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Task: Coin Flipping

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:

Both you and your partner each have a coin. What do you notice about the coins?

Task 1

    1. Each student will have their own coin.
    2. List all possible outcomes of the coin flip.
    3. Make a prediction as to what the outcomes will be when you flip your coin fifteen times.
    4. Find a place in the classroom and flip your coin fifteen times and graph the results.
    5. How does your prediction compare with your results?

Task 2

Take turns with your partner and flip your coin fifteen times and graph the results. What did you
notice about the outcome? What is the probability of having both coins landing on heads?

Task 3
If you and your partner flipped each of your coins 100 times, how would to outcome be
different/similar? Explain.

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