



# Standard #: MAFS.912.S-MD.2.5

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Weigh the possible outcomes of a decision by assigning probabilities to payoff values and finding expected values. ★

- a. Find the expected payoff for a game of chance. For example, find the expected winnings from a state lottery ticket or a game at a fast-food restaurant.
- b. Evaluate and compare strategies on the basis of expected values. For example, compare a high-deductible versus a low-deductible automobile insurance policy using various, but reasonable, chances of having a minor or a major accident.

<b>Grade:</b> 912	
<b>Cluster:</b> <a href="#">Use probability to evaluate outcomes of decisions</a> -	<b>Date Adopted or Revised:</b> 02/14
<b>Content Complexity Rating:</b> <a href="#">Level 2: Basic Application of Skills &amp; Concepts</a> - <a href="#">More Information</a>	<b>Date of Last Rating:</b> 02/14
<b>Status:</b> State Board Approved	

## Related Courses

Course Number	Course Title
<a href="#">1210300:</a>	Probability & Statistics with Applications Honors (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
<a href="#">1298310:</a>	Advanced Topics in Mathematics (formerly 129830A) (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
<a href="#">1200500:</a>	Advanced Algebra with Financial Applications (Specifically in versions: 2014 - 2015 (course terminated))

## Related Resources

Perspectives Video: Expert

Name	Description
<a href="#">How Math Models Help Insurance Companies After a Hurricane Hits:</a>	Hurricanes can hit at any time! How do insurance companies use math and weather data to help to restore the community?

## Lesson Plan

Name	Description
<a href="#">Modeling Conditional Probabilities 2:</a>	This lesson unit is intended to help you assess how well students understand conditional probability, and, in particular, to help you identify and assist students who have the following difficulties representing events as a subset of a sample space using tables and tree diagrams and understanding when conditional probabilities are equal for particular and general situations.
<a href="#">Phalangelpodscribitis? - Analysis with Probability:</a>	<p>Have you ever had a cold or some other ailment that was just a nuisance to you? You tried this medication and that medication in order to treat your self-diagnosis. However, when you have exhausted all your avenues, you find yourself at the Physician's office: paying the co-pay, getting a prescription, paying more to fill the prescription with hopes of not experiencing any of the side effects associated with the medicine, and if that particular medicine doesn't work, you are back at the doctor's office and switched to another.</p> <p>Well, Phalangelpodscribitis is a recently diagnosed ailment that will put a person's feet in motion. It isn't contagious but the treatment can be intense. In this lesson students will be presented with seven (7) medications that will help cure an individual of Phalangelpodscribitis. Students will be given the effectiveness of each medication, the cost to patients with and without insurance, and the possible side effects of each. Each team will be tasked with ranking these medications for a client in order to help him decide the pros and cons of the medications that should be used in treating Phalangelpodscribitis (PPS).</p> <p>Each team will be responsible for recording the procedure they used to rank the medications and to calculate the expected cost for the client when two medications must be administered since the first will prove ineffective for treatment alone. The team's suggestion brings results and the patient is cured!!</p> <p>Time has passed and Phalangelpodscribitis, currently known as PPS, has returned. Oh no! What will your team suggest when the doctor begins to discuss the patient's mortality rate as it is associated with the medication?</p>
<a href="#">Probability:</a>	This lesson is designed to develop students' understanding of probability in real life situations. Students will also be introduced to running experiments, experimental probability, and theoretical probability. This lesson provides links to discussions and activities related to probability as well as suggested ways to integrate them into the lesson. Finally, the lesson provides links to follow-up lessons designed for use in succession with the current one.

