Subject: Math 3 Grade: 10-12 Unit #: 1 Title: Probability

UNIT OVERVIEW

STAGE ONE: Identify Desired Results

Established Goals/Standards

Common Core Standards Addressed:

S.CP.1
S.CP.7
S.MD.1
S.MD.3
G.MG.2
S.ID.1
S.MD.4

Connected to:
A.CED.2
S.ID.2
S.ID.5
S.MD.2

Long-Term Transfer Goal

At the end of this unit, students will use what they have learned to independently…

Construct and use sample spaces and probability distributions to calculate probabilities.
Model probabilistic situations using random devices.
Use simulation to decide whether a probabilistic situation is consistent with the known data.
Estimate the answer to any probability problem that arises.

Meaning

Enduring Understandings
Students will understand that…

The difference between a sample space and a probability distribution is that a sample space may be categories or numbers while a probability distribution can be made only with numerical outcomes and includes probabilities.

A sample space for a given event can be used to create a probability distribution. A probability distribution can be used to find a probabilities of various events.

Outcomes are equally likely if they have the same probability of occurring.

If two events cannot occur at the same time then the two events are said to be mutually exclusive.

If two events are mutually exclusive you can simply add the probability of the two events when you see the word “or”.

If two events are not mutually exclusive, you must use the Addition Rule which includes adding the original two probabilities and then subtracting the probability of both events occurring at the same time. (Again when you see the word “or”)

Essential Questions
Students will consider such questions as…

What is a sample space and how can it be useful in finding probability?

What is a probability distribution and how is it used?

Under what conditions can you add individual probabilities to find the probability that a given event happens?

How can you simulate chance situations involving two equally likely outcomes?

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		Acquisition	
		What knowledge will students learn as part of this unit?	*What skills will students learn as part of this unit?*
		A random situation is and situation where the outcomes are equally likely to occur. A sample space is a list or set of all the possible outcomes in a probabilistic situation. A probability distribution is a description of all possible numerical outcomes of a random situation, along with the probability that each occurs.	How to construct a sample space and a probability distribution for a given situation. How to use these to determine probabilities of given events. How to use the Addition Rule and its special case. How to carry out a simulation model and analyze the results using probability.

STAGE TWO: Determine Acceptable Evidence	
	Assessment Evidence
Criteria for to assess understanding: *(This is used to build the scoring tool.)*	Performance Task focused on Transfer: Lesson 1 Test : a series of contextual problems Lesson 2 Test : a series of contextual problems
	Other Assessment Evidence: Check Your Understanding activity after each investigation - individual work (possibly collected and given feedback) Long-term graded assignments Test Analysis Chart to break down success on each standard

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T, M, A *(Code for Transfer, Meaning Making and Acquisition)*	**STAGE THREE: Plan Learning Experiences**	
	Learning Events: Lesson 1: Calculating Probabilities (*Core 1 – pg 532-541*) Think About This Situation pg. 533 Investigation 1: Probability Distributions #1-5, #7-8, Summarize the Mathematics (STM), Check Your Understanding (CYU) Investigation 2: The Addition Rule # 1-8, STM, CYU Lesson 2: Modeling Chance situations (*Core 1 – pg. 551-564*) Think About This Situation Investigation 1: When It's a 50-50 Chance Simulation, #1-8, STM, CYU Investigation 2: Simulation Using Random Digits #1-8, STM, CYU	Evidence of learning: *(formative assessment)* Listening in on small group discussions. Monitoring group work, checking for correct answers Whole class discussions/ summaries Collect and give feedback on individual Check Your Understanding assignments Student self-assessment (Can I? charts)