

# **Sudoku: Its Power Unleashed**

Featuring Candidates, Expert Instruction, and  
Alphabet Puzzles

David Klein

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# Introduction

Some years ago, I noticed little puzzles appearing in newspapers. They had a grid of 81 cells and some numbers filled in. What was this new game? After ignoring the puzzles for a few years and mispronouncing the name for a few more, I finally decided to give it a go. I'm glad I did.

Sudoku is an excellent game. Actually, it's a brilliant game. Of all the puzzles, it's by far my favorite. Millions of others feel the same way, and many of those players describe Sudoku as "addictive." Once you get started, Sudoku can be so mind-engaging and exhilarating that it's hard to stop. And while Sudoku can be loads of fun, it's quite challenging too.

This book is designed to help you learn to play Sudoku at a high level in a short amount of time. The steps to learn to solve Sudoku puzzles are not difficult, and most puzzles can be solved after learning just four or five solving techniques. You can probably learn to grasp these first four or five techniques in just a few minutes. The first two techniques are so easy that you can learn them in a matter of seconds. (This is not an exaggeration: in person, I can teach them in less than ten seconds each.)

While Sudoku is a superb game, I believe there are three problems with how it's been presented to the public. I solve all three problems in this book. What are these three solved problems? 1. Most puzzles are printed too small. Sudoku is a game of logic; it's like detective work, and all good detectives take notes to reach their conclusions. Good Sudoku players make notations on their puzzles or use what's called "candidates." (We'll discuss candidates in a moment.) It's not possible to do this when Sudoku puzzles are too small, as is the case in most newspapers and books. Our puzzles are big. 2. Candidates are not supplied. Skilled Sudoku players use candidates, which are the numbers that every cell can still possibly be. Players whittle these candidates down until there is one number remaining, and that is the number that is written in the cell. Most Sudoku puzzles don't supply candidates. The ones in this book do. (I have, though, included the same puzzles without candidates for those who, for some reason, prefer to play without candidates or prefer to gather their own.) See page 12, where candidates are more fully explained. 3. There's no instruction. It's common to see puzzles and nothing else. Maybe this is because Sudoku is a puzzle, and other puzzle games don't need to include instructions. If they did include them, for instance, a jigsaw puzzle's complete instruction manual may read as follows: "Connect the pieces until an image is formed." A crossword puzzle's complete instruction manual may read: "Fill in the boxes by looking at the numbered clues." There's not much to it. Not so with Sudoku. It's a game of logic, and Sudoku provides lots of logical methods to solve the puzzles. The world's best players and sharpest minds have discovered these methods from playing millions of puzzles, and we do well to draw from their experience. To play well, a player needs to learn at least some of these solving methods.

Novice players tend to look at a Sudoku puzzle and think: "I have no idea how to solve this." Then they take a stab at it, perhaps fill in a few cells, get stuck, become frustrated, and go do something else. This book is designed to teach you how to play Sudoku, step by step, and how to enjoy and master it in just a short time.

You may wonder: "Will I lose interest once I master Sudoku?" For most people, the answer is a clear "no." The more difficult level puzzles will still be very challenging, and you'll get more enjoyment playing as your skill increases. You'll feel like a master at his or her craft, but the puzzles will still make you work to successfully solve them. You'll just become more efficient at doing so.

Sudoku is not only fun; it brings many benefits to the player. Sudoku is great for the brain, helping to expand its capacity. It helps the mind to function well and remain limber. Sudoku, as a game of logic, promotes logical thinking. Logical people are more successful people. Sudoku promotes self-control. You'll be tempted to guess when you become temporarily stuck. But guessing is the worst thing you can do. It will sabotage your puzzle; ruin it. Through self-control, you'll learn to patiently use Sudoku techniques to find the correct puzzle solution. And Sudoku is a great way to fill time with enjoyable and productive

activity. Two puzzles will get you from Charlotte to New York City on a commercial flight. And Sudoku is great in waiting rooms.

For some extra fun and variety, I've included 10 alphabet puzzles in this book. You'll be working with letters instead of numbers, and when you've successfully completed the puzzle, shaded cells will spell a word, name, or phrase. One puzzle is a combination of letters, numbers, and punctuation marks. This puzzle too spells a phrase upon completion.

I've also included several varieties of "hybrid" puzzles. As far as I know, they are the first puzzles of their kind; I created them especially for this book. They are regular Sudoku puzzles with an optional verbal or mathematical component when they are completed. These puzzles are as follows:

*Alphabet Hybrid puzzles.* You play a regular numeric Sudoku puzzle, which has several cells shaded gray. When you fill a number in one of these cells, you convert the number to a letter, as provided in the conversion chart. The converted letters spell a phrase, place, food, song, person, etc. In other words, these are regular Sudoku puzzles with an optional extra alphabetic twist at the end. You not only get to solve the puzzle, but you get to solve the word portion as well. A few of the alphabet hybrid puzzles are doubles, where two different words or phrases are formed.

*Word Scramble Puzzles.* These puzzles are identical to the alphabet hybrid puzzles, except the letters are in scrambled order. With the help of a clue, you unscramble the letters to form the correct word or words.

*Word Guess Puzzles.* These puzzles are the same as the alphabet hybrid puzzles, except I supply only some of the conversion letters. With the help of a hint, you then discern the word or words and fill in the missing letters.

*Math Hybrid Puzzles.* For those who like mathematics, an equation is provided at the bottom of the puzzle. You use the numbers from the highlighted cells in the puzzle to complete the equation, and then you provide the answer.

*Brain Playground Puzzles.* These are the ultimate brain-training puzzles. Beneath the Sudoku puzzle there are spaces for both a word guess puzzle and a math puzzle, with both the letters and numbers provided by the completed Sudoku puzzle. So, all in one puzzle, you're receiving the benefits of sharpening your logic (Sudoku), verbal (Word Guess), and mathematical (math problem) skills. May I say "cool, way cool"?

The skill level in the word and mathematical portions of the puzzles will match the level of the Sudoku puzzle. For instance, the Word Guess portion of the puzzle will be easy with the beginner level Sudoku puzzles, but challenging with the expert level puzzles. The math portion of the brain playground puzzles will be easy on the easier level puzzles—mostly simply adding and subtracting. But with the more difficult level puzzles, you'll be working with square roots and numbers to a power.

What if you don't have an interest in the verbal or mathematical aspects of the hybrid puzzles? That's not a problem. The Sudoku puzzles on those pages are regular Sudoku puzzles with a few cells shaded gray. You can ignore the hybrid aspect and just play those puzzles as normal.

Pronouncing Sudoku can be tricky: it's one of the most mispronounced words in our language. So here's a tip to pronounce it correctly: **Sue** (like the name), **dough** (as for bread), **coo** (like a pigeon). The accent is on "dough.": **sue-DOUGH-coo**. Because it's the order of the u's and o's that's most often confused, sometimes it's helpful to just remember the order of the vowels: u,o,u.

This book, with its large puzzles, provided candidates, and excellent instruction, will unleash the power of Sudoku for you. May you become a skilled Sudoku player in no time. And more importantly, may you enjoy the process along the way.

David Klein, October 2016



# **About Sudoku**



## What is Sudoku?

Sudoku is a game of logic. Although numbers are normally used in Sudoku puzzles, Sudoku is not a game of mathematics. You'll never add, subtract, multiply, or divide. Rather, logic will dictate which numbers should ultimately be assigned to each cell. Sudoku puzzles are designed to have only one correct solution, and as you apply logic, with the help of the Sudoku solving methods I'll teach you, you'll hone in on and find the correct puzzle solution.

Sudoku puzzles are a grid of 81 cells in nine rows and nine columns. Each puzzle is additionally broken down into nine 3x3 subsections, known as "boxes," which are separated by darker, thicker lines. When the puzzle is completed, the cells in each row will be numbered 1-9 (though likely not in that order), the cells in each column will be numbered 1-9, and the cells in each box will be numbered 1-9. There can be no duplication of a number in any row, column, or box; and there can be no exclusion of any number in any row, column, or box.

Sudoku puzzles typically begin with about 25-35 cells filled in. These cells are referred to as "givens." In better Sudoku puzzles the givens form a symmetrical pattern.

If mathematics is not a part of Sudoku, why are numbers used? Actually, anything could be properly used in a Sudoku puzzle: letters, pictures, symbols, punctuation marks, etc.; what's important is that there are nine distinct entries. Numbers are the easiest for the mind to grasp and work with. One drawback of using letters: unexpected patterns could form embarrassing words.

Sudoku puzzles can be created in varying degrees of difficulty. This book provides puzzles at six different levels: Beginner, Mild, Medium, Difficult, Expert, and Super Extreme. The easier level puzzles can be solved by using just four or five of the basic solving methods. The more difficult level puzzles require more advanced solving techniques.

