

## Got Your Number

### Level A

Carol and Melissa are playing a game. They have a deck of 36 cards with just the numbers 1 through 9. After they mix up the cards, they put them into a pile. Below are the rules:

- Deal five number cards to each player.
- Use any three of your cards.
- Pick three numbers that add to a number near 20.
- Write a number sentence with your three cards and the total that is near 20.
- Find your score. Your score is the difference between your total and 20.
- For example, you picked the cards 6, 9, and 7.  $6 + 9 + 7 = 22$ . So, your total is 22. To find your score, subtract 20 from 22.  $22 - 20 = 2$ .
- Shuffle the cards and play another round.

Play the game seven times.

At the end of the game, sum all seven scores for each player. The player with the lowest total is the winner.



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### Level B

Sandy and Sally are playing a game. They have a deck of 36 cards with just the numbers 1 through 9. After they mix up the cards, they put them into a pile. Below are the rules:

- Deal six cards to each player.
- Select any four of your cards to make two numbers. Each number would be a two-digit number.
- Arrange the numbers and then add them to get a sum as close to 100 as possible.
- Once you have selected the two numbers and found the sum, write out the number sentences.
- Determine your score by finding the difference (distance) between your number and 100.
- Shuffle the cards and play another round.
- Play the game seven times. At the end of the game, sum all seven scores for each player. The player with the lowest total is the winner.

Explain the strategy you used to try to win the game. Explain why you chose that strategy.



## Got Your Number

### Level C

Jean and Ford are playing a game. They each have a deck of six cards with just the numbers 1 through 6.

After they each mix up the cards, they put them into a pile.

The goal of the game is to make the largest three-digit number.

- The first player picks the top card and places the number in either the ones, tens, or hundreds place.
- The second player then picks a card and has the same options.
- Once a card is put in a location, it cannot be moved.
- Players continue playing until all the places are filled.
- When each has created a three-digit number, determine which player has the largest number.
- That player is the winner!

Note: The players are not able to see the other player's cards or placement until all three of their cards are drawn and played.

Play the game several times. Keep track of the results.

Write a detailed strategy for this game.

Given specific cards, explain where you would put that number to insure the best probability of winning. Be thorough in developing a strategy.

For example, if you drew a 4 as your second card, where would you put it? Of course, you would need to explain options depending on where your first card is placed.



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### Level D

In the game that Jean and Ford are playing, suppose you drew a 4 on your first turn.

Explain what place-value location (hundreds, tens, or ones) you would place that card in to have the best chance of winning the game. Justify your answer with a mathematical argument.

Suppose you drew a 3 on your first turn. Explain what place-value location you would choose to place that card and justify your answer.

Justify your strategy, providing why you would place any given card in any given location. Your justification should be complete and provide a valid argument for where each card should be placed given any situation.





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### Level E

Jake and Linda are playing a game. They have a deck of 36 cards with just the numbers 1 through 9. After they mix up the cards, they put them into a pile. Below are the rules:

- Deal four cards to each player.
- Spin the spinner to select an operation.
- Arrange the digits (cards) into two fractions, such that the result of the operation upon the two fractions will produce the smallest possible outcome.
- Once you have selected the two fractions and found the outcome, write out the sentence.
- The calculated outcome becomes your score for that round.
- Shuffle the cards and play another round.
- Play the game seven times. At the end of the game, sum all seven scores for each player. The player with the lowest total is the winner.

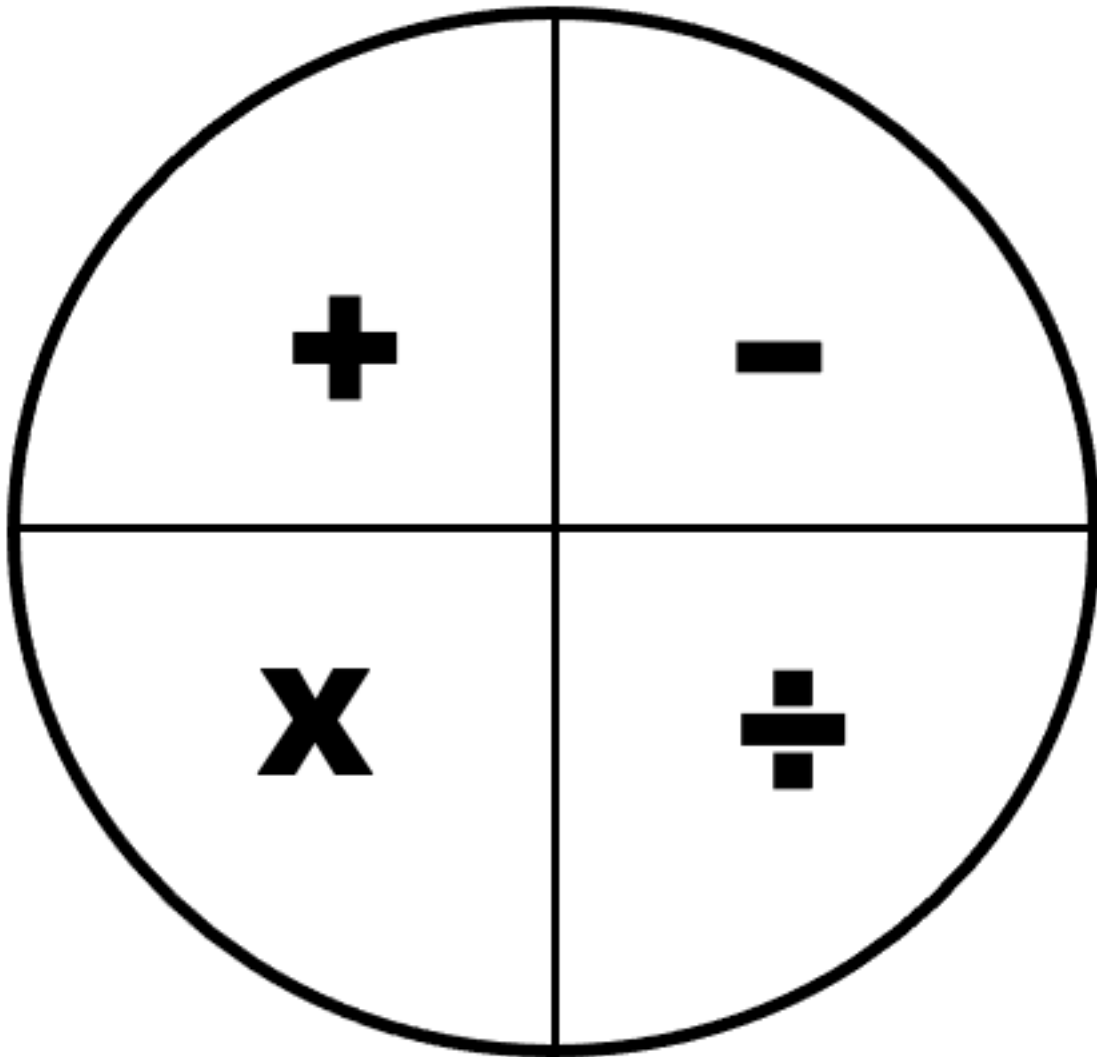
Explain the strategy you used to try to win the game. Explain why you chose that strategy.



