Billiejohnetta Kesinger
billiejohnetta.kesinger@albany.k12.or.us

Task: Dice Problem

Core Math Concept: Understand and apply basic concepts of probability

Level: Middle

Grade-Level Standards:

MA.06.SP.02 Determine experimental probability of an event from a set of data.
MA.06.SP.03 Express probability using fractions, ratios, decimals and percents.
MA.06.SP.04 Understand that probability cannot determine an individual outcome, but can be used to predict the frequency of an outcome.
MA.07.SP.02 Compute experimental probabilities form a set of data and theoretical probabilities for single and simple compound events, using various methods (e.g., organized lists, tree diagrams, area models).
MA.07.SP.03 Determine probabilities of simple independent and dependent events.
MA.07.SP.04 Compare experimental probability of an event with the theoretical probability and explain any difference.
MA.07.SP.05 Determine all possible outcomes of a particular event or all possible arrangements of objects in a given set by applying various methods including tree diagrams and systematic lists.

This task can be implemented at the beginning of the year.

Original Problem:

You have two different colored dice; both are numbered 1-6. What is the minimum number you can roll using both dice? What is the maximum number you can roll using both dice?

Task 1

1. List all possible outcomes of the roll of the die.
2. Make a prediction as to how many times you will roll the same number.
3. Roll one die fifteen times and graph the results.
4. What did you notice about the distribution?
5. What is the probability of rolling the number three or the number six?

Task 2

Roll both dice and graph the results. What did you notice about the distribution this time? How does your prediction compare with the results? Explain.

Goal: Construct a sheet of paper (8.5 x 11) with a picture, diagram or representation of the problem. Show your thinking process.