

**Math 7 Unit 7 Overview: Probability**

<b>Unit Outcomes</b> At the end of this unit, your student should be able to:	<b>Key Vocabulary</b> Terms to deepen the student's understanding
<ul style="list-style-type: none"> <li>✓ Understand the difference between theoretical and experimental probability</li> <li>✓ Make and utilize a tree diagram</li> <li>✓ Determine payoff of a game using theoretical probability</li> <li>✓ Use an area model to find compound probability</li> <li>✓ Determine expected value</li> <li>✓ Analyze binomial outcomes</li> </ul>	<ul style="list-style-type: none"> <li>✓ Area Model</li> <li>✓ Binomial Probability</li> <li>✓ Compound Event</li> <li>✓ Conjecture</li> <li>✓ Expected Value</li> <li>✓ Experimental Probability</li> <li>✓ Inference</li> <li>✓ Outcome</li> <li>✓ Payoff</li> <li>✓ Population</li> <li>✓ Probability</li> <li>✓ Probability Model</li> <li>✓ Random Sampling</li> <li>✓ Relative Frequency</li> <li>✓ Representative Sample</li> <li>✓ Sample Event</li> <li>✓ Sample Space</li> <li>✓ Simulation</li> <li>✓ Theoretical Probability</li> <li>✓ Tree Diagram</li> <li>✓ Uniform Probability</li> </ul>
<b>Key Standards Addressed</b> Connections to Common Core/NC Essential Standards	<b>Where This Unit Fits</b> Connections to prior and future learning
<p>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 <math>\frac{1}{2}</math> indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.</p> <p>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.</p> <p>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.</p> <p>a. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events.</p> <p>b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.</p>	<p><b>Coming into this unit, students should have a strong foundation in:</b></p> <ul style="list-style-type: none"> <li>✓ Adding, subtracting, multiplying and dividing fractions</li> <li>✓ Percent</li> </ul> <p><b>This unit builds to the following future skills and concepts:</b></p> <ul style="list-style-type: none"> <li>✓ Permutations</li> <li>✓ Combinations</li> <li>✓ Relative frequency tables</li> </ul>

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<p>7.SP.8 - Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.</p> <p>a. Understand that just as with simple events, the probability of a compound event is a fraction of outcomes in the sample space which the compound event occurs.</p> <p>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 which compose the event.</p> <p>c. Design and use a simulation to generate frequencies for compound events.</p>	
<p style="text-align: center;"><b>Additional Resources</b></p> <p>Materials to support understanding and enrichment</p>	<p style="text-align: center;"><b>“Learning Checks”</b></p> <p>Questions Parents Can Use to Assess Understanding</p>
<ul style="list-style-type: none"> <li>✓ <a href="#">Teaching videos made by Wake county teachers</a></li> <li>✓ <a href="#">WCPSS YouTube Channel – Math Playlist</a></li> <li>✓ <a href="#">Probability Overview</a></li> <li>✓ <a href="#">Finding probability</a> – <i>This set of videos starts to develop the idea of finding basic probability as well as independent versus dependent events.</i></li> <li>✓ <a href="#">Compound, Independent Events</a> – <i>This series of videos begins with basics but also has some enrichment.</i></li> <li>✓ <a href="#">Dependent Events and Compound Dependent Events</a> – <i>This series of videos is more enrichment but has some basics worked in.</i></li> <li>✓ <a href="#">Tree Diagram Practice Problems</a></li> <li>✓ <a href="#">Binomial outcomes</a> -<i>this site starts with the basics but moves past what is expected in 7<sup>th</sup> grade. This could be used as enrichment.</i></li> </ul>	<ul style="list-style-type: none"> <li>✓ What is probability?</li> <li>✓ How can probability be found and proven?</li> <li>✓ What is the relationship between theoretical probability and relative frequency?</li> <li>✓ What methods can be used to determine theoretical probability?</li> <li>✓ What is experimental probability?</li> <li>✓ Why do experimental and theoretical probabilities not always match?</li> </ul>

\* **Please note**, the unit guides are a work in progress. If you have feedback or suggestions on improvement, please feel free to contact wakemiddle@wcpss.net.