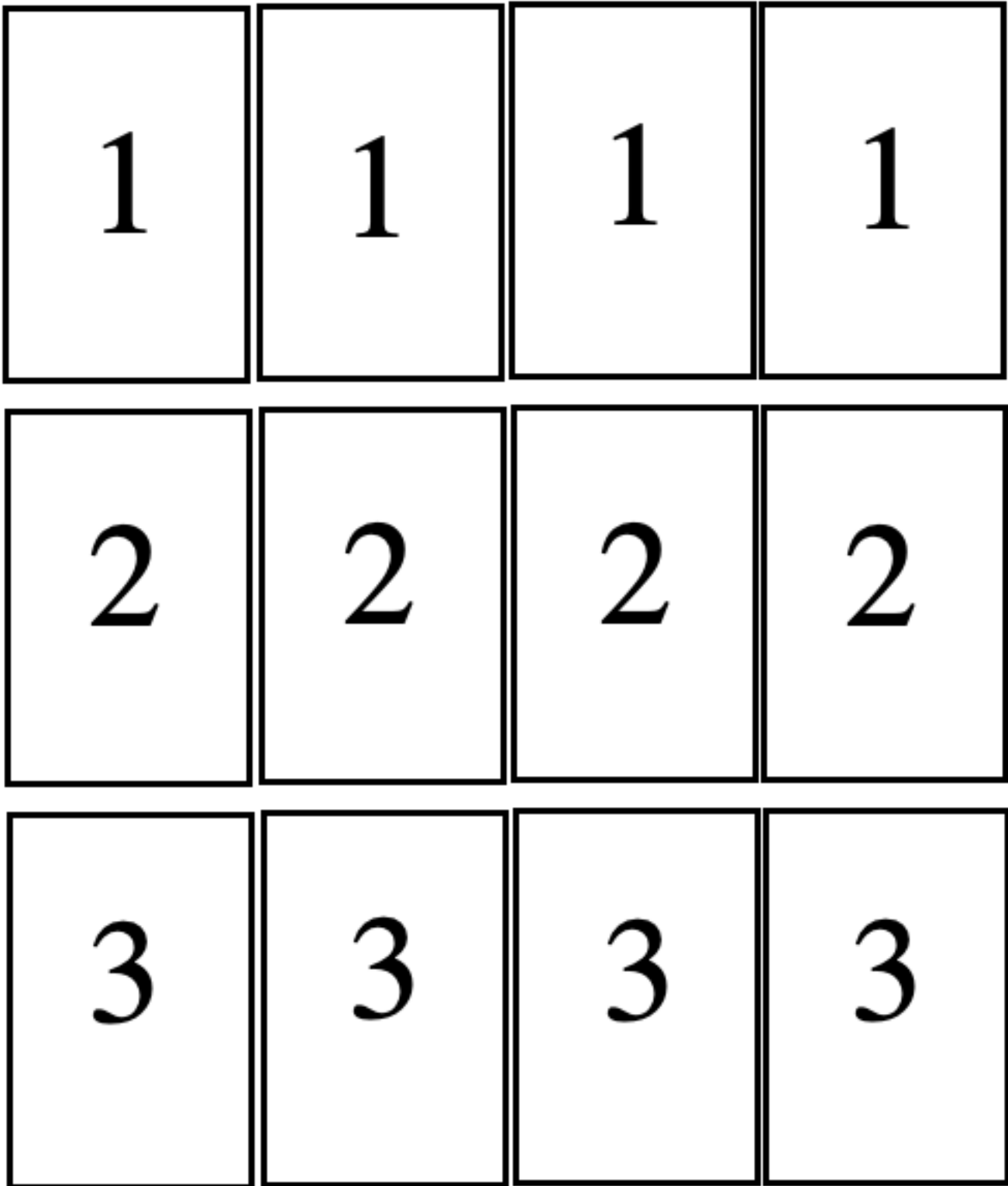
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### Manipulatives

# Operation Spinner









4

4

4

4

5

5

5

5

6

6

6

6