How long does it take to play a Sudoku puzzle? That depends on two factors: the difficulty of the puzzle and the skill level of the player. When a player's skill level matches the degree of difficulty of the puzzle (a less-experienced player playing a beginner puzzle; an expert playing an expert-level puzzle), solving the puzzle might take perhaps 25 to 50 minutes.

## Why Do Our Puzzles Contain Candidates?

Our puzzles, unlike puzzles in most books, contain candidates. Candidates, otherwise known as "pencilmarks" or "possibilities," are the small numbers written at the tops of the cells that have not yet been solved. These numbers represent the numbers that each particular cell could be, based upon the information already known: that is, based on the numbers that have already been entered in the cells that have been completed. See *Sudoku Puzzle with Candidates*.

Playing with candidates is the way to go. Candidates are the building blocks of successfully solving a Sudoku puzzle: Sudoku solving techniques are based on knowing the candidates, and all skilled players use candidates to play Sudoku. If you want to play Sudoku successfully, and especially if you want to solve the more advanced puzzles, you must use candidates. Playing without candidates is like playing in the dark.

Of course, you can gather the candidates yourself, but what does this require? It means looking at every blank cell in the puzzle and figuring out what those candidates are. You do this by looking at each cell's "buddy cells": that is, the cells in the same row, column, and 3x3 box as that cell. Whichever numbers are not yet filled in among those cells, those are the candidates for that cell.

24589	2457	<b>1</b>	2	269	269	<b>3</b>	2468	24679
23489	234	249	<b>5</b>	12369	<b>7</b>	4689	12468	12469
<b>6</b>	237	279	<b>4</b>	1239	<b>8</b>	<sup>9</sup>	12	<b>5</b>
<sup>14</sup>	<b>8</b>	<b>5</b>	<sup>1</sup>	<b>7</b>	<sup>6</sup>	<b>2</b>	<b>9</b>	<sup>346</sup>
124	12467	2467	<b>9</b>	12568	<b>3</b>	4568	4568	46
<sup>2</sup>	<b>9</b>	<b>3</b>	<sup>28</sup>	<b>4</b>	<sup>256</sup>	<b>1</b>	<b>7</b>	<sup>6</sup>
<b>7</b>	1235	29	<b>6</b>	2359	<b>4</b>	<sup>59</sup>	1235	<b>8</b>
23459	23456	2469	<b>7</b>	23589	<b>1</b>	4569	23456	23469
123459	123456	<b>8</b>	<sup>23</sup>	2359	<sup>259</sup>	<b>7</b>	123456	123469

*Sudoku Puzzle with Candidates*

Keep in mind that a Sudoku puzzle has 81 cells, with normally about 30 givens (cells filled in when the puzzle is created). That means you'd have to find the candidates for about 51 cells before you even begin to play. That involves looking at the numbers in 1,224 buddy cells. This task normally takes about 20 minutes, which is close to the time it takes to solve many Sudoku puzzles. It's not a skilled work. A small child could easily handle the task. And it's a repetitive drudge. Filling in candidates is the polar opposite of actually solving the puzzle. Solving a Sudoku puzzle is fun, it's fast moving, and it can be exhilarating. Filling in candidates is tedious, mindless, and boring. If you enjoy playing Sudoku, and you don't enjoy filling in candidates, how much better when the puzzles come with the candidates already filled in!

Look at it this way: Suppose you had a job with an unusual combo job description. You were a high profile detective who searched for clues to solve exciting mysteries, but your job required that half of your week involved working on a factory assembly line screwing tops on bottles at a high speed. Would you not talk to your boss and do all you could to change your job description, so you could get off the assembly line and do your exciting detective work full-time? Thankfully, when it comes to your free time, you are your own boss. You can make the decision to get off the assembly line of gathering candidates and do what you would rather do: solve Sudoku puzzles.

Every once in a while a "purist" might insist that it's not real Sudoku if the candidates are supplied. Maybe that person actually enjoys the candidate filling process, and if they do, that's great for them. Most, however, want to get right to the fun and challenge of actually solving the puzzle. I believe a good illustration addresses this matter: Imagine the very early days of bowling: Bowlers used wooden bowling balls, had to pick the pins up by hand and place them in formation, and had to keep their own scores mathematically on paper. That was all part of the bowling experience. Today, bowling balls are made of

high-tech materials, machines set the pins, and computers keep score. Imagine if “purists” insisted that today’s bowling still follow the old pattern? Would anyone ever bowl? Bowlers, for the most part, don’t want to do lane maintenance and mathematics, and they don’t want splinters or a wobbly bowling ball: they want to get right to the fun of actually bowling and to use the best tools at their disposal. And most Sudoku players, I’ve found, find their enjoyment in solving the puzzle, not in gathering the candidates. Since Sudoku is a game, and its purpose is to challenge the mind and provide enjoyment, why not get right to what the player finds enjoyable? I promise there is no rule that states that supplied candidates are not acceptable, and there are no Sudoku police waiting to issue a citation.

So the Sudoku player has essentially three choices: 1. Play without candidates (to me, this is not an option), 2. Gather their own candidates (no thank you), or 3. Play with candidates supplied.

There’s an old joke, one that I always thought was funny, about a man who is shopping for a chainsaw. One chainsaw is advertised as being able to cut twenty cords of wood per day. The shopper buys this chainsaw, but he returns to the store days later and complains that he’s cut wood every day, and the most he could cut in a day was one cord. The store clerk is perplexed and so decides to test the saw for himself. He fires it up, and the saw makes its loud chainsaw blare. The man, now puzzled, looks at the clerk and asks: “What’s that noise?”

Yes, the poor guy never even turned the saw on. Likewise, playing Sudoku without candidates is like trying to cut wood with a chainsaw that is not turned on: Dull blades, lots of extra time and work, no chance of cutting through a thick tree. That noise, that power, will be the boost you’ll experience when you begin to play Sudoku with candidates. You’ll get right to the fun stuff, you’ll be good at it, and it will be plenty challenging. You’ll be playing Sudoku with its full power unleashed.

### An Example of the Benefits of Using Candidates

If you want to solve the more difficult Sudoku puzzles and you want to learn and use intermediate and advanced solving techniques, you must use candidates. But candidates help with even the most basic solving techniques. The puzzle below is a stunning example of this. Notice the highlighted rows in the puzzle *Benefits of Candidates*. Without candidates, this puzzle looks like any other—some cells filled in and lots of

		1				3		
			5		7			
6			4		8			5
	8	5		7		2	9	
			9		3			
	9	3		4		1	7	
7			6		4			8
			7		1			
		8				7		

*Benefits of Candidates*

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blank ones. But the two highlighted rows are a breeze to solve when you see the candidates. A skilled player could complete both rows, just by looking at them, in about 10-15 seconds. Candidates allow you to get through the easy areas of the puzzle quickly and then provide the information you'll need to complete the more difficult ones. I'll walk you through solving these two rows completely by using candidates. You may be amazed how simple candidates make the process. In fact, you'll solve all eight cells using just one technique, the easiest technique, "Only Candidate."

Let's begin solving the shaded cells in both rows, as shown in the strip, *Benefits of Candidates 2*. It's always a good idea to begin a puzzle by filling in the cells with only one candidate. Those cells have to be the number of the one candidate, because they can't be anything else. Using this technique, called "only candidate," begin by writing a large 1 in the cell with the only candidate "1". Then draw a line through all candidate 1s on that row. Next write a large 6 in the cell with the only candidate "6", and draw a line

14	<b>8</b>	<b>5</b>	1	<b>7</b>	6	<b>2</b>	<b>9</b>	346
124	12467	2467	<b>9</b>	12568	<b>3</b>	4568	4568	46
2	<b>9</b>	<b>3</b>	28	<b>4</b>	256	<b>1</b>	<b>7</b>	6

*Benefits of Candidates 2*

through all candidate 6s on that row. Do the same with the 2 and the 6 on the bottom row. Your puzzle should now match *Benefits of Candidates 2a*. (Note: When you play a regular 9x9 Sudoku puzzle, every time you fill in a cell you will be eliminating the candidates of that number in all of that cell's "buddy cells," that is, those cells in the same row, column, and 3x3 box. Because this is a partial puzzle, and to make this example more clear, it was only necessary to eliminate candidates on the same row. Buddy cells and candidate elimination will be explained in the next section.)

<del>14</del>	<b>8</b>	<b>5</b>	<b>1</b>	<b>7</b>	<b>6</b>	<b>2</b>	<b>9</b>	<del>346</del>
124	12467	2467	<b>9</b>	12568	<b>3</b>	4568	4568	46
<b>2</b>	<b>9</b>	<b>3</b>	<del>28</del>	<b>4</b>	<del>256</del>	<b>1</b>	<b>7</b>	<b>6</b>

*Benefits of Candidates 2a*

You're already half way there: you've filled in four of the eight cells. Now, starting in the cell with "14" as candidates, you've already filled in a 1 on that same row. So this cell has only one candidate remaining, 4. Write a large 4 in that cell and draw a line through any candidate 4s on that row. Now go to the cell with "346" as candidates. You've already written a 4 and 6 on that row. Therefore, the only candidate remaining is 3. Write a 3 in that cell.

