Bring Down the House

Seventh and Eighth Grade Math

Developed by:
The teachers, students, and mentors in the
Gaming Research Integration for Learning Laboratory® (GRILL®) Summer 2015

TABLE OF CONTENTS

1. BRING DOWN THE HOUSE

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1.1. INTRODUCTION

Arcanum City Schools is hosting Trojan Fest and is in need of both game makers and game players. So, stop on by and bring your best game of chance because we are presenting our games on April 26th. For everyone that shows up we will be handing out 70 tickets for our guests to get rollin' in our soft opening. Best of luck and "may the odds be ever in your favor."

1.2. PROBLEM

You are tasked with creating an entertaining and fair game that can be used at Trojan Fest. Your game must involve probabilities that can be calculated. Additional parameters and requirements are listed in the Project Outline.

1.2.1. GAME CREATION (GROUP)

- Game cannot cost more than 10 tickets to play.
- Prize payout must be between 1 and 20 tickets.
- Rules and procedures must be presented prior to game play.
- Game idea must be approved by teacher prior to development.
- Game may only give a payout to one player per round.
- Game cannot last more than 2 minutes.

1.2.2. GAME ADVERTISEMENT (GROUP)

- You will have a max of 5 minutes to advertise your game to the class.
- You must include: rules, procedures, pricing, prize payout, and why customers should want to play.
- Audience will record notes on all the games.

1.2.3. GAME EVALUATION (INDIVIDUAL)

- You will choose 4 games to analyze
- For each game include: cost, probability of winning, prize payouts, and entertainment benefits
- You should include whether or not you would want to play each game and why
  - Include math work for probabilities and prize payouts

1.2.4. GAME PLAY (INDIVIDUAL)

- You will be given 70 tickets for game play.
- You must play at least 4 different games (no limit for game play).

- You must record wins and losses.
- Game Operators must track their wins and losses as well.
- Game Operators will be given a lump sum of 400 tickets to give payouts.
  - Game Operators may make one change to their game at the switch

1.3. PROJECT WRITE-UP

- Group Game Analysis:
  - What is the chance that someone will win? Someone will lose? What data was collected?
  - In the simulation what was the win rate? What was the lose rate?
  - Stem-and-leaf-plot representation of class earnings
  - Game Earnings Comparison Bar Chart
  - Game Modifications
  - Conclusion: What would you change and why?
- Individual Analysis:
  - Data representation of wins and losses
  - Tickets earned per hour
  - Conclusion: What game play changes would you make and why?

1.4. RUBRIC

Category	Developing	Good	Excellent	Score	Comments
Math Content	- Student does not include appropriate graphs and charts to display data - Graphs and charts are incorrectly labeled with many mistakes	- Student uses graphs and charts to display data - Graphs and charts are correctly labeled and structured with few mistakes - Calculations are fully displayed with mostly correct answers	- Student uses appropriate graphs and charts to display data - Graphs and charts are correctly labeled and structured - Calculations are fully displayed with correct answers	/30	
Explanation	- Content and work are not explained - Student fails to provide any supporting evidence for conjectures	- Content and work are partially explained with limited details - Explanation makes some connections between content and conjecture	- Content and work are fully explained with details - Explanation makes connections between content and conjecture with supporting evidence	/30	

Grammar and Mechanics (Spelling, Grammar, Punctuation, ect.)	- Student work contains more than five errors - Student work is messy and difficult to follow	- Student work contains three to five errors -Student work is mostly neat, clear and easy to follow	-Student work contains two or less errors -Student work is neat, clear and easy to follow	/10	
Collaboration	- Student does not participate in group project - Student is not respectful -Student does not stay on task frequently	- Student participates in group project - Student is respectful - Student gets off track occasionally	- Student participates in group project - Student is respectful - Student stays on task	/20	
Creativity	- Student's game is unoriginal and little effort was put into its creation -Game advertisement and final presentation were not prepared and/or engaging	- Student's game is somewhat developed, but lacks effort - Game advertisement and final presentation were prepared, but not engaging	- Student's game has unique characteristics - Game advertisement and final presentation is engaging	/10	
Total				/100	