Unit 3 - Probability: BIG PICTURE:

(1) Once a foundational concept is understood, we can develop new knowledge and new ideas as we extend the foundational concept by simply asking "what if ..." or "what about ...." or "how would things change if .... " Any topic in math can be EXTENDED as new ideas/skills/process get introduced or get applied. We will demonstrate this EXTENSION in our study of Probability.

i.e. can we use statistically gathered data (say a survey of student class preferences) to move from a stats discussion to a probability discussion.

i.e. can we use a simple "tree diagram" type experiment with two outcomes (say selecting green or "not green" dice from a bag) and move into "binomial" type ideas (say the expansion of $(1 + x)^3$ and somehow relate that to the results of our "experiment" & our visualization of the theoretical probabilities (through a tree diagram)

i.e. if probability is nothing more than the ratio of desire outcomes to total possible outcomes, how do we count outcomes in the first place?

(2) Any topic in math can be CONNECTED to previously taught ideas/skills/processes. We will demonstrate this CONNECTION in our study of Probability.

(3) In what contexts can probability be used to model real world scenarios?

1. be able to use the results of an experiment to calculate observed probabilities and thus distinguish between theoretical probability and experimental probability.
2. Be able to count outcomes in a probability event/experiment
3. be able to use tabled data to calculate probabilities
4. be able to use Venn diagrams, tree diagrams, lists and grids to represent outcomes of combined events
5. be able to calculate probabilities of single and compound events
6. be able to construct tree diagrams to represent outcomes involving sampling with & without replacement, and use these diagrams to calculate probabilities
7. be able to distinguish between mutually exclusive & non-mutually exclusive events
8. be able to solve problems involving conditional probability using tree diagrams, Venn diagrams
9. be able to apply the ideas of (i) grouped frequency tables and (ii) probabilities to understand the calculation of expected values of "casino" games