Now move to the bottom row and look at the cell with "28" as candidates. You've already written a 2 on this row, so this cell has to be an 8. Write 8 in the cell. Now look at the cell with the candidates "256". You've already written a 2 and 6 on this row. Therefore, this cell is a 5. Write 5 in the cell. Done! Wasn't that a snap? This is not a typical puzzle: I handpicked this one for this example—most puzzles won't allow

such an easy solving pattern at the outset. But this is a good example of the benefits of using candidates. Without them, the puzzle looked like any other puzzle: a bunch of filled and empty cells. But things changed when candidates were brought into the picture. The candidates are your clues, your power to solve the puzzle. And again, they're not contraband. You can easily figure them out and write them in the puzzle yourself. But how much better to get right to the good stuff—solving Sudoku puzzles using Sudoku techniques—when the candidates are supplied!

Look at the puzzle *Benefits of Candidates Marked* and see how much progress you've made on this puzzle

<del>2</del> 4589	2457	<b>1</b>	2	269	<del>2</del> 69	<b>3</b>	2468	<del>24</del> 679
<del>234</del> 89	234	249	<b>5</b>	12369	<b>7</b>	4689	12468	<del>124</del> 69
<b>6</b>	237	279	<b>4</b>	1239	<b>8</b>	9	12	<b>5</b>
<del>14</del> <b>4</b>	<b>8</b>	<b>5</b>	<del>1</del> <b>1</b>	<b>7</b>	<del>6</del> <b>6</b>	<b>2</b>	<b>9</b>	<del>346</del> <b>3</b>
<del>124</del>	<del>124</del> 67	<del>24</del> 67	<b>9</b>	<del>12368</del>	<b>3</b>	4568	4568	46
<del>2</del> <b>2</b>	<b>9</b>	<b>3</b>	<del>28</del> <b>8</b>	<b>4</b>	<del>256</del> <b>5</b>	<b>1</b>	<b>7</b>	<del>6</del> <b>6</b>
<b>7</b>	1235	29	<b>6</b>	2359	<b>4</b>	59	1235	<b>8</b>
<del>234</del> 59	23456	2469	<b>7</b>	23589	<b>1</b>	4569	23456	<del>234</del> 69
<del>1234</del> 59	123456	<b>8</b>	23	2359	<del>2</del> 69	<b>7</b>	123456	<del>1234</del> 69

*Benefits of Candidates Marked*

in just a few minutes. (A skilled player would reach this point in about three minutes, which includes solving the cells and eliminating candidates.) You've filled in eight cells, completed two rows, and you've eliminated 43 candidates. Looking at row five, the middle row, your candidate elimination process has left you with three cells that have only one candidate remaining, so they are as good as solved. Without candidates you might have zero or one or two cells filled in at this point, but with candidates you're flying—your puzzle has gotten off to a great start. That's not to say that the rest of the puzzle will be easy just because you use candidates. Even with candidates the puzzles will present a substantial challenge, and the more difficult level puzzles will give you, even if you become an expert, quite the mental workout. You'll be required to use more difficult solving methods, but by using those methods, as taught in this book, you'll be equipped to successfully solve even expert-level Sudoku puzzles. And, like millions of others, you might just enjoy every step along the way as you unleash the power of Sudoku.





# **Basic Information You'll Need to Know**



## The Elements

Sudoku puzzles contain three “elements.” Those elements are rows, columns, and boxes. Each element contains nine cells. Notice in the figure, *A Completed Puzzle*, that each row contains nine cells, each column contains nine cells, and each “box,” (each 3x3 section, separated by thicker, darker lines) contains nine cells. When a Sudoku puzzle is completed, the cells in each row, column, and box will contain one occurrence each of the numbers 1-9.

1	8	7	3	2	5	9	6	4
4	2	9	8	1	6	5	3	7
5	6	3	4	9	7	1	8	2
3	7	1	9	8	2	4	5	6
2	9	4	6	5	3	8	7	1
8	5	6	7	4	1	3	2	9
6	3	8	1	7	9	2	4	5
9	4	5	2	6	8	7	1	3
7	1	2	5	3	4	6	9	8

*A Completed Puzzle*

For easy reference, each box can be referred to by a number, as shown in the figure *Numbering of Boxes*. Each row can also be referred to by a number, 1 being the top row, 2 the next row, and so on. Each column can likewise be referred to by a number, 1 being the left column, 2 the next column, and so on.

<b>Box 1</b>	<b>Box 2</b>	<b>Box 3</b>						
<b>Box 4</b>	<b>Box 5</b>	<b>Box 6</b>						
<b>Box 7</b>	<b>Box 8</b>	<b>Box 9</b>						

*Numbering of Boxes*

This is useful when identifying cells or sections of a puzzle. For instance, if I write “look at the twins in box 6,” you know which area of the puzzle to locate. If I write “see cell 45,” you know to look in the fourth row down at the fifth cell in. Notice this in the figure *Cell Numbers*.

11	12	13	14	15	16	17	18	19
21	22	23	24	25	26	27	28	29
31	32	33	34	35	36	37	38	39
41	42	43	44	45	46	47	48	49
51	52	53	54	55	56	57	58	59
61	62	63	64	65	66	67	68	69
71	72	73	74	75	76	77	78	79
81	82	83	84	85	86	87	88	89
91	92	93	94	95	96	97	98	99

*Cell Numbers*

## Candidates

We’ve already briefly discussed candidates in the section “Why Do Our Puzzles Contain Candidates?” All skilled Sudoku players play with candidates: they are the building blocks of solving Sudoku puzzles. What are candidates? They are the small numbers written at the tops of the cells that are not already filled in, and they represent the numbers a given cell can possibly be based on the numbers already entered in the puzzle. Notice in the puzzle *Sudoku Puzzle with Candidates*, that the candidates for cell 11 (the first cell in the top row) are “24589”. This is because 1,3,6,7 are already filled in the buddy cells (those in the same row, column, and box). The remaining numbers, those not in the buddy cells, are still candidates, namely, 2,4,5,8,9. As we whittle the candidates down through Sudoku solving techniques, we’ll discover what the correct number is. But we know it can’t be a number that is already entered in the same row, column, or box, as that would violate the no duplication rule of Sudoku.

An experienced Sudoku player finds as much satisfaction in eliminating a candidate as in filling in a cell, because it’s just as important. It’s all part of the process of whittling down your puzzle and honing in on the correct puzzle solution.

It’s important to stress the need to be meticulous when eliminating candidates. Make sure to put a line through all candidates that should be eliminated. And more importantly, don’t eliminate any that should not be eliminated. Doing so would likely sabotage your puzzle. I recommend using a systematic method of elimination, such as row first, then column, then box. By doing so, your chances of making an error will be greatly reduced. You may want to double check to make sure you’ve eliminated the correct candidates. (I’m writing from experience: If I fail on a puzzle it’s not because I don’t know the methods to solve it; it’s almost always because I’ve gotten sloppy with my candidate elimination.)

24589	2457	<b>1</b>	2	269	269	<b>3</b>	2468	24679
23489	234	249	<b>5</b>	12369	<b>7</b>	4689	12468	12469
<b>6</b>	237	279	<b>4</b>	1239	<b>8</b>	9	12	<b>5</b>
14	<b>8</b>	<b>5</b>	1	<b>7</b>	6	<b>2</b>	<b>9</b>	346
124	12467	2467	<b>9</b>	12568	<b>3</b>	4568	4568	46
2	<b>9</b>	<b>3</b>	28	<b>4</b>	256	<b>1</b>	<b>7</b>	6
<b>7</b>	1235	29	<b>6</b>	2359	<b>4</b>	59	1235	<b>8</b>
23459	23456	2469	<b>7</b>	23589	<b>1</b>	4569	23456	23469
123459	123456	<b>8</b>	23	2359	259	<b>7</b>	123456	123469

*Sudoku Puzzle with Candidates*

Candidates are extremely important for solving Sudoku puzzles. You can't solve more than the easiest level puzzles without them, and even those would be solved inefficiently, if at all. Playing Sudoku without candidates is like trying to play a sport without lights after sundown, with your hands tied behind your back and while wearing someone else's eyeglass prescription and greatly oversized boots—it's very inefficient and not much fun. Thus, I recommend always using candidates, and unless you enjoy the process of gathering the candidates, I suggest you use puzzles with candidates provided.

## Buddy Cells

Understanding buddy cells is a key to playing Sudoku successfully. Simply put, buddy cells are those cells in the same row, column, and box of any given cell. Notice the puzzle *Buddy Cells*. Cell 54 is featured and darkened. Notice cell 54's buddy cells, which are the lighter gray cells. Those represent the cells in the same row, column, and box as cell 54.

