



**UK Sudoku Championship 2020**

**&**

**World Sudoku Championship Qualification**

# **INSTRUCTION BOOKLET**

**Friday 12th June - Monday 15th June**

**2 hours**

**Introduction.** These are the instructions for the 2020 UK Sudoku Championship, hosted and organised by the UK Puzzle Association. This is an online Sudoku competition to be printed out and solved against the clock. Any questions related to these instructions should be raised and discussed in the competition discussion thread: <http://forum.ukpuzzles.org/viewtopic.php?f=5&t=2097>.

**UK Sudoku Championship.** Results of participants eligible for a British passport will be considered for the UK Sudoku Championship. The highest scoring British participant will be the UK Sudoku Champion for 2020.

The 2020 World Sudoku Championships originally planned to take place in Shanghai, China have been postponed until 2021. As such it is uncertain what bearing this contest will have on UK team selection. It is likely to have at least some influence if the postponed World Championships happen before the 2021 edition of the UK Sudoku Championship.

International participation is warmly welcomed.

**Registration.** To participate in the championship you will need to be registered online at the UKPA forums. You can register here: <http://forum.ukpuzzles.org/ucp.php?mode=register>. During the registration process you will be required to enter your real name and your nationality.

**Schedule.** Shortly before the championship starts, the password protected PDF file will be made available at <http://www.ukpuzzles.org/contests.php?contestid=57>. It is recommended you download the PDF before you retrieve the password.

The championship will start at **15:00 BST (GMT+1), Friday 12th June 2020**, when the password for the PDF will be made available. Upon retrieving the password, you will have **2 hours** to solve the puzzles and submit your answers via the entry page. You will not be able to submit any answers after your two hours are up. The championship will end at **01:55 BST (GMT+1), Tuesday 16th June**; as such it is highly recommended that you retrieve the password and start solving before **23:55 BST (GMT+1), Monday 15th June**.

**Answer Entry & Submission.** To submit your answers, you will need to go to the answer submission page: <http://www.ukpuzzles.org/answers.php?contestid=57>. This is a form with entries corresponding to each puzzle. In each puzzle there are two rows and/or columns indicated by arrows labelled "A" and "B". The answer key is given by the contents of A, then the contents of B, separated by a comma with no spaces. Rows should be read from left to right, and columns from top to bottom.

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

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

The correct key for this solved puzzle is: **724156398,786145329**.

Participation is anticipated to be very high and appeals will only be upheld in exceptional circumstances. Therefore it is **VERY IMPORTANT** that you check that each answer key submitted is correct. Upon hitting the submit button, your answers will be sent to the server. You may submit answers as many times as you like, but only the last received keys will be subject to scoring.

Urgent matters arising during the contest should be directed towards [chairman@ukpuzzles.org](mailto:chairman@ukpuzzles.org). In the event of the web hosting service failing during your participation, e-mail your answer keys before your 2 hours is completed. Answers submitted this way will only be accepted if a hosting failure, or equivalent, has occurred.

**Scoring and Bonuses.** Points for successfully solved puzzles will be awarded according to the following table.

Puzzle	Points	Puzzle	Points
Linked 6×6 Sudoku	21	Consecutive Pairs Sudoku	34
Deficit Sudoku	20	Extra Regions Sudoku	25
Surplus Sudoku	49	Classic Sudoku	33
Odd-Even-Big-Small Sudoku	28	Palindrome Sudoku	45
Classic Sudoku	29	Sandwich Sudoku	85
Diagonal Sudoku	60	Thermo Sudoku	71
Irregular Sudoku	30	X-Sums Sudoku	57
Killer Sudoku	98	Classic Sudoku	35
		<b>TOTAL:</b>	<b>720</b>

Participants who submit correct answer keys for all of the puzzles before the allotted 2 hours are up will be awarded **6 points** for each minute saved, as recorded by the last submission time to the server. Late submissions will not be accepted, so it is recommended that answers are submitted as you solve, rather than waiting until time is running out.

A partial bonus of **2 points** for each minute saved will apply if all but one submitted answer keys are correct.

**N.B.** Although the points allocated to a particular puzzle are a general indication of its difficulty and the time expected to solve it, it is possible that your individual experience may vary greatly.

**Code of Conduct.** All participants are expected to solve the puzzles honestly and fairly. You are not permitted to use any external solving aids of any form or receive assistance from any other individual.

It is strictly forbidden to discuss any details of the championship puzzles, or make their contents known to others via any medium whilst the contest is live.

The championship organisers reserve the right to disqualify any participant judged to have acted with improper conduct. The decisions made by the organisers are final.

**Acknowledgements.** The championship has been organised and coordinated by Tom Collyer. The competition puzzles have been provided by Tom Collyer and Sam Cappelman-Lynes. Example puzzles have been provided by Tom Collyer and Gareth Moore. We thank Hatice Esra Aydemir, Sam Cappelman-Lynes, Shiyu Chen, Zuzana Hromcová, Bram de Laat, Prasanna Seshadri, Tawan Sunathvanichkul and Tiit Vunk for helping to test the puzzles.

## Rules and Example Puzzles

**N.B.** The example puzzles are a true reflection in quantity, grid dimension and format of the corresponding competition puzzles. The competition puzzles will appear at a significantly larger size - one per page. The difficulty of an example puzzle may not be reflective of the difficulty of the corresponding competition puzzle.

It is recommended that both example and competition puzzles are printed from a PDF viewer, and not directly from a web browser.

### 1. Linked 6×6 Sudoku

**21 points**

**Rules:** In each grid, place a number from 1-6 in each empty cell such that each row, column and marked 3×2 box contains each number exactly once. The number placed in a cell in the left grid must be different from the number placed in the corresponding cell in the right grid.

			4		
		6		2	
	1				5
3				1	
	6		2		
		4			

				6	1
			2		4
		4		2	
	2		3		
2		6			
5	4				

1	2	3	4	5	6
4	5	6	1	2	3
6	1	2	3	4	5
3	4	5	6	1	2
5	6	1	2	3	4
2	3	4	5	6	1

4	3	2	5	6	1
1	6	5	2	3	4
3	5	4	1	2	6
6	2	1	3	4	5
2	1	6	4	5	3
5	4	3	6	1	2

### 2. Deficit Sudoku

**20 points**

**Rules:** Place a number from 1-7 in each empty cell in the grid such that each row and column contains each number exactly once, and each marked 6-cell region contains each number at most once.

	1	2	5	6	4
	5				7
	7				3
	4				2
	6	3	4	2	5

4	3	6	7	5	1	2
7	1	2	5	6	4	3
2	5	4	3	1	7	6
6	7	1	2	4	3	5
3	4	5	6	7	2	1
1	6	3	4	2	5	7
5	2	7	1	3	6	4

### 3. Surplus Sudoku

49 points

**Rules:** Place a number from 1-7 in each empty cell in the grid such that each row and column contains each number exactly once, and each marked 8-cell region contains each number at least once.

			3				
	3	6	2	5	4		
	5				7		
4	2				6	3	
	1				3		
	4	1	6	3	5		
			5				

1	6	4	3	7	2	5	
7	3	6	2	5	4	1	
3	5	2	1	6	7	4	
4	2	5	7	1	6	3	
5	1	7	4	2	3	6	
2	4	1	6	3	5	7	
6	7	3	5	4	1	2	

### 4. Odd-Even-Big-Small Sudoku

28 points

**Rules:** Place a number from 1-8 in each empty cell in the grid such that each row, column and marked 8-cell box contains each number exactly once. The clues outside the grid indicate that the first two cells in the corresponding direction must contain numbers matching the description.

Odd = {1, 3, 5, 7}; Even = {2, 4, 6, 8}; Big = {5, 6, 7, 8}; Small = {1, 2, 3, 4}.

	1				8		
小 small		2					
			3				小 small
偶 even				4			
					5		大 big
		7				6	
	偶 even	小 small		奇 odd	小 small		

	2	8	3	7	5	6	4	1
小 small	5	1	4	6	7	8	2	3
	1	4	2	8	6	3	7	5
小 small	7	5	6	3	8	4	1	2
偶 even	8	6	5	2	4	1	3	7
	3	7	1	4	2	5	8	6
	4	3	7	5	1	2	6	8
	6	2	8	1	3	7	5	4
	偶 even	小 small		奇 odd	小 small			大 big

## 5. Classic Sudoku

29 points

**Rules:** Place a number from 1-9 in each empty cell in the grid such that each row, column and marked 3×3 box contains each number exactly once.

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

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

## 6. Diagonal Sudoku

60 points

**Rules:** Place a number from 1-9 in each empty cell in the grid such that each row, column and marked 3×3 box contains each number exactly once. Each marked diagonal must also contain each number from 1-9 exactly once.

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

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

## 7. Irregular Sudoku

30 points

**Rules:** Place a number from 1-9 in each empty cell in the grid such that each row, column and marked 9-cell region contains each number exactly once.

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

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

## 8. Killer Sudoku

98 points

**Rules:** Place a number from 1-9 in each empty cell in the grid such that each row, column and marked 3×3 box contains each number exactly once. The numbers placed in each marked cage must sum to the total given in its top-left. Numbers must not repeat in cages.

20		9		17	9		20	
		22	16		27	18		
8								11
				15				
12						22		
8	30				17			11
	11			19		16		
24								17
		16			10			

20	6	3	9	2	7	19	9	8	1	20	5	4
	4	7	8	1	6	27	16	5	18	3	9	2
8	1	9	5	3	2	4	7	8		11	6	
	7	2	4	6	15	3	9	8	1	5		
12	8	1	3	4	5	2	22	6	7	9		
8	5	6	9	8	1	17	7	2	4	13		
	3	11	4	6	5	19	7	1	16	9	2	8
24	9	8	1	2	4	3	5	17	6	7		
	2	5	16	7	9	8	10	6	4	3	1	

## 9. Consecutive Pairs Sudoku

34 points

**Rules:** Place a number from 1-9 in each empty cell in the grid such that each row, column and marked 3×3 box contains each number exactly once. Marked pairs of adjacent cells must contain consecutive numbers. Note that not all such pairs of adjacent cells are marked.

			4	3				
	○	○						○
						○		○
		○	○	4				1
8			6		3			4
4				5		○	○	
			○					
	○		○				○	○
	○							
			6	5				

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

## 10. Extra Regions Sudoku

25 points

**Rules:** Place a number from 1-9 in each empty cell in the grid such that each row, column and marked 3×3 box contains each number exactly once. Each of the shaded regions must also contain each number from 1-9 exactly once.

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

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



## 11. Classic Sudoku

33 points

**Rules:** Place a number from 1-9 in each empty cell in the grid such that each row, column and marked 3×3 box contains each number exactly once.

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

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

## 12. Palindrome Sudoku

45 points

**Rules:** Place a number from 1-9 in each empty cell in the grid such that each row, column and marked 3×3 box contains each number exactly once. Numbers placed along marked lines must form a palindromic sequence, e.g. 1234321.

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

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

### 13. Sandwich Sudoku

85 points

**Rules:** Place a number from 1-9 in each empty cell in the grid such that each row, column and marked 3×3 box contains each number exactly once. The clues outside the grid indicate the sum of numbers placed in the cells between those cells containing 1 and 9 in the corresponding direction.

	7	12	22	23	13	23	0	14	30
12									
16									
4									
0									
2				1					
0									
17									
22									
12									

	7	12	22	23	13	23	0	14	30
12	3	8	5	7	9	4	2	6	1
16	7	2	6	1	8	3	5	9	4
4	1	4	9	6	2	5	7	3	8
0	2	6	8	4	3	9	1	5	7
2	5	3	7	8	1	2	9	4	6
0	9	1	4	5	6	7	8	2	3
17	6	7	3	9	5	8	4	1	2
22	8	5	1	2	4	6	3	7	9
12	4	9	2	3	7	1	6	8	5

### 14. Thermo Sudoku

71 points

**Rules:** Place a number from 1-9 in each empty cell in the grid such that each row, column and marked 3×3 box contains each number exactly once. Starting at the “bulb,” numbers placed along each marked thermometer must form a strictly increasing sequence.

		2				4			
			5						
			1						
		9				5			

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

## 15. X-Sums Sudoku

57 points

**Rules:** Place a number from 1-9 in each empty cell in the grid such that each row, column and marked 3×3 box contains each number exactly once. The clues outside the grid indicate the sum of the first X numbers placed in the corresponding direction, where X is equal to the first number placed in that direction.

	1	10	18	15	20	33	35	36	45	
1										45
34										21
22										6
45										36
33										15
12										3
38										28
35										10
5										1
	7	18	17	30	30	36	38	45	1	

	1	10	18	15	20	33	35	36	45	
1	1	2	3	4	5	6	7	8	9	45
34	7	8	9	1	2	3	4	5	6	21
22	4	5	6	7	8	9	1	2	3	6
45	9	1	2	3	4	5	6	7	8	36
33	6	7	8	9	1	2	3	4	5	15
12	3	4	5	6	7	8	9	1	2	3
38	8	9	1	2	3	4	5	6	7	28
35	5	6	7	8	9	1	2	3	4	10
5	2	3	4	5	6	7	8	9	1	1
	7	18	17	30	30	36	38	45	1	

## 16. Classic Sudoku

35 points

**Rules:** Place a number from 1-9 in each empty cell in the grid such that each row, column and marked 3×3 box contains each number exactly once.

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

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