Bucknell University – UBD Lesson Plan

Use Geometric Probability

Teacher\_Nathaniel Nauman\_\_\_\_\_\_\_\_\_\_ Grade\_\_9th and 10th\_\_\_\_\_\_\_\_\_\_\_\_

Date\_Mar. 4, 2013\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Subject\_\_Geometry\_\_\_\_\_\_\_\_\_\_\_\_

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| **Stage 1- Desired Results** | |
| **Established Goals: G**  G.2.2.4.1 – Use area models to find probability. | |
| **Understandings: U**  Students will understand …   * how to calculate geometric probabilities * why a probability can be calculated from various geometric measures | **Essential Questions: Q** What is a geometric probability? How is a probability calculated when given lengths or areas? How can this knowledge be applied in the real world? |
| Student will know…. **K**   * how to calculate a probability when given a geometric length or area, including the process for calculating this probability | Student will be able to… **S**   * calculate the geometric probability when given the required lengths * calculate the geometric probability when given the required areas |
| **Stage 2- Assessment Evidence** | |
| **Performance Tasks: T**  Calculate the probability that a dart randomly thrown at a dart board will hit inside one of the circular areas, assuming that the dart will hit the square backboard. | **Other Evidence: OE** Focus question, practice problems throughout the lesson, various questions and homework problems. |
| **Self-Assessments** | **Other Evidence, Summarized** |
| **Stage 3 Learning Plan** | |
| **Learning Activities: L**  Start lesson with a focus question projected onto the SmartBoard which requires students to calculate the probability of randomly choosing a blue marble out of a bag when given a bag filled with so many blue, red and green marbles. After confirming that everyone understands how to solve this problem, begin the actual lesson by moving to the next slide where students will be introduced to the objectives for the lesson and are introduced to the concept of geometric probability. Once this concept is introduced, move on to a more in depth explanation of geometric probability using areas. Follow this with an example problem using areas to calculate the probability of a specific event occurring. Then go into a more in depth explanation of geometric probability using lengths. After students understand this concept, confirm their understanding by going through a couple of example problems and then having students go up to the board to create and work through a geometric probability problem of their own design. Follow this with an introduction to wait-time problems and working through a few wait-time problems. Then finish the lesson by having students work through a couple of more complicated/application problems. Then if time remains, hand out homework and ask students to start working on the problems.  Extension: Set up a problem on the board and use different colored markers to color code the line or area as needed to emphasize each of the different parts of the problem. Also try to use real life examples (like throwing darts at a board or riding on a train) that students could connect with to help students understand these concepts.  Resources: White Board, Markers (various colors), White Board Erasers, SmartBoard, Projector, PowerPoint Slides, and the homework assignment papers. | |