Lesson: Pick 3 Probability

Teacher: Jamie Droegemeier
Level: Algebra II

Overview:
- This lesson revisits previously learned probability concepts and reinforces the methods for calculating theoretical probabilities.

Objectives and Goals:
- Kansas Standards
  - Develop a probability distribution for a random variable defined for a sample space in which theoretical probabilities can be calculated; find the expected value.
  - The student will be able to write functions utilizing variables and random numbers.

Anticipatory Set (5 min):
- Watch the The Lowdown video as a class to begin discussion of odds of winning the lottery.
- Discuss theoretical probability and how it compares to experimental probability.

Direct Instruction and Guided Practice (15 min):
- Review calculation of theoretical probability.
- Present sample scenarios for calculating theoretical probability of independent events.
- Work one example together with the class.

Independent Practice (15 min):
- Demonstrate how the Alice program “Pick 3 Probability” will look and run.
- Have each student open and play the program “Pick 3 Probability” and complete the quiz questions.
- Have each student play the lottery portion of the world at least five times and collect data on how many numbers matched.

Assessment
- Walk around the classroom as students play the program. Observe how students are doing on the quiz questions.

Closure (10 min):
- Discuss the use of functions, variables, and random numbers in the Alice program “Pick 3 Probability”.
- Show the Alice code that displays the numbers and chooses the lotto balls.

Independent Practice (Homework):
- Have students complete the Alice tutorial “Changing Color/Shorter of Two”.

Required Materials and Equipment:
- Computer(s) with Alice software
- Students will need paper, pencil, and calculator