

Designing a Game for a Carnival

BROAD AREAS OF LEARNING: Personal and Career Planning; Consumer Rights and Responsibilities

CROSS-CURRICULAR COMPETENCIES:

- Uses information
 - Solves problems
 - Uses creativity
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Application Question

- **To develop Competency 2:** Uses mathematical reasoning
- **To develop Competency 3:** Communicates by using mathematical language

A Fair Game

You are on a committee to prepare for the upcoming school carnival. Your job is to analyze the point board shown in Appendix A to determine if it meets the necessary characteristics for a carnival game, particularly about fairness of the game based on your knowledge of probability. After analyzing the board, suggest ways the board could be improved.

? How can you change the board to make the game fair?

Criteria for the point board:

- The ratio of the probability of scoring 100 points compared to 50 points must be as close as possible to 2:1.
- The ratio of the probability of scoring 10 points compared to 100 points must be as close as possible to 1:10.
- The board must include different shapes.
- The point board must have at least the outcomes 10 points, 50 points, and 100 points. You may choose to have additional outcomes.

Name: _____ Date: _____

- C.** Determine what the ratio of the probability of scoring 50 points compared to 10 points should be in the changed point board. Explain.

Evaluation Criteria Checklist

- Your point board has probability ratios equal to those stated in the given criteria.
- Your board contains at least the outcomes of 10 points, 50 points, and 100 points.
- Your point board includes multiple shapes.
- You used correct mathematical language in your explanation.