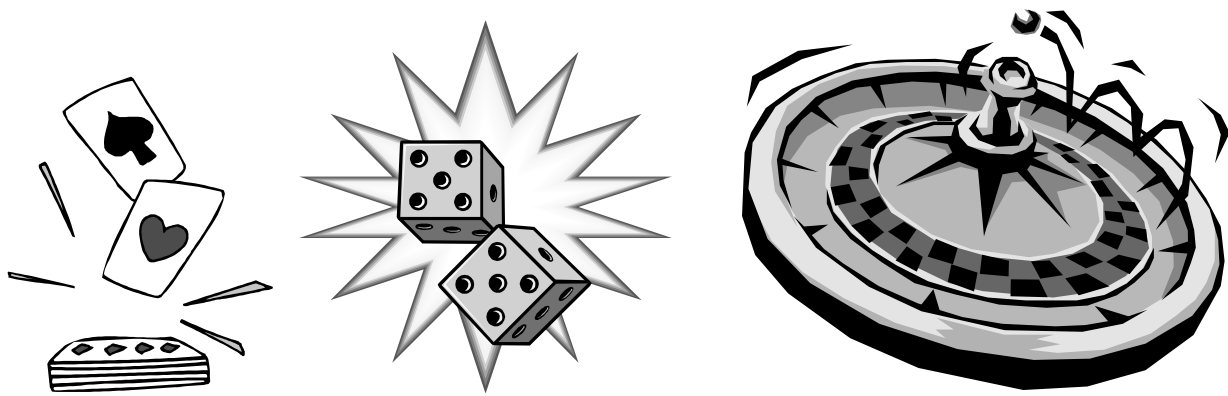


MDM4U - GAMES FAIR

To apply what you have learned about permutations, combinations, and probability, we are going to have a Games Fair! The high-stakes Games Fair will take place over two classes and the "winners" will receive a prize.

Your task is to create an original, interesting, easy-to-play, and profitable game involving dice, spinners, cards, or any other reasonable item that introduces an element of chance. The game will require the participant to pay up to two 'Denison Dollars' and all prizes must be payable in full 'Denison Dollars'. In addition, two days after games fair, you will submit an analysis of your game detailing the rules, the items required to play, the player's probability of winning, and the player's expected return per game. The analysis must also include a summary of individual results from your day at Games Fair and the players actual return per game.

On the first day of Games Fair, half of the class will be players, and the other half will operate the games that they have created. On the second day of Games Fair, the roles will be reversed. Choosing who will be players and who will be operators on the first day will occur by chance two days prior to the first day of Games Fair. (Note: as a result of the participatory nature of this assignment, late projects will not be accepted and students will not be able to switch from one day of Games Fair to the other.) At Games Fair, each player and each operator will receive thirty 'Denison Dollars'. Each player must play every game at least once. Once all of the games have been tried, the player can decide which of the games to play again. If an operator no longer has enough 'Denison Dollars' to award a prize, the operator must declare bankruptcy and borrow money from the Dalrymple Bank to continue operating their game. If a player runs out of money they must declare bankruptcy and borrow money from the Dalrymple Bank to continue playing. Players and/or operators who have gone bankrupt are not eligible for the prize. At the end of each day of Games Fair, the player and the operator with the most 'Denison Dollars' will be declared winners.



ASSESSMENT

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Game: Application


1	Was the game easy to play?	0	1	2
2	Was the probability of winning not obvious to the player?	0	1	2
3	Was the display aesthetically pleasing?	0	1	2
4	Were all of the rules clearly displayed?	0	1	2
5	Did the game show a profit?	0	1	

Analysis: Application

1	Was a list of rules and a list of required materials included?	0	1	2
2	Was the player's theoretical probability of winning correct and well explained?	0	1	2
3	Was the player's theoretical expected return correct and well explained?	0	1	2
4	Was the expected return in the operator's favour and reasonable for the player?	0	1	2
5	Was the actual data for the game collected correctly and the experimental probability compared to the theoretical probability?	0	1	2
6	Was a summary of the Games Fair results submitted?	0	1	

Written Analysis: Communications

Level

	Level 1	Level 2	Level 3	Level 4
<p>Communication</p> 	<p>-Explains some of the theoretical probability and expectation with errors and/or omissions</p> <p>-Compares the results of the games fair to the theory with errors and/or omissions</p>	<p>-Explains the theoretical probability and expectation with few errors or omissions</p> <p>-Compares the results of the games fair to the theory with few errors or omissions</p>	<p>-Explains the theoretical probability and expectation clearly and accurately</p> <p>-Compares the results of the games fair to the theory clearly and accurately</p>	<p>-Explains the theoretical probability and expectation clearly, and accurately using more than one method</p> <p>-Compares the results of the games fair to the theory clearly, accurately and with insight</p>