




Content Standard	<p>MAFS.7.SP Statistics and Probability</p> <p>MAFS.7.SP.3 Investigate chance processes and develop, use, and evaluate probability models.</p> <p>MAFS.7.SP.3.7 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>MAFS.7.SP.3.7a Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. <i>For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected.</i></p> <p>MAFS.7.SP.3.7b Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. <i>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?</i></p> <p>Also Assesses:</p> <p>MAFS.7.SP.3.8 Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.</p> <p>MAFS.7.SP.3.8a 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.</p> <p>MAFS.7.SP.3.8b 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>MAFS.7.SP.3.8c Design and use a simulation to generate frequencies for compound events. <i>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?</i></p>
Assessment Limit	Numbers in items must be rational numbers.
Calculator	Yes
Item Type	Equation Editor GRID Matching Item Multiple Choice Multiselect Open Response Table Item
Context	Required

Sample Item	Item Type
<p>A bag contains 3 red marbles and 6 blue marbles.</p> <p>What is the probability of randomly selecting a red marble from the bag?</p>	Equation Editor
<p>Tony has a bucket filled with 10 green, 3 blue, 1 red, and 7 yellow tennis balls. He removes 4 tennis balls from the bucket, without replacement.</p> <p>Which of the following outcomes could represent this selection?</p> <p>A. All of the tennis balls are blue. B. There is 1 tennis ball of each color. C. There are exactly 3 green tennis balls. D. There are more red tennis balls removed than other colors. E. The number of red tennis balls is the same as the number of blue tennis balls.</p>	Multiselect
<p>Select all situations that describe a probability of $\frac{1}{6}$ of drawing a red marble out of the bag.</p> <p><input type="checkbox"/> 1 red, 6 yellow, 6 green, 6 blue, 6 white <input type="checkbox"/> 3 red, 4 yellow, 4 green, 4 blue, 3 white <input type="checkbox"/> 4 red, 5 yellow, 5 green, 4 blue, 6 white <input type="checkbox"/> 6 red, 6 yellow, 6 green, 6 blue, 6 white <input type="checkbox"/> 6 red, 4 yellow, 8 green, 6 blue, 12 white</p>	Multiselect
<p>A bucket contains 5 green tennis balls and 2 yellow tennis balls. Tony removes 2 tennis balls, with replacement, from the bucket shown.</p>  <p>What is the probability that Tony will choose a yellow tennis ball and then a green tennis ball?</p>	Equation Editor
<p>A bucket contains 5 green tennis balls, 2 yellow tennis balls, and 6 red tennis balls. Tony removes 3 tennis balls, with replacement, from the bucket shown.</p>  <p>What is the probability that the first tennis ball is yellow, the second tennis ball is green, and the third tennis ball is red?</p>	Equation Editor

Sample Item	Item Type																
<p>A bucket contains 5 green tennis balls, 2 yellow tennis balls, 6 red tennis balls, and 8 blue tennis balls. Tony removes 3 tennis balls, without replacement, from the bucket shown.</p>  <p>What is the probability that Tony removes 1 yellow, 1 green, and 2 blue tennis balls?</p>	Equation Editor																
Multiple Choice																	
<p>A bag contains 4 red, 4 blue, 4 green, and 4 yellow marbles. A marble is randomly pulled from the bag and replaced seven times. The table shows the outcome of the experiment.</p>																	
<table border="1"> <thead> <tr> <th>Trial</th> <th>Outcome</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Yellow</td> </tr> <tr> <td>2</td> <td>Blue</td> </tr> <tr> <td>3</td> <td>Yellow</td> </tr> <tr> <td>4</td> <td>Red</td> </tr> <tr> <td>5</td> <td>Blue</td> </tr> <tr> <td>6</td> <td>Yellow</td> </tr> <tr> <td>7</td> <td>Yellow</td> </tr> </tbody> </table>		Trial	Outcome	1	Yellow	2	Blue	3	Yellow	4	Red	5	Blue	6	Yellow	7	Yellow
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<p>Which marble color's observed frequency is closest to its expected frequency?</p> <p>Ⓐ red Ⓑ blue Ⓒ green Ⓓ yellow</p>																	
Multiselect																	
<p>Tony has a bucket filled with green, blue, yellow, and red markers. He removes 3 markers from the bucket, with replacement.</p> <p>Select all the outcomes that are possible.</p> <p><input type="checkbox"/> All of the markers removed are the same color. <input type="checkbox"/> Only 1 marker of each color is removed. <input type="checkbox"/> There are equal numbers of green and blue markers removed. <input type="checkbox"/> There are equal numbers of red and yellow markers removed. <input type="checkbox"/> There are only 2 colors of markers removed, and they were removed an equal number of times.</p>																	