**The North Carolina State Fair is looking for new games to showcase at next year’s event. Your task is to create a game to present on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the rest of the class.**

**Game Requirements and Presentation: (35 points)**

* The game must be winnable and a compound event. (required to earn all other points and preferable not a skill game i.e. shooting baskets, etc)
* A **Title** (5)
* **Cost to play** the game and **prize amount(s)**. (5)
* **Game rules/how to play**. Player should be able to read all rules and understand how to play. (5)
* **Game materials are present/constructed** and playable on the due date.(15)
* Be **creative and original**. The game is won when a 3 is rolled or a head is flipped on a coin is not going to receive full credit. (5)

**Game analysis: (65 points)**

* A list of **all possible outcomes** (10)
* Include a calculated **theoretical probability for winning vs. losing**. (10)
* Include the **amount of profit** **based on theoretical probability** that should be made when the game is played 10 times, 50 times, and 100 times. (10)
* Have someone besides you play the game 25 times. Include the **experimental results** of the game played after 5 turns, 10 turns, and 25 turns. (5)
* Include how much **profit based on the experimental results** the game would have after it was played 25 times. (10)
* Analysis Paragraphs (20)
  + Paragraph 1: Analyze how the experimental results compares to the theoretical results.
    - Were the results the same/different and by how much
    - Should they be the same/different
    - What should happen to the experimental probability compared to the theoretical as you do more trials
    - Why did/didn’t the results represent the theoretical probability (what aspects of your game caused this to be the same or different)
    - What could you have done differently to make the game true to the predicted results.
  + Paragraph 2: What did you learn?
    - What did you learn about probability from this project?
    - What did you need to change about your project and why?

**Presentation** needs to be neat and organized

**Work needs to be organized by section as stated above**

**Due Dates:**

\_\_\_\_\_\_\_\_\_\_ Idea approval

\_\_\_\_\_\_\_\_\_\_ Title, Rules/how to play, possible outcomes, theoretical probability, cost to play,

prize amount, amount of profit based on theoretical probability

\_\_\_\_\_\_\_\_\_\_ Materials to make game in class and adjusting game as necessary

\_\_\_\_\_\_\_\_\_\_ Experimental results and experimental profit

\_\_\_\_\_\_\_\_\_\_ Analysis paragraphs

\_\_\_\_\_\_\_\_\_\_ Presentation Day