

Lessons in Probability

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Lesson 1: Introduction to Probability

Grade level: Grades 6 to 10

Objective: Students will learn ways to define and calculate simple probability.

Materials: Two dice per pair of students and the Powerpoint slideshow, Probability2.ppt, for the teacher to guide the lesson. Available at our ACTM website: www.akmathteachers.org under the “lesson” link.

Description: It is assumed that students have little experience with probability. To introduce probability, students are given a probability quiz to introduce the terms of certain, uncertain, likely, or unlikely. After the quiz, a definition for probability is discussed as well as ways to calculate probability for specific event using cards. Students then play two dice games where they determine whether or not they are fair games using probability. Possible extensions include exploring experimental outcomes with students and creating your own game where students can explain the strategy that you would want to use to win your game.

Lesson 2: Using Pascal’s Triangle to Calculate Probability

Grade level: 9-12

Objective: Students will use Pascal’s Triangle to calculate probability of two outcome events.

Materials: Pascal’s Triangle and Taking a Quiz worksheet and the Powerpoint slideshow, Pascals and Probability2.ppt, for the teacher to help guide the lesson. Available at our ACTM website: www.akmathteachers.org under the “lesson” link.

Description: It is assumed that students have generated Pascal’s Triangle before this activity. Students are asked what they think the probability of passing a 5 question and a 10 question true or false quiz is, if they are guessing. Students take a quiz where they calculate a score for the first five questions and all ten questions. After taking the quiz, students then analyze the results for possible ways to answer a 5 question quiz and pass and a 10 question quiz and pass.

- These lessons are adapted from Texas Instrument lessons found at the activity exchange (<http://education.ti.com/educationportal/activityexchange>).

Name _____

Date _____

Pascal's Triangle and Taking a Quiz

1. For the five question true/false quiz, complete the table below:

# of Correct Answers	0	1	2	3	4	5
# of Ways to Get Result						
Probability of Result						

2. Your friend thinks that since you have a 50/50 chance of getting each question wrong, you are more likely to fail since the lowest passing score is 60%. What is the probability that you will not fail the quiz?

Is your friend correct?

3. You take the 10 question true/false quiz. Use Pascal's triangle to help you fill in the table below:

# of Correct Results	0	1	2	3	4	5	6	7	8	9	10
# of Ways to Get Results											
Probability of Result											

How does increasing the questions from five to ten affect your probability of earning a passing grade? Explain.