Map https://docs.google.com/document/d/1KYgtd2q5x2clpDTwtJwpDeAoZw_M_O0R9Au5bkKXHsE/edit

Lesson 6	Lesson 7	FAL	Lesson 8	Lesson 9
Lesson Topic: Using Tree Diagrams to Represent a Sample Space and to Calculate	**Lesson Topic:** Calculating Probabilities of Compound Events **Standard Ref:**	**Lesson Topic:** Sampling and Estimating: Counting Trees **Standard Ref:**	**Lesson Topic:** The Difference Between Theoretical Probabilities and Estimated	**Lesson Topic:** Comparing Estimated Probabilities to Probabilities Predicted by

Probabilities **Standard Ref:** 7.SP.8 **Resource/Strategy:** engageNY/Module 5-A Mathshell.org Grade 7 CCSS PrBL Curriculum Map https://docs.google.com/document/d/1KYgtd2q5x2clpDTwtJwpDeAoZw_M_O0R9Au5bkKXHsE/edit	7.SP.8 **Resource/Strategy:** engageNY/Module 5-A Mathshell.org Grade 7 CCSS PrBL Curriculum Map https://docs.google.com/document/d/1KYgtd2q5x2clpDTwtJwpDeAoZw_M_O0R9Au5bkKXHsE/edit	7.SP.1, 7.SP.2, 7.SP.3, 7.SP4 **Resource/Strategy:** Mathshell.org	Probabilities **Standard Ref:** 7.SP.5, 7.SP.6, 7.SP.7, 7.Sp.8 **Resource/Strategy:** engageNY/Module 5-B Mathshell.org Grade 7 CCSS PrBL Curriculum Map https://docs.google.com/document/d/1KYgtd2q5x2clpDTwtJwpDeAoZw_M_O0R9Au5bkKXHsE/edit	a Model **Standard Ref:** 7.SP.5, 7.SP.6, 7.SP.7, 7.Sp.8 **Resource/Strategy:** engageNY/Module 5-B Mathshell.org Grade 7 CCSS PrBL Curriculum Map https://docs.google.com/document/d/1KYgtd2q5x2clpDTwtJwpDeAoZw_M_O0R9Au5bkKXHsE/edit
Lesson 10	**Lesson 11**			
Lesson Topic: Conducting a Simulation to Estimate the Probability of an Event Applying Probability to Make Informed Decisions **Standard Ref:** 7.SP.5, 7.SP.6, 7.SP.7, 7.Sp.8 **Resource/Strategy:** engageNY/Module 5-B Mathshell.org Grade 7 CCSS PrBL Curriculum	**Lesson Topic:** Applying Probability to Make Informed Decisions **Standard Ref:** 7.SP.5, 7.SP.6, 7.SP.7, 7.Sp.8 **Resource/Strategy:** engageNY/Module 5-B Mathshell.org Grade 7 CCSS PrBL Curriculum Map https://docs.google.com/document/d/1KYgtd2q5x2clpDTwtJwpDeAoZw_M_O0R9Au5bkKXHsE/edit			

Map https://docs.google.com/document/d/1KYgtd2q5x2clpDTwtJwpDeAoZw_M_O0R9Au5bkKXHsE/edit			