13457	13457	<b>8</b>	14	124	29	<b>6</b>	249	12349
134	<b>6</b>	4	<b>5</b>	124	<b>7</b>	249	<b>8</b>	12349
<b>9</b>	14	<b>2</b>	1468	<b>3</b>	68	<b>5</b>	4	<b>7</b>
156	<b>2</b>	56	<b>9</b>	1678	<b>4</b>	7	<b>3</b>	56
1346	134	<b>7</b>	16	<b>5</b>	6	<b>8</b>	2469	2469
456	<b>8</b>	4569	<b>2</b>	67	<b>3</b>	479	<b>1</b>	4569
<b>2</b>	457	<b>3</b>	467	<b>9</b>	56	<b>1</b>	456	<b>8</b>
4568	<b>9</b>	456	<b>3</b>	2468	<b>1</b>	24	<b>7</b>	2456
45678	457	<b>1</b>	4678	24678	2568	<b>3</b>	24569	24569

*Buddy Cells*

Why are cell 54's candidates 1 and 6? Look at the buddy cells, and notice that the numbers already entered are 2, 3, 4, 5, 7, 8, 9. Everything but 1 and 6. Therefore, cell 54 has to be either a 1 or 6.

What happens in a cell directly affects all of its buddy cells. For instance, you don't know it yet, but the answer for cell 54 is "1". When you write "1" in cell 54, you may then draw a line through all candidates 1 in all of cell 54's buddy cells. Why? Because the 1 is now accounted for: there can be no duplication of numbers in any of the buddy cells: those in the same rows, columns, and boxes.

Notice in the puzzle *Buddy Cells with Candidates Eliminated*, that when 1 is written in cell 54, the candidate 1 should be eliminated in each of cell 54's buddy cells.

# **Sudoku Solving Methods**





## Solving Method 1: Only Candidate

Degree of Difficulty: Extremely Easy

Only Candidate is by far the easiest solving method. It's easy to find and it's easy to perform. I normally don't care for the term "no brainer," but if there's a solving method that qualifies under the category "no brainer," this is it. Notice highlighted cell 23 in the puzzle marked *Only Candidate*. The only candidate for cell 23 is a 4. That means this cell has to be a 4; it can't be anything else, because cell 23's buddy cells are

13457	13457	<b>8</b>	14	124	29	<b>6</b>	249	12349
134	<b>6</b>	4	<b>5</b>	124	<b>7</b>	249	<b>8</b>	12349
<b>9</b>	14	<b>2</b>	1468	<b>3</b>	68	<b>5</b>	4	<b>7</b>
156	<b>2</b>	56	<b>9</b>	1678	<b>4</b>	7	<b>3</b>	56
1346	134	<b>7</b>	16	<b>5</b>	6	<b>8</b>	2469	2469
456	<b>8</b>	4569	<b>2</b>	67	<b>3</b>	479	<b>1</b>	4569
<b>2</b>	457	<b>3</b>	467	<b>9</b>	56	<b>1</b>	456	<b>8</b>
4568	<b>9</b>	456	<b>3</b>	2468	<b>1</b>	24	<b>7</b>	2456
45678	457	<b>1</b>	4678	24678	2568	<b>3</b>	24569	24569

*Only Candidate*

filled in with all numbers 1-9 except for 4. Proceed by writing a large 4 in the cell, putting a line through the candidate, and then putting a line through all other candidate 4s in cell 23's buddy cells (those in the same row, column, and box), as shown in the puzzle *Only Candidate Marked*.

<del>13457</del>	<del>13457</del>	<b>8</b>	14	124	29	<b>6</b>	249	12349
<del>134</del>	<b>6</b>	<del>4</del>	<b>5</b>	<del>124</del>	<b>7</b>	<del>249</del>	<b>8</b>	<del>12349</del>
<b>9</b>	<del>14</del>	<b>2</b>	1468	<b>3</b>	68	<b>5</b>	4	<b>7</b>
156	<b>2</b>	56	<b>9</b>	1678	<b>4</b>	7	<b>3</b>	56
1346	134	<b>7</b>	16	<b>5</b>	6	<b>8</b>	2469	2469
456	<b>8</b>	<del>4569</del>	<b>2</b>	67	<b>3</b>	479	<b>1</b>	4569
<b>2</b>	457	<b>3</b>	467	<b>9</b>	56	<b>1</b>	456	<b>8</b>
4568	<b>9</b>	<del>456</del>	<b>3</b>	2468	<b>1</b>	24	<b>7</b>	2456
45678	457	<b>1</b>	4678	24678	2568	<b>3</b>	24569	24569

*Only Candidate Marked*

Congratulations, you've just learned your first solving technique. And even though it's an easy one, it's a very important technique, one you'll be using frequently in every puzzle. Now on to solving technique number two.

## Solving Method 2: Unique Candidate in an Element

Degree of Difficulty: Very Easy

Notice highlighted cell 45 in the puzzle *Unique Candidate in an Element*. That cell contains a unique candidate in an element. There is only one occurrence of candidate 8 on the entire row. Therefore, this cell must be an 8, because no other cell on that row can be an 8, and each element (row, column, and box) must have an 8. As shown in *Unique Candidate in an Element Marked*, write a large 8 in cell 45, put a line through the candidates in cell 45, and put a line through each candidate 8 in cell 45's buddy cells. (Note: Cell 45 is the only occurrence of 8 in the 3x3 box it occupies. In this way, too, cell 45 qualifies as a unique candidate in an element.)

Now let's move on to technique three.

13457	13457	<b>8</b>	14	124	29	<b>6</b>	249	12349
134	<b>6</b>	4	<b>5</b>	124	<b>7</b>	249	<b>8</b>	12349
<b>9</b>	14	<b>2</b>	1468	<b>3</b>	68	<b>5</b>	4	<b>7</b>
156	<b>2</b>	56	<b>9</b>	1678	<b>4</b>	7	<b>3</b>	56
1346	134	<b>7</b>	16	<b>5</b>	6	<b>8</b>	2469	2469
456	<b>8</b>	4569	<b>2</b>	67	<b>3</b>	479	<b>1</b>	4569
<b>2</b>	457	<b>3</b>	467	<b>9</b>	56	<b>1</b>	456	<b>8</b>
4568	<b>9</b>	456	<b>3</b>	2468	<b>1</b>	24	<b>7</b>	2456
45678	457	<b>1</b>	4678	24678	2568	<b>3</b>	24569	24569

*Unique Candidate in an Element*

13457	13457	<b>8</b>	14	124	29	<b>6</b>	249	12349
134	<b>6</b>	4	<b>5</b>	124	<b>7</b>	249	<b>8</b>	12349
<b>9</b>	14	<b>2</b>	1468	<b>3</b>	68	<b>5</b>	4	<b>7</b>
156	<b>2</b>	56	<b>9</b>	<del>1678</del> <b>8</b>	<b>4</b>	7	<b>3</b>	56
1346	134	<b>7</b>	16	<b>5</b>	6	<b>8</b>	2469	2469
456	<b>8</b>	4569	<b>2</b>	67	<b>3</b>	479	<b>1</b>	4569
<b>2</b>	457	<b>3</b>	467	<b>9</b>	56	<b>1</b>	456	<b>8</b>
4568	<b>9</b>	456	<b>3</b>	<del>2468</del>	<b>1</b>	24	<b>7</b>	2456
45678	457	<b>1</b>	4678	<del>24678</del>	2568	<b>3</b>	24569	24569

*Unique Candidate in an Element Marked*

## Solving Method 3: Exclusive Element

Degree of Difficulty: Easy to Moderate

Exclusive Element is a step up in difficulty from Only Candidate or Unique Candidate in an Element. How does Exclusive Element work?

Notice highlighted cells 58 and 59 of the puzzle *Exclusive Element*. Remember that each row must have one occurrence each of the numbers 1-9. The only candidates for 9 on row five are in these two cells. Because both of these cells occur in the same box, the right-middle box, box 6, we know that the 9 in that box will be in one of these cells on row five. And because the 9 will be on row five, it can't be in either of the other two rows in box 6. Proceed by crossing out the candidates for 9 in the other rows in box 6, as shown in *Exclusive Element Marked*.

13457	13457	<b>8</b>	14	124	29	<b>6</b>	249	12349
134	<b>6</b>	4	<b>5</b>	124	<b>7</b>	249	<b>8</b>	12349
<b>9</b>	14	<b>2</b>	1468	<b>3</b>	68	<b>5</b>	4	<b>7</b>
156	<b>2</b>	56	<b>9</b>	1678	<b>4</b>	7	<b>3</b>	56
1346	134	<b>7</b>	16	<b>5</b>	6	<b>8</b>	2469	2469
456	<b>8</b>	4569	<b>2</b>	67	<b>3</b>	479	<b>1</b>	4569
<b>2</b>	457	<b>3</b>	467	<b>9</b>	56	<b>1</b>	456	<b>8</b>
4568	<b>9</b>	456	<b>3</b>	2468	<b>1</b>	24	<b>7</b>	2456
45678	457	<b>1</b>	4678	24678	2568	<b>3</b>	24569	24569

*Exclusive Element*

Exclusive Element can occur in reverse of the example shown above. For instance, if a candidate were to appear exclusively on one row or column of a box, and not on either of the other two rows or columns in that box, then you could eliminate the candidates for that number in the cells on that row or column outside of the box. Notice this in the puzzle *Exclusive Element 2*. Cells 45 and 65 each contain the candidate 7, and no other cells in the 3x3 box contain a 7. Therefore, the 7 in that box will be one of those two cells in the middle column, and because they are both inside the box, no other cells in that column outside the box can be the 7. You may therefore eliminate 7 as candidates in all other cells in the column, as shown in the puzzle *Exclusive Element 2 Marked*.

