

How to Beat the Midway

Using Probability to Win Prizes

GAMERS

QUEST 4
AQR

STATE FAIR OF TEXAS
CURRICULUM

STUDENT EDITION

Recap
You will be going the State Fair of Texas to research games in the Midway, and find your two favorites, so that you can design your own later!

- ★ Recall the terms “theoretical” and “experimental”
- ★ Remember that you discovered the probability of rolling a die and getting two different numbers, getting the same number twice, or rolling two dice and getting the same two numbers twice. What was the probability?
- ★ What is “replacement”?



STATE FAIR MAP



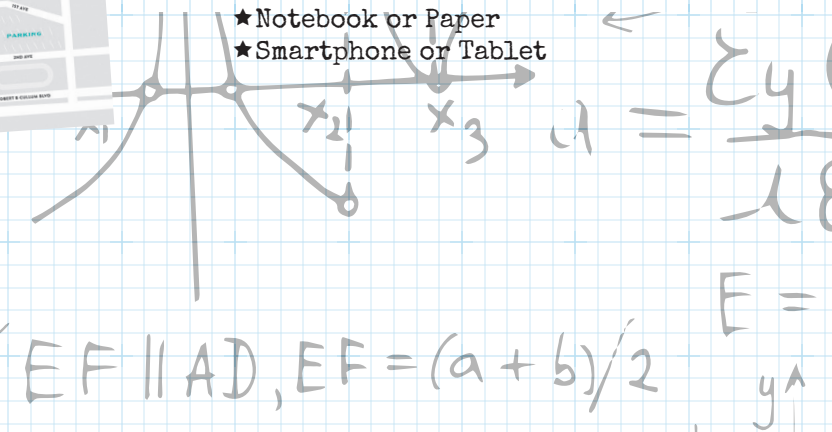
Plan Your Route

- ★ Head to the Midway and survey the games.
- ★ Pick your 2 favorites to analyze.



Optional Materials to Bring

- ★ Pen or Pencil
- ★ Notebook or Paper
- ★ Smartphone or Tablet



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While You're There

You will use information you gather at the State Fair to help you with THREE project goals:

1. Use your data to determine which game has a greater probability of winning, and create a presentation based on your findings
2. Design your own game, based on what you discovered
3. Create a pamphlet advertising the winning game

The objective of your visit is to find the experimental probability of winning a prize.

- ★**HOW DO I WIN A PRIZE?** Pick 2 different games that you enjoy, and record data:
- o Pick your 1st game. Observe the players.
 - o Record the number of total players (at least 10) and the numbers that win.
 - o Also record the cost of playing this particular game.
 - o Then move on doing the same thing at a 2nd game.
 - o You may do more than two if you have trouble picking just two.
 - o Record your results in a notebook, device, or use the tables on the right:

Name of Game 1	
Cost per Play	
Player	Win/Lose Circle One
1	W / L
2	W / L
3	W / L
4	W / L
5	W / L
6	W / L
7	W / L
8	W / L
9	W / L
10	W / L

Name of Game 2	
Cost per Play	
Player	Win/Lose Circle One
1	W / L
2	W / L
3	W / L
4	W / L
5	W / L
6	W / L
7	W / L
8	W / L
9	W / L
10	W / L

- ★**AESTHETICS (ART COMPONENT):** What is it about your two favorite games that attracts you to them?
- o Pay special attention to design and colors.
 - o What about the concept behind the game?
 - o If possible, interview a few people and ask them why this is their game of choice.
 - o Are there other games that people are more drawn to? If so, what about the design of those games is more intriguing?
 - o Record any useful information for use during the Art Component of your project!



Back at School

When you return to class following your State Fair visit, you will work on your three projects. See your teachers for more information.