1-51. GO FISH

Mike wants to win a giant stuffed animal at the carnival. He decided to play the "Go Fish" game, which has three prizes: a giant stuffed animal, a smaller stuffed animal, and a plastic kazoo.

The game is set up with a tank containing 1 green fish, 3 blue fish, and 6 yellow fish. To play, Mike must go fishing. The game is set up so that every time a player goes fishing, he or she will catch a fish.

To win the giant stuffed animal, Mike needs to catch a green fish.

a. If *all* of the fish in the tank are green, how would you describe the probability of Mike's winning a giant stuffed animal?

b. The way the tank is set up (with 1 green, 3 blue, and 6 yellow fish), what are the chances that Mike will catch a black fish?

c. Given the information in the problem, what percent of the time would you expect Mike to catch a green fish and win the giant stuffed animal? Be ready to explain your thinking.

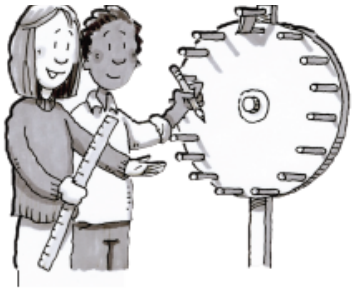
1-52. In the game described in problem 1-51, you could expect Mike to win a giant stuffed animal 10% of the time. A percentage is one way to express the probability that a specific event will happen. You might also have said you expected Mike to win 1 out of every 10 attempts. So the **probability** that Mike will win is $\frac{1}{10}$, because the 1 represents the number of **desired outcomes** (*green* fish that Mike can catch) and the 10 represents the number of **possible outcomes** (*all* the fish that Mike could catch).

a. What is the probability that Mike will catch a blue fish? A yellow fish? Write each of these probabilities as a fraction and a percent.

b. Probabilities such as the ones you found in part (a) are called **theoretical probabilities** because they are calculated mathematically based on what is expected.

What is the theoretical probability of getting a fish that is green, blue, *or* yellow (that is, a marble that is *any* of those three colors)? ~~How do your answers for this problem compare to the probabilities you considered in problem 1-50?~~

1-54. SPINNERS – THEORY vs. REALITY, Part One



Your teacher will give your team a spinner. You will need to decide how to color the spinner so that it meets the following criteria.

40% should be red. $\frac{1}{10}$ should be yellow.

30% should be blue. The rest should be green.

a. Which color is the most likely result of a spin? How do you know?

b. Which color is the least likely result of a spin? How do you know?

c. Work with your team to determine the theoretical probability of the spinner landing on each of the four colors (red, yellow, blue, and green). Express your answers as fractions and percents.

d. What is the probability of the spinner landing on purple? Explain.

e. What is the probability of the spinner landing on either red or blue?

1-56. LEARNING LOG

Write a Learning Log entry that explains how to find the probability of an event. Describe the difference between experimental and theoretical probability. Be sure to use examples to make your points clear. Title this entry "Probability" and label it with today's date.