## Advanced Solving Method 3: Unique Rectangles

Degree of Difficulty: Moderate

Unique Rectangles is a very advanced method, and yet, it's not really difficult to learn or perform. What makes unique rectangles advanced is that it occurs only occasionally in puzzles and it's not a well-known solving method.

Notice highlighted cells 15, 19, 25, and 29 in the puzzle *Unique Rectangles*. These four cells form a unique rectangle. How does a unique rectangle work?

157	157	<b>8</b>	<b>4</b>	12	29	<b>6</b>	2	123
<b>3</b>	<b>6</b>	4	<b>5</b>	12	<b>7</b>	<b>9</b>	<b>8</b>	12
<b>9</b>	1	<b>2</b>	168	<b>3</b>	68	<b>5</b>	<b>4</b>	<b>7</b>
156	<b>2</b>	56	<b>9</b>	<b>8</b>	<b>4</b>	7	<b>3</b>	56
146	134	<b>7</b>	16	<b>5</b>	6	<b>8</b>	269	2469
456	<b>8</b>	4569	<b>2</b>	67	<b>3</b>	47	<b>1</b>	4569
<b>2</b>	457	<b>3</b>	67	<b>9</b>	56	<b>1</b>	56	<b>8</b>
4568	<b>9</b>	456	<b>3</b>	26	<b>1</b>	24	<b>7</b>	2456
5678	57	<b>1</b>	678	<b>4</b>	2568	<b>3</b>	2569	2569

*Unique Rectangles*

Remember that each Sudoku puzzle is designed to have only one valid solution. Imagine that 3 were not one of the candidates in cell 19. That would create a situation where these four cells, in a rectangle and in two different 3x3 boxes, would each have the same two candidates, 1 and 2. That would make the four cells interchangeable; you could place a 1 or a 2 in any of the cells and then fill the rest in accordingly, forming the patterns, beginning clockwise with cell 15: 1,2,1,2 or 2,1,2,1. Both ways would fulfill the requirement for a 1 and a 2 to be in each row, column, and box. So both would appear to be correct.

But this can't be, because Sudoku puzzle makers ensure that a puzzle can have only one possible valid solution. Therefore, this circular pattern needs to be broken, and one of the cells has to be something other than a 1 or 2. And the only cell that can possibly be something else is cell 19, because it has an additional candidate, a 3. Therefore, 1 and 2 can be eliminated as candidates in cell 19, which has to be a 3. Note this in the puzzle *Unique Rectangles Marked*. Likewise, if cell 19 had additional candidates, such as "12357", you would eliminate the 1 and 2, and "357" would remain as candidates.

157	157	<b>8</b>	<b>4</b>	12	29	<b>6</b>	2	<del>177</del> <b>3</b>
<b>3</b>	<b>6</b>	4	<b>5</b>	12	<b>7</b>	<b>9</b>	<b>8</b>	12
<b>9</b>	1	<b>2</b>	168	<b>3</b>	68	<b>5</b>	<b>4</b>	<b>7</b>
156	<b>2</b>	56	<b>9</b>	<b>8</b>	<b>4</b>	7	<b>3</b>	56
146	134	<b>7</b>	16	<b>5</b>	6	<b>8</b>	269	2469
456	<b>8</b>	4569	<b>2</b>	67	<b>3</b>	47	<b>1</b>	4569
<b>2</b>	457	<b>3</b>	67	<b>9</b>	56	<b>1</b>	56	<b>8</b>
4568	<b>9</b>	456	<b>3</b>	26	<b>1</b>	24	<b>7</b>	2456
5678	57	<b>1</b>	678	<b>4</b>	2568	<b>3</b>	2569	2569

*Unique Rectangles Marked*

**Important Note:** Unique Rectangles work when the four cells involved cross the thicker lines in only one direction, across OR down. For instance, Unique Rectangles would not be valid in this puzzle if the bottom two cells were in row four or lower, thus crossing the thicker lines in two directions, both across and down. Another way to look at it is that two cells of the Unique Rectangle must be in one 3x3 box, and the other two cells must be in another 3x3 box, and those four cells must form a rectangle.

### Variation of Unique Rectangles

There are additional ways Unique Rectangles can help eliminate candidates. For example, notice the strip *Unique Rectangles 2*. We just learned that four cells in a rectangle occupying two different boxes can't

157	157	<b>8</b>	<b>4</b>	127	29	<b>6</b>	23	127
<b>3</b>	<b>6</b>	4	<b>5</b>	12	<b>7</b>	<b>9</b>	<b>8</b>	12
<b>9</b>	17	<b>2</b>	168	<b>3</b>	68	<b>5</b>	<b>4</b>	17

*Unique Rectangles 2*

form a circular pattern. Another number needs to break that pattern. In this puzzle there is only one candidate, 7, that can break that pattern. However, two cells contain candidate 7. Even though we don't know yet which one will be the 7, we know that one of them will. And because they are both in the same row, we know that no other cells on that row will be the 7. Therefore, we can eliminate 7 as candidates in the other cells on the row, as shown in *Unique Rectangles 2 Marked*.

<del>157</del>	<del>157</del>	<b>8</b>	<b>4</b>	<del>127</del>	29	<b>6</b>	23	<del>127</del>
<b>3</b>	<b>6</b>	4	<b>5</b>	<del>12</del>	<b>7</b>	<b>9</b>	<b>8</b>	<del>12</del>
<b>9</b>	17	<b>2</b>	<del>168</del>	<b>3</b>	<del>68</del>	<b>5</b>	<b>4</b>	17

*Unique Rectangles 2 Marked*

This one maneuver solved virtually every cell in this strip. At this point, using the very easiest solving methods, in just a few seconds all the cells will be filled in except for a set of twins, "68", on the bottom row. Begin by filling in cell 32, which has to be a 7 (now the only 7 in the 3x3 box), and see how quickly things move.



## Advanced Solving Method 4: XY-Wings (aka Y-Wings)

Degree of Difficulty: Very Challenging

XY-Wings are somewhat difficult to perform, and they can be very difficult to find. Notice the puzzle *XY-Wing*. The three shaded cells form an XY-Wing. The circled cell, which you can ignore for now, is the cell that will be affected once the XY-Wing maneuver is completed. (One of the candidates in that cell will be eliminated when you perform the XY-Wing. My guess is that many will be able to tell which candidate just by looking at the three cells involved in the XY-Wing. Can you guess which candidate will be eliminated? If you are really the adventurous type, can you figure out why that candidate is able to be eliminated before I even begin to explain it? It has to do with the circled cell's highlighted buddy cells. Start with darkened cell 73 and try both candidates, the 7 and the 8, and see what happens to the circled cell's highlighted buddy cells.)

<b>8</b>	3456	37	2367	234	467	2679	267	<b>1</b>
14567	456	<b>2</b>	167	<b>9</b>	1467	<b>3</b>	678	567
1367	<b>9</b>	137	<b>5</b>	123	<b>8</b>	267	<b>4</b>	267
139	23	<b>6</b>	13	<b>5</b>	19	<b>8</b>	1237	2347
135	<b>7</b>	138	<b>4</b>	138	<b>2</b>	16	<b>9</b>	36
139	238	<b>4</b>	1368	<b>7</b>	169	<b>5</b>	1236	236
467	<b>1</b>	78	<b>9</b>	248	<b>3</b>	267	<b>5</b>	267
379	38	<b>5</b>	1278	<b>6</b>	17	<b>4</b>	1237	2379
<b>2</b>	346	379	17	14	1457	1679	1367	<b>8</b>

*XY-Wing*

XY-Wings consist of three cells that each contain two candidates. There must be a total of three candidate numbers between the three cells. (In the highlighted cells in the sample puzzle, those candidates are 3,7,8.)

One of the three cells is called a “pivot” or “hinge” cell. (Cell 73, the darker cell with candidates “78”, is the pivot cell in this XY-Wing.) It’s a pivot cell because it’s a buddy cell of the other two cells—that is, the pivot cell must be in the same row, column, or box as both of the other cells. (But all three cells can’t be in the same element—that is the same row, column, or box.) One candidate of the pivot cell must match a candidate in one cell (in this example the 7), and the other candidate of the pivot cell must match a

candidate of the other cell (in this example the 8). The other candidate of the two non-pivot cells must match in both cells (in this example the 3).

