# Game of Power of 10

More Ai More Money

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## 1 Introduction

The "Game of Power of 10" is a mathematical card game where the objective is to use the cards and operations to form a number equal to a power of 10, such as $10^1 = 10$, $10^2 = 100$, etc. Each round presents a new target number that the players need to reach by combining cards and arithmetic operations.

## 2 Objective

The goal of the game is to create an equation that is equal to a power of 10 using the cards and operations dealt. Players earn points based on the operations they use, and the first player to reach 11 points wins the game.

## 3 Setup

- Each player starts with 6 cards:
  - 4 numbered cards (ranging from 0 to 9)
  - 2 operation cards (e.g., addition, subtraction, multiplication, division)
- The game is played in rounds, with each round having a target number of the form $10^n$, where $n$ is a positive integer.

## 4 Rules

1. **Forming the Target:** Players must use their 6 cards and the arithmetic operations to form an equation that equals the target power of 10. They can use basic operations such as:
   - Addition: $3 + 7 = 10$
   - Subtraction: $15 - 5 = 10$
   - Multiplication: $2 \times 5 = 10$

- Division: $20 \div 2 = 10$

If a player cannot form the target number, they may discard one card and draw a new one to continue trying.

2. **Scoring:** Players receive:
   - 1 point for each operation used to form the equation.
   - 4 points if they use all the cards to form the target equation.

   The first player to reach 11 points wins the game.
3. **Skipping a Turn:** If a player cannot form an equation equal to the target power of 10, they may discard one card to skip their turn. They then draw a new card to continue.
4. **Game Continuation:** After each round, the deck is reshuffled, and players are dealt a new set of 6 cards. The round ends when a player successfully forms an equation equal to the target $10^n$ and scores points.

# 5 How to Create a Match

To create a new match, click the "Create Match" button on the home page. You can then adjust the following settings:

- **Easy Mode:** Enabling easy mode will assist players by helping them calculate equations.
- **Limit Time:** Set a time limit for each player's turn. If the time expires, the player must discard a card and skip their turn.
- **Include More Operations:** This setting allows the inclusion of more advanced operations, such as factorial (!).

# 6 Conclusion

The "Game of Power of 10" is an engaging and educational card game that encourages players to improve their mathematical skills and strategic thinking. By using arithmetic operations and problem-solving, players strengthen their number sense while developing a deeper understanding of mathematical concepts. The game is designed to be accessible to players of all ages and abilities, with AI support ensuring that those who may have difficulty seeing the cards can still fully participate. With AI voice recognition, the game can read out the card values, which is particularly helpful for individuals with visual impairments. This integration of AI not only makes the game more inclusive but also enhances the overall gaming experience by providing real-time assistance and feedback, helping players make strategic decisions and learn new ways of solving problems.

# 7 Future Considerations

Future updates could include the development of additional AI features, such as one that reads out the cards and their values, making the game even more accessible to players with visual impairments. A "place cards" function could also be added, allowing the AI to guide players on how to position their cards for optimal play, providing interactive and instructional feedback. These features would not only enhance the gaming experience but also promote learning and engagement. Additionally, expanding the game to support multiple languages would further increase accessibility, allowing players from different linguistic backgrounds to enjoy and benefit from the game, while also encouraging global participation. Also adding coordinates will make it easier for the AI to place the cards and make it more accurate to place. Figure 1 shows the board set up:

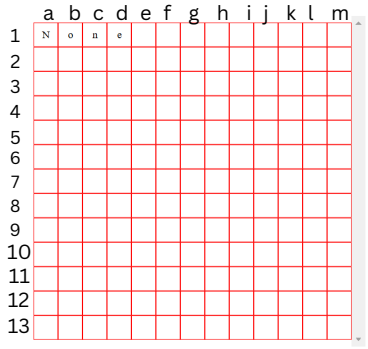


Figure 1: Future Board Look