What's Your Sign?
Designing the Simulation

There are twelve zodiacal signs. What is the probability that at least two people in a group of five have the same zodiacal sign?

1. a. How many possible outcomes are there for the zodiacal sign of each person?

   b. What is the probability of each outcome?

2. How could random numbers be used to model the possible outcomes?

3. Describe one simulation trial that shows the zodiacal signs for each person in a group of five people. How would you determine if two people in the group have the same zodiacal sign?

4. Conduct 20 trials, then share your results with others. Record your results in the frequency table below.

Frequency Table
What's Your Sign?

Are there *any* people with the same sign?	Frequency	
	Individual	Class
yes		
no		
Total # of Trials		

5. Based on your data, what is the probability that at least two people in a group of five have the same zodiacal sign? Use mathematics to explain how you determined your answer. Use words, symbols, or both in your explanation.

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Answer Key

1. a. 12

   b. $\frac{1}{12} = 0.083$

2. Use digits 1, 2, 3, …, 12 to represent the possible zodiac signs.
3. Generate these numbers (1 - 12) five at a time, and observe whether or not there are any matches.
4. Answers will vary. The results of twenty trials are shown below.

Frequency Table
What's Your Sign?

Are there *any* people with the same sign?	Frequency	
	Individual	Class
yes	12	
no	8	
Total # of Trials	20	

5. Answers will vary. According to the results above, $\frac{12}{20} = 0.60$.