How does the XY-Wing work? The best way to teach this method is to walk through both possibilities of the pivot cell. If the pivot cell is a 7, then cell 13 in the top row has to be a 3. If the pivot cell is an 8, then cell 82 has to be a 3. Notice that in either case, one of the two other cells will be a 3. And that brings us to cell 12, the circled cell. Notice that it has 3 as a candidate, and it is a buddy cell of BOTH of the other cells. That means that whether cell 73 is a 7 or 8, one of cell 12's buddy cells will be a 3. Therefore cell 12 can't be a 3, and 3 may be eliminated as a candidate in cell 12. See puzzle *XY-Wing Marked*.

<b>8</b>	<del>7</del> 456	37	2367	234	467	2679	267	<b>1</b>
14567	456	<b>2</b>	167	<b>9</b>	1467	<b>3</b>	678	567
1367	<b>9</b>	137	<b>5</b>	123	<b>8</b>	267	<b>4</b>	267
139	23	<b>6</b>	13	<b>5</b>	19	<b>8</b>	1237	2347
135	<b>7</b>	138	<b>4</b>	138	<b>2</b>	16	<b>9</b>	36
139	238	<b>4</b>	1368	<b>7</b>	169	<b>5</b>	1236	236
467	<b>1</b>	78	<b>9</b>	248	<b>3</b>	267	<b>5</b>	267
379	38	<b>5</b>	1278	<b>6</b>	17	<b>4</b>	1237	2379
<b>2</b>	346	379	17	14	1457	1679	1367	<b>8</b>

*XY-Wing Marked*

That wasn't too bad. Again, it's not an overly difficult method, but locating XY-Wings can be challenging. When you find and execute one, smile—you'll deserve it.

# **The Puzzles**



# Puzzles With Candidates

## Level 1: Beginner

### Puzzle 1: Beginner

14589	589	148	<b>3</b>	2569	<b>7</b>	256	15689	12589
3589	35789	<b>6</b>	29	<b>1</b>	25	<b>4</b>	589	23589
1359	<b>2</b>	13	<b>8</b>	569	<b>4</b>	356	<b>7</b>	1359
<b>7</b>	<sup>3</sup>	<b>2</b>	<sup>1</sup>	<b>8</b>	<sup>35</sup>	<b>9</b>	<sup>145</sup>	<b>6</b>
348	<b>1</b>	348	<b>6</b>	57	<b>9</b>	35	<b>2</b>	345
<b>6</b>	<sup>39</sup>	<b>5</b>	<sup>12</sup>	<b>4</b>	<sup>23</sup>	<b>8</b>	<sup>1</sup>	<b>7</b>
12	<b>4</b>	17	<b>5</b>	2679	<b>8</b>	267	<b>3</b>	29
258	5678	<b>9</b>	27	<b>3</b>	26	<b>1</b>	4568	2458
2358	35678	378	<b>4</b>	2679	<b>1</b>	2567	5689	2589

### Puzzle 2: Beginner

1457	<b>9</b>	1457	2	24	234	2457	<b>8</b>	234567
<b>6</b>	<sup>34</sup>	48	<b>7</b>	<b>5</b>	<b>1</b>	<sup>24</sup>	<sup>24</sup>	<b>9</b>
4578	345	<b>2</b>	<b>9</b>	<sup>48</sup>	<b>6</b>	<b>1</b>	457	3457
1459	<b>7</b>	<b>3</b>	125	1249	249	<b>8</b>	<b>6</b>	245
459	<b>8</b>	45	256	<b>3</b>	2479	2457	<b>1</b>	2457
145	<b>2</b>	<b>6</b>	158	1478	47	<b>3</b>	<b>9</b>	457
12457	145	<b>9</b>	<b>3</b>	127	<b>8</b>	<b>6</b>	2457	12457
<b>3</b>	<sup>1</sup>	17	<b>4</b>	<b>6</b>	<b>5</b>	<sup>279</sup>	<sup>27</sup>	<b>8</b>
124578	<b>6</b>	14578	12	1279	279	24579	<b>3</b>	12457

Puzzle 3: Beginner: **ALPHABET HYBRID PUZZLE**

238	<b>6</b>	357	1278	<b>4</b>	1257	358	<b>9</b>	1235
<b>1</b>	258	<b>4</b>	28	<b>9</b>	25	<b>7</b>	35	<b>6</b>
28	<b>9</b>	57	<b>6</b>	12	<b>3</b>	58	<b>4</b>	125
489	18	<b>6</b>	1379	<b>5</b>	179	<b>2</b>	37	349
<b>7</b>	<b>3</b>	59	<b>4</b>	2	<b>6</b>	59	<b>1</b>	<b>8</b>
49	15	<b>2</b>	1379	<b>8</b>	179	<b>6</b>	357	3459
369	<b>7</b>	139	<b>5</b>	16	<b>8</b>	349	<b>2</b>	349
<b>5</b>	2	<b>8</b>	29	<b>3</b>	249	<b>1</b>	6	<b>7</b>
2369	<b>4</b>	139	129	<b>7</b>	129	359	<b>8</b>	359

_____ _____	<p><b>Hybrid Conversion Chart</b></p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td> </tr> <tr> <td>N</td><td>G</td><td>B</td><td>Z</td><td>O</td><td>E</td><td>S</td><td>I</td><td>L</td> </tr> </table>	1	2	3	4	5	6	7	8	9	N	G	B	Z	O	E	S	I	L
1	2	3	4	5	6	7	8	9											
N	G	B	Z	O	E	S	I	L											
<p>When you complete the puzzle (or while you're solving it), convert the number of each gray cell to a letter using the Hybrid Conversion Chart. Enter those letters on the corresponding lines. For both the gray cells and lines, work left to right, top to bottom. The letters will spell a phrase, place, movie, food, song, person, etc.</p>																			

## Puzzle 4: Beginner

27	2378	<b>9</b>	<b>5</b>	123	<b>6</b>	<b>4</b>	378	237
2567	<b>1</b>	3578	4	234	234	3678	<b>9</b>	23567
<b>4</b>	235	35	<b>8</b>	<b>9</b>	<b>7</b>	36	356	<b>1</b>
<b>8</b>	47	<b>2</b>	1467	1347	34	<b>5</b>	3467	<b>9</b>
57	4579	<b>1</b>	4679	34578	3489	<b>2</b>	3467	367
<b>3</b>	4579	<b>6</b>	479	2457	249	<b>1</b>	47	<b>8</b>
<b>9</b>	378	378	<b>2</b>	<b>6</b>	<b>5</b>	378	1378	<b>4</b>
157	<b>6</b>	3578	479	478	489	378	<b>2</b>	357
257	2578	<b>4</b>	<b>3</b>	78	<b>1</b>	<b>9</b>	5678	567

## Puzzle 5: Beginner

258	<b>6</b>	259	12357	127	2357	17	<b>4</b>	1257
<b>1</b>	25	<b>3</b>	257	<b>4</b>	257	<b>8</b>	267	<b>9</b>
245	<b>7</b>	25	<b>6</b>	<b>9</b>	<b>8</b>	1	<b>3</b>	125
357	59	<b>6</b>	15789	17	4579	<b>2</b>	78	1347
257	<b>1</b>	<b>8</b>	257	<b>3</b>	2457	<b>6</b>	<b>9</b>	47
237	29	<b>4</b>	12789	1267	2679	<b>5</b>	78	137
267	<b>3</b>	27	<b>4</b>	<b>8</b>	<b>1</b>	79	<b>5</b>	267
<b>9</b>	24	<b>1</b>	27	<b>5</b>	267	<b>3</b>	267	<b>8</b>
24567	<b>8</b>	257	2379	267	23679	479	<b>1</b>	2467

### Puzzle 6: Beginner: Word Guess Puzzle

3469	<b>5</b>	2469	2347	<b>8</b>	23	3679	<b>1</b>	367
<b>1</b>	<b>7</b>	8	<b>6</b>	35	<b>9</b>	358	<b>2</b>	<b>4</b>
34689	269	24689	23457	<b>1</b>	235	356789	678	35678
56	<b>4</b>	1256	<b>8</b>	2356	<b>7</b>	136	<b>9</b>	136
<b>7</b>	69	<b>3</b>	5	56	15	<b>4</b>	68	<b>2</b>
6	<b>8</b>	126	<b>9</b>	236	<b>4</b>	1367	<b>5</b>	1367
4568	6	45678	2357	<b>9</b>	2358	125678	678	15678
<b>2</b>	<b>3</b>	578	<b>1</b>	57	<b>6</b>	578	<b>4</b>	<b>9</b>
5689	<b>1</b>	56789	257	<b>4</b>	258	25678	<b>3</b>	5678

