Unequally Likely Outcomes
Student Activity

Name _____

Class _____

In these activities you will find the probabilities of outcomes from a chance event where the outcomes are not equally likely. After completing the activities, discuss and/or present your findings to the rest of the class.

Activity 1 [Page 1.5]

1. Sometimes the outcomes for a chance event are equally likely to occur and sometimes they are not.

    a. Do you think the spinner is equally likely to land on any of the sections 2 to 12? Why or why not?

    b. Do you think that all of the possible sums of the faces of the two number cubes will be equally likely? Why or why not?

Activity 2 [Page 2.2]

1. Page 2.2 shows two spinners.

    a. Do you think that both spinners are equally likely to land on any of the numbers 2 to 12? Why or why not?

    b. Check your answer to the question above by spinning the spinners enough times and repeating the experiment to be fairly confident of your claim.

2. Decide which of the claims below are correct and which are not. What would you say to each student if you disagree?

   a. Sal claims that if something has two possible outcomes, each one has $\frac{1}{2}$ chance of occurring.

   b. Tilani claims that if all of the outcomes of a chance event are equally likely, then the distribution of the outcomes over many, many repetitions of the event should be somewhat rectangular in shape, with all of the outcomes having approximately the same frequency of occurrence.

   c. Jon claims that the sums of the faces when tossing two number cubes are not equally likely to occur.

Activity 3 [Page 2.4]

1. On page 2.4, select Sum.

   a. Describe what happened. Where did the numbers come from?

   b. How many ways can you get a sum of 9 when you roll the two cubes? Select the number on the spinner that corresponds to 9 to check your thinking.

c. What sums are possible when you toss two number cubes? Are each of the sums equally likely? Use the table to help explain why or why not.

2. Use Sum and Pair on the table to find the probability the faces sum to

   a) 7   b) 3   c) 5 or 9   d) an even number

Activity 4 [Page 2.6]

1. In which of the following situations do you think the outcomes will be equally likely? Explain your reasoning.

   a) Your grandmother will make or miss a free throw shot.

   b) An NBA basketball player will make or miss a free throw shot.

   c) Getting heads or tails when you toss a coin.

   d) Getting a number divisible by 3 or not when you toss a number cube.