

Probability and Expected Value

Lesson Plan

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Goal: The goal of this lesson is to introduce students to the methods and ideas behind probability theory.

Theoretical Probability

Students will learn how to find all the possible outcomes of a trial, including repeated outcomes, which are often overlooked. In order to do this, they will make a tree diagram and learn how to make an area model. Once they have determined the possible outcomes, they will compute theoretical probabilities.

Expected Value

Students will make predictions about an experiment based on the theoretical probabilities they found.

Experimental Probability

Finally, students will perform an experiment and calculate the experimental probabilities. They will compare these experimental probabilities with the theoretical probabilities they found earlier, and they will compare the results of the experiment with the expected results

Grade and Course: 7th grade math

KY Standards:

MA-07-4.4.1

Students will apply counting techniques to determine the size of a sample space for a real-world or mathematical situation.

MA-07-4.4.2

Students will:

- **determine theoretical probabilities of simple events**
- **determine probabilities based on the results of an experiment and**
- **make inferences from probability data.**

MA-07-4.4.3

Students will tabulate experimental results from simulations and explain how theoretical and experimental probabilities are related.