_____ _____	<b>Hybrid Conversion Chart</b> 1 2 3 4 5 6 7 8 9 L P S N B
The Word Guess Puzzle is solved the same as the Alphabet Hybrid . . . except all the letters are not supplied. Fill in all of the letters that you can, leaving the other spaces blank, and then solve the puzzle by deducing what words or phrase is formed. <p style="text-align: center;"><b>Word Guess Hint: Careful, we're talking major calories</b></p>	



### Level 5: Expert

#### Puzzle 121: Expert: **ALPHABET DOUBLE HYBRID**

12	127	19	<b>6</b>	<b>3</b>	<b>5</b>	2789	2479	489
126	12367	<b>8</b>	247	1249	1479	<b>5</b>	234679	3469
256	<b>4</b>	3569	27	<b>8</b>	79	2379	<b>1</b>	369
<b>3</b>	568	456	<b>1</b>	459	<b>2</b>	89	569	<b>7</b>
<b>9</b>	568	<b>2</b>	578	5	78	<b>4</b>	356	<b>1</b>
<b>7</b>	158	145	<b>3</b>	459	<b>6</b>	89	59	<b>2</b>
12456	<b>9</b>	13456	245	<b>7</b>	14	123	<b>8</b>	345
12458	12358	<b>7</b>	2458	1245	148	<b>6</b>	23459	3459
12458	1258	145	<b>9</b>	<b>6</b>	<b>3</b>	127	2457	45

_____ _____ _____	<p style="text-align: center;"><b>Hybrid Conversion Chart</b></p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td> </tr> <tr> <td>R</td><td>A</td><td>E</td><td>K</td><td>M</td><td>H</td><td>T</td><td>S</td><td>B</td> </tr> </table>	1	2	3	4	5	6	7	8	9	R	A	E	K	M	H	T	S	B
1	2	3	4	5	6	7	8	9											
R	A	E	K	M	H	T	S	B											
_____ _____	<p>This is a double alphabet-hybrid puzzle. The full shaded cells will spell something, and the partial shaded cells will spell something else. Full shaded on top, partial on bottom.</p>																		

### Puzzle 122: Expert

134568	148	34568	57	12578	17	3459	134	134569
135	<b>2</b>	<b>9</b>	<b>6</b>	15	<b>4</b>	<b>8</b>	<b>7</b>	135
14568	<b>7</b>	4568	<b>3</b>	158	<b>9</b>	45	<b>2</b>	1456
134	<b>5</b>	<b>7</b>	<b>8</b>	134	<b>2</b>	<b>6</b>	<b>9</b>	34
13489	148	348	47	<b>6</b>	17	2345	34	23457
34	<b>6</b>	<b>2</b>	<b>9</b>	347	<b>5</b>	<b>1</b>	<b>8</b>	347
24678	<b>9</b>	468	<b>1</b>	47	<b>3</b>	24	<b>5</b>	248
45	<b>3</b>	<b>1</b>	<b>2</b>	459	<b>8</b>	<b>7</b>	<b>6</b>	49
245678	48	4568	457	4579	67	2349	134	123489

### Puzzle 123: Expert

<b>1</b>	2345	45	268	<b>9</b>	26	4568	3468	<b>7</b>
349	<b>6</b>	4579	78	147	17	1458	<b>2</b>	358
24	247	<b>8</b>	<b>3</b>	12467	<b>5</b>	<b>9</b>	146	6
468	47	<b>2</b>	<b>1</b>	567	<b>9</b>	<b>3</b>	4678	568
<b>5</b>	479	479	267	<b>3</b>	267	468	46789	<b>1</b>
69	179	<b>3</b>	<b>4</b>	567	<b>8</b>	<b>2</b>	679	569
239	1239	<b>6</b>	<b>5</b>	12	<b>4</b>	<b>7</b>	1389	2389
2349	<b>8</b>	149	2679	1267	12367	16	<b>5</b>	2369
<b>7</b>	12359	159	269	<b>8</b>	1236	16	1369	<b>4</b>

### Puzzle 124: Expert

34689	13469	4689	128	<b>5</b>	1279	12347	2479	12379
459	<b>7</b>	459	<b>6</b>	12	<b>3</b>	1245	<b>8</b>	1259
3589	139	<b>2</b>	18	<b>4</b>	179	<b>6</b>	579	13579
279	<b>8</b>	79	<b>5</b>	1237	<b>4</b>	237	<b>6</b>	2379
<b>1</b>	69	<b>3</b>	2	27	267	<b>8</b>	2579	<b>4</b>
2467	<b>5</b>	467	<b>9</b>	237	<b>8</b>	237	<b>1</b>	237
34578	34	<b>1</b>	2348	<b>6</b>	2	<b>9</b>	2457	2578
4689	<b>2</b>	4689	<b>7</b>	18	<b>5</b>	14	<b>3</b>	168
345678	346	45678	12348	<b>9</b>	12	12457	2457	125678

### Puzzle 125: Expert

459	789	<b>6</b>	459	<b>1</b>	47	<b>3</b>	2578	2478
1459	1789	1459	<b>3</b>	5679	<b>2</b>	456789	5678	4678
<b>2</b>	379	3459	4569	<b>8</b>	467	45679	567	<b>1</b>
136	<b>4</b>	123	<b>7</b>	26	<b>5</b>	68	<b>9</b>	368
<b>7</b>	1369	<b>8</b>	469	69	346	<b>2</b>	136	<b>5</b>
369	<b>5</b>	239	<b>1</b>	269	<b>8</b>	67	<b>4</b>	367
<b>8</b>	1236	1235	56	<b>4</b>	167	567	23567	<b>9</b>
13456	136	1345	<b>2</b>	567	<b>9</b>	45678	35678	34678
4569	269	<b>7</b>	568	<b>3</b>	6	<b>1</b>	2568	2468

Puzzle 126: Expert: **BRAIN PLAYGROUND PUZZLE**

34679	5679	<b>1</b>	25	2579	57	<b>8</b>	3467	3567
467	<b>2</b>	456	58	<b>3</b>	1578	147	<b>9</b>	1567
<b>8</b>	579	35	<b>6</b>	579	<b>4</b>	137	137	<b>2</b>
1247	157	<b>8</b>	<b>9</b>	457	<b>3</b>	<b>6</b>	147	17
1467	<b>3</b>	456	458	45678	5678	147	<b>2</b>	1789
467	67	<b>9</b>	<b>1</b>	4678	<b>2</b>	<b>5</b>	3478	378
<b>5</b>	168	236	<b>7</b>	268	<b>9</b>	123	1368	<b>4</b>
2369	<b>4</b>	236	238	<b>1</b>	68	237	<b>5</b>	3678
1236	168	<b>7</b>	23458	24568	568	<b>9</b>	1368	1368

<b>Hybrid Conversion Chart</b>									
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
<b>Word Guess Hint: It's one of the five. Say hi to Vinnie, Juan, Arnold, and Boom Boom</b>									
$(\sqrt{\quad\quad} + \sqrt{\quad\quad}) \times \sqrt{\quad\quad} = \quad\quad$									
Brain Playground puzzles involve logic (Sudoku), Verbal (Word Guess), and Mathematics (the equation) skills. Solve both the Word Guess (gray cells) on top and the math problem (partial gray cells) on the bottom when you complete or while you're solving the puzzle.									

# Special Feature: Alphabet Puzzles

## Alphabet Puzzle 1: Beginner

KLRC	KLRC	<b>O</b>	KALRC	KAL- ERC	ALEC	<b>B</b>	MAE	KMAE
KLBR	KLR	<b>E</b>	KALR	<b>M</b>	AL	<b>C</b>	AO	KAO
<b>A</b>	<b>M</b>	<sup>C</sup>	<b>B</b>	KEC	<b>O</b>	KE	<b>L</b>	<b>R</b>
KLEC	KLEC	<b>B</b>	<b>O</b>	ALEC	<b>R</b>	<b>M</b>	AE	KALE
KMLER	<b>O</b>	LR	AL	ALE	ALBE	KAE	<b>C</b>	KALBE
LERC	LERC	<b>A</b>	<b>M</b>	LEC	<b>K</b>	<b>O</b>	BER	LBE
<b>O</b>	<b>B</b>	LR	<b>E</b>	ALR	<b>M</b>	<sup>A</sup>	<b>K</b>	<b>C</b>
ERC	AERC	<b>K</b>	ARC	<b>B</b>	AC	<b>L</b>	MAEO	MAEO
LEC	ALEC	<b>M</b>	KALC	KALOC	ALC	<b>R</b>	ABEO	ABEO

Fill in the blanks from the highlighted spaces in the puzzle, left to right, top to bottom.

