7th Grade Interdisciplinary Team Problem

The Carnival Game

In this design project you will work with a group to create a game for a school carnival and test your game. Then, you will create a report to the carnival committee about your game.

Step 1: Design a Carnival Game

When you design your game, keep these guidelines in mind.

- The game should make a profit for the school running the carnival.
- The game should be easy to set up and use at a school carnival.
- The game should NOT require expensive equipment to make or maintain.
- The game should take a relatively short time to play.
- The rules of the game should be easily understood by people your age.

Step 2: Test Your Game

After your group has drafted a game design, you need to decide whether the game you have designed is reasonable for a school carnival and will also make a profit. Then, you will need to try out the game. Your group should play the game several times until you feel confident that you can predict what will happen in the long run. Keep track of your trials and include that information in your report.

Step 3: Submit Your Game Design to the Carnival Committee

Once you are satisfied that your carnival game is reasonable, prepare to submit your game design. Your submission to the committee should include a scale model of the design of the game and the written report.

Scale Model:

With your group prepare a scale model of the game. If your group is chosen to present, you will need to make an actual model of the game! In your scale model, include the scale factor from the scale model to the actual game. Be sure to include enough views of your game so that anyone can look at the drawings and construct the game.

Include a set of rules that explains how the game is played, how much it costs to play, how much a player wins. Also, explain how the game will make a profit!!
Write A Report:

Write a report about your game to the carnival committee. Assume that the carnival committee is composed of teachers in the building, (not just math teachers), parents and other students. Your report should include the following:

- **The probability of winning the game.** Give the experimental probability of winning the game that you found from playing the game several times. If possible, give the theoretical probability. For some games, such as tossing coins, finding the theoretical probability of winning is easy. For others finding the theoretical probability would be too difficult. If you do not give the theoretical probability for your game, explain why you did not.

- **The amount collected and expected payout per game.** Tell how much money the school will collect and how much they can expect to pay out of the game is played many times. Show how you determined these amounts.

- **An explanation of why your game should be chosen.** Explain why the game is worth having in the carnival and why you think people would want to play it.