Name: Kevin Westrich

Grade level(s)/Subject taught: 10-12 Integrated Math A

Objectives:

Calculate the experimental and theoretical probability of an event.

Calculate the percent error in measurement.

Please provide a rich **one-page, single-spaced**, description or a *vision* of your best thinking on a way or ways you might teach the planned lesson. (approximately ½ page for the teacher role, ½ page for the student role). Also, construct a tentative rubric that you might use with your students (see example)

Items to include in your lesson plan: (Choose your discipline/concepts from your own area).

1. *Write* the Mathematical Concept or "key idea" that modeling will be used to teach: (e.g. Students use mathematical modeling/ multiple representation to provide a means of presenting, interpreting, communicating, and connecting mathematical information and relationships)

4A. Represent problem situations symbolically by using algebraic expressions, sequences, tree diagrams, geometric figures, and graphs.
5H. Explain the role of error in measurement and its consequence on subsequent calculations.
6B. Use experimental and theoretical probability to represent and solve problems involving uncertainty.
6C. Use the concept of random variable in computing probabilities.

Materials: Agentsheets Dice Model

1. How will you assess the prior knowledge of the student?

Students will have already learned how to use tree diagrams to represent the sample space of an event, and how to calculate simple probabilities. They will have done a homework assignment the night before on probabilities. While I check the homework students will work on some warm-up problems on probability. We will go over the homework, then the warm-up problems, and check how well students understand the basic principles.

2. How will you begin the lesson?

I will have students calculate some probabilities and list the sample space for rolling one die. Next we will see how the sample space changes for rolling two dice.

3. What are the teacher and students doing every 5-10 minutes? (Teacher Actions and Student Actions

We will create a tree diagram to represent the sample space and then create a lattice diagram to represent the same sample space. We will calculate the probability of several events such as rolling a sum of eight, or a sum of less than five. Next we will use the dice rolling model in AgentSheets to perform some experiments and collect data on the outcomes. The experimental probability will be compared to the theoretical probability for several events and the % error can then be calculated. Students will be given several more events using rolling two dice and will need to calculate the theoretical probabilities.

4. How will you assess the learning for the lesson?

Students will be given a homework assignment in which they will have to draw out sample spaces and calculate theoretical probabilities.

I will collect the assignment from students and grade it and their participation using the following rubric

Rubric

	3	2	1
Objective Completion	Student completed the problems completely and accurately	Student made some errors in calculation	Student did not create a correct sample space diagram or calculate probabilites
Participation	Student was on task and participating in class	Student needed some redirection	Student did not participate in this class activity.