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## Alphabet Puzzle 2: Beginner

<b>N</b>	QHPT	HPT	QRET	QE	HRET	QPETA	PREA	<b>U</b>
QP	QPT	<b>E</b>	<b>N</b>	<b>U</b>	<b>A</b>	<b>H</b>	PR	QPRT
QHUA	<b>R</b>	HUT	QET	<b>P</b>	HET	QETA	<b>N</b>	QETA
HRE	<b>U</b>	HRT	<b>A</b>	NE	<b>P</b>	ET	<b>Q</b>	RET
PE	<b>A</b>	<b>Q</b>	UET	<b>R</b>	UET	<b>N</b>	<b>H</b>	PET
PRE	<b>N</b>	PRT	<b>H</b>	E	<b>Q</b>	PETA	<b>U</b>	PRETA
QPUR	<b>E</b>	NPUR	QUR	<b>H</b>	UR	QPUA	<b>T</b>	QPA
QHU	QH	<b>A</b>	<b>P</b>	<b>T</b>	<b>N</b>	<b>R</b>	E	QHE
<b>T</b>	QHP	HPUR	QURE	QEA	URE	QPUEA	PEA	<b>N</b>

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### Alphabet Puzzle 3: Mild

IEPNB	IEN	<b>R</b>	IP	<b>O</b>	IA	<b>Z</b>	EPNBA	EPA
OIEPB	OIE	EP	<b>N</b>	IRPA	<b>Z</b>	ORB	EPBA	OREPA
<b>A</b>	ONZ	PNZ	<b>B</b>	RP	<b>E</b>	ORN	PN	<b>I</b>
E	<b>B</b>	<b>O</b>	<b>Z</b>	IP	<b>N</b>	<b>A</b>	<b>R</b>	P
<b>Z</b>	RNA	NA	IP	<b>E</b>	OI	IN	IPN	<b>B</b>
N	<b>P</b>	<b>I</b>	<b>A</b>	B	<b>R</b>	<b>E</b>	<b>O</b>	Z
<b>R</b>	IEZA	EZA	<b>O</b>	IZA	<b>P</b>	IB	IEZBA	<b>N</b>
OIPN	OINZA	PNZA	<b>E</b>	IRZA	<b>B</b>	OIR	IZA	ORZA
OIE	OIEZA	<b>B</b>	IR	<b>N</b>	IA	<b>P</b>	IEZA	OREZA

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### Alphabet Puzzle 10: Expert

<b>R</b>	OLS	EALS	EOS	EOADS	EOAD	LS	AZLD	<b>N</b>
EALNS	<b>D</b>	EALNS	ERS	<b>Z</b>	EAR	RLS	<b>O</b>	ALS
AS	OS	<b>Z</b>	<b>L</b>	OARDS	<b>N</b>	<b>E</b>	ARD	ADS
LNS	RLNS	<b>O</b>	<b>A</b>	ERL	<b>Z</b>	<b>D</b>	ERL	ELS
AZLS	<b>E</b>	ALS	OR	ORLD	ORD	ORLS	<b>N</b>	OALS
AL	RL	<b>D</b>	<b>N</b>	EORL	<b>S</b>	<b>Z</b>	EARL	EOAL
EZNS	ZNS	<b>R</b>	<b>D</b>	EOS	<b>L</b>	<b>A</b>	EZ	EOZ
EZLD	<b>A</b>	EL	EOZR	<b>N</b>	EOR	OL	<b>S</b>	EOZLD
<b>O</b>	ZLNS	ELNS	EZS	EAS	EA	LN	EZLD	<b>R</b>

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# **Puzzles Without Candidates**

**Puzzle 1: Beginner**

			3		7			
		6		1		4		
	2		8		4		7	
7		2		8		9		6
	1		6		9		2	
6		5		4		8		7
	4		5		8		3	
		9		3		1		
			4		1			

**Puzzle 2: Beginner**

	9						8	
6			7	5	1			9
		2	9		6	1		
	7	3				8	6	
	8			3			1	
	2	6				3	9	
		9	3		8	6		
3			4	6	5			8
	6						3	

**Puzzle 3: Beginner**

	6			4			9	
1		4		9		7		6
	9		6		3		4	
		6		5		2		
7	3		4		6		1	8
		2		8		6		
	7		5		8		2	
5		8		3		1		7
	4			7			8	

**Puzzle 4: Beginner**

		9	5		6	4		
	1						9	
4			8	9	7			1
8		2				5		9
		1				2		
3		6				1		8
9			2	6	5			4
	6						2	
		4	3		1	9		

**Puzzle 5: Beginner**

	6						4	
1		3		4		8		9
	7		6	9	8		3	
		6				2		
	1	8		3		6	9	
		4				5		
	3		4	8	1		5	
9		1		5		3		8
	8						1	

**Puzzle 6: Beginner**

	5			8			1	
1	7		6		9		2	4
				1				
	4		8		7		9	
7		3				4		2
	8		9		4		5	
				9				
2	3		1		6		4	9
	1			4			3	

Puzzle 7: Beginner

		7				9		
		9		1		5		
5	6		4		7		8	2
		1		8		4		
	9		6		3		7	
		6		4		3		
6	3		1		9		4	5
		5		6		7		
		2				6		

Puzzle 8: Beginner

		8				2		
	2		1		4		8	
1		4		8		5		3
	8			2			1	
		3	9	4	1	8		
	5			6			9	
8		2		9		6		4
	6		4		2		5	
		5				1		

Puzzle 9: Beginner

			9	6	8			
		2				4		
	1		4	2	5		9	
4		7				5		9
3		9		7		2		4
1		6				7		3
	7		8	9	4		3	
		3				8		
			3	1	7			

Puzzle 10: Beginner

	3						2	
6		5	1		9	4		7
	1			7			8	
	2			5			9	
		6	7		2	3		
	7			3			4	
	6			9			1	
8		3	5		6	2		9
	5						6	

Puzzle 11: Beginner

		7		4		5		
	3		8		6		2	
9		8		1		7		6
	2						7	
8		4				2		3
	5						6	
4		2		8		6		7
	1		4		7		5	
		5		6		3		

Puzzle 12: Beginner

		8	4		1	3		
	7						4	
5			8		2			7
7		2		6		5		1
			1		5			
9		5		8		6		4
8			6		9			3
	2						5	
		9	7		8	1		





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## **List of Hybrid Puzzles**

### **Alphabet Hybrid Puzzles (7)**

Puzzle Numbers: 3, 36, 60, 73, 97, 121, 142

### **Word Guess Puzzles (17)**

Puzzle Numbers: 6, 14, 17, 21, 27, 31, 49, 54, 65, 72, 83, 93, 102, 110, 111, 116, 129

### **Word Scramble Puzzles (3)**

Puzzle Numbers 18, 96, 119

### **Math Hybrid Puzzles (3)**

Puzzle Numbers 24, 55, 143

### **Brain Playground Puzzles (10)**

Puzzle Numbers 11, 41, 46, 80, 88, 105, 126, 134, 137, 148

## Instructions for Playing the Various Hybrid Puzzles

All the types of hybrid puzzles have certain common traits. For instance, they all have cells shaded gray that become part of the solution to the verbal or mathematical problem below the puzzle. With each puzzle, fill in the spaces by using the numbers from the gray cells, beginning on the top row and working left to right.

**Alphabet Hybrid Puzzles:** When you complete the puzzle (or while you're playing it) convert the number of each grayed cell to the corresponding letter in the conversion chart, and write each letter in the provided space, left to right, top to bottom.

**Word Guess Puzzles:** The conversion chart supplies only some of the letters to be converted. Therefore, you can convert only some of the numbers in the gray cells to letters. Write those letters in the corresponding spaces, left to right, top to bottom. Be sure to leave the spaces blank where there are gray cells and no letter can be converted. (Notice in the *Sample Word Guess Puzzle* that only four letters have been provided. Only those letters have been entered on the lines, leaving blank spaces where the letters have not been provided.) Fill in every space you can and then, using the supplied hint, try to discern the words and fill in the missing letters.

**Word Scramble Puzzles:** When you complete the puzzle (or while you're playing it) convert the number of each grayed cell to the letter in the conversion chart, and write each letter in the corresponding spaces in the upper box, left to right, top to bottom. These letters form a scrambled word or words. Then, using the hint, unscramble the letters and write them in the lower box to form a known location, person, book title, food, object, and so on.

**Math Hybrid Puzzles:** When you complete the puzzle (or while you're playing it), write the numbers of the shaded cells in the corresponding spaces, left to right, top to bottom. This will create a mathematical equation. Then solve the equation and write the answer after the equal (=) sign.

**Brain Playground Puzzles:** These are the ultimate in brain-training puzzles. They involve logic (Sudoku), verbal (Word Guess), and math (Math Hybrid) skills. When you complete the puzzle (or while you're playing it), convert the number of each cell shaded gray to a letter in the conversion chart. Then write the letter in the corresponding spaces, making sure to leave each space that does not convert to a letter blank. Then use the hint to solve the puzzle and fill in the rest of the spaces. Write the numbers of the partially-grayed cells in the spaces to form a mathematical equation, and then solve the equation. When you solve all three correctly (the Sudoku puzzle, the Word Guess, and the Math equation) consider it a triple victory.