

Red-Tailed Bumblebee – Full Solution Guide

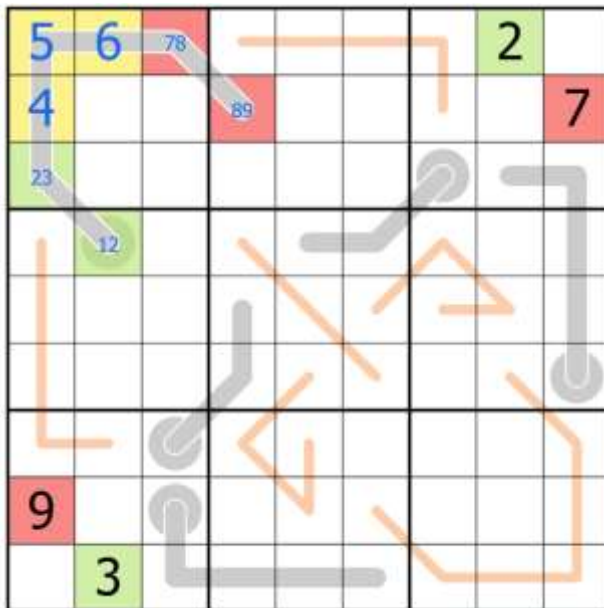
This is a full solution guide to my puzzle *Red-Tailed Bumblebee*, and so spoilers are ahead.

Rules

