Indicators

Objective:

4.04 Determine and compare experimental and theoretical probabilities for simple and compound events.

Vocabulary and Resources		
experimental results	sample space	outcomes
favorable outcomes	possible outcomes	tree diagrams
geometric probability	Fundamental Counting Principle	organized lists

A. What is the probability of getting two heads when you toss two fair coins, a quarter and a nickel, at the same time?

B. Your teacher has a bag of Starburst™ candies. There are six cherry, four orange, and ten lemon candies in the bag. If you close your eyes and select one piece of candy from the bag, what is the probability it will be orange? Which flavor are you most likely to select?

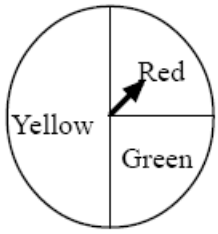
C. If you are tossing a fair coin and recording the results as heads or tails, which of the following is more likely:

a) two heads if you toss the coin three times

b) twenty heads if you toss the coin thirty times?

Explain your answer.

D. Charmaine is using this spinner to play a game. When playing the game, she spun the spinner 120 times and it landed on red ten times. Assuming that this is a fair spinner, are these results unusual?



E. Jason is tossing a fair coin. He tosses the coin ten times and it lands on heads eight times. If Jason tosses the coin an eleventh time, what is the probability that it will land on heads?

F. When tossing a pair of fair dice, what is the probability that the sum of the two numbers will be even? What is the probability that the sum of the two numbers will be 12? What sum is most likely to occur?

G. With a tied score and five seconds left in the basketball game, the coach has to decide on the best player to send to the foul line. Simpson made 150 of the last 206 free-throw shots he has attempted, Sandman made 78 of the last 95 free-throw shots he has attempted, and Vincent made 84 of the last 123 free-throw shots has has attempted. Who do you think the coach should select? Explain your reasoning.

H. A bag contains 100 marbles, some red and some purple. Suppose a student, without looking, chooses a marble out of the bag, records the color, and then places the marble back in the bag. The student has recorded 9 red marbles and 11 purple marbles. Using these results, predict the number of red marbles in the bag.

(Adapted from SREB publication *Getting Students Ready for Algebra I: What Middle Grades Students Need to Know and Be Able to Do*)