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Algorithm Analysis
HW#!
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We as a team believe that the best way to win the "Guess the Number" game in the fewest tries possible is to use a Binary Search strategy. Instead of guessing randomly, which could take forever, or guessing every number in order, which is just as bad, Binary Search helps narrow down the possibilities quickly. The trick is to always guess the middle number of the range first. If the guess is too high, you ignore all the numbers above it. If it's too low, you ignore all the numbers below it. Each time you guess, you cut the number of possibilities in half.

Since there are 1024 numbers, this method guarantees that you'll find the correct answer in 10 guesses or fewer (*****since $\log_2(1024) = 10$ *****). There are other methods, like Ternary Search, which splits the range into three parts instead of two, but in practice, it doesn't make a big difference and can be harder to keep track of. On the other hand, guessing randomly or going one number at a time is way too slow, time consuming and downright inconvenient.

That's why Binary Search is the best strategy because it's simple, efficient, and most importantly guarantees you'll find the number quickly without having a vast amount of guessing at the end of the game.