MPS Learning Target: Statistics and Probability
MPS Learning Target #4: Design and conduct investigations, display data using appropriate representations, analyze and summarize data using measures of central tendency and variation, and evaluate methods and conclusions.
MPS Learning Target #5: Design and analyze experiments with simple and complex events, predict likelihood of outcomes, and justify strategies based on theoretical and experimental probabilities.

Wisconsin Assessment Framework for Mathematics
Objective: E. Statistics and Probability
Subskill: Probability
Descriptor:
Determine the likelihood of occurrence of simple and complex events e.g. experimental versus theoretical probability.

Objective: A. Mathematical Processes
Descriptors:
• Communicate mathematical ideas and reasoning using the vocabulary of mathematics in a variety of ways (e.g. using words, numbers, symbols, pictures, charts, tables, diagrams, graphs, and models).
• Connect mathematics to the real world as well as within mathematics.
• Solve and analyze routine and non-routine problems.

A package of candies contained 10 red candies, 10 blue candies, and 10 green candies. Bill shook up the package, opened it, and started taking out one candy at a time and eating it. The first two candies he took out and ate were blue. Bill thinks the probability of getting a blue candy on his third try is 10/30 or 1/3.

Is Bill correct or incorrect: incorrect

Explain your answer. If there were all the candies in the bag still only 8 left in the package, so the probability of him getting a blue would be 8/28.

Red: 11111 = 10/10/10/10/10
Blue: 11111111
Green: 11111111
50

Your answer is correct. Your explanation is clear and thorough.

U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP)

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Question: He's already gotten 2 blues in a row. Does the probability of getting another blue on his 3rd try increase, decrease, or stay the same? Why? Explain.
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Is Bill correct or incorrect: **incorrect**

Explain your answer. If there were all the candies in the bag still, the probability would be \(\frac{10}{30}\); since he took 2 blue, there's only 8 blues left in the package. So his chances of getting a blue is \(\frac{8}{28}\). His chances of getting a blue on his 3rd try decrease since there's only 8 blues and 10 of the other kinds of candy. There's 8 blues left, 10 red left, and 10 green candies left. Since blue is the least amount left it has the lowest probability of getting picked.

<table>
<thead>
<tr>
<th>Candies</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>10</td>
</tr>
<tr>
<td>Blue</td>
<td>8</td>
</tr>
<tr>
<td>Green</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
</tr>
</tbody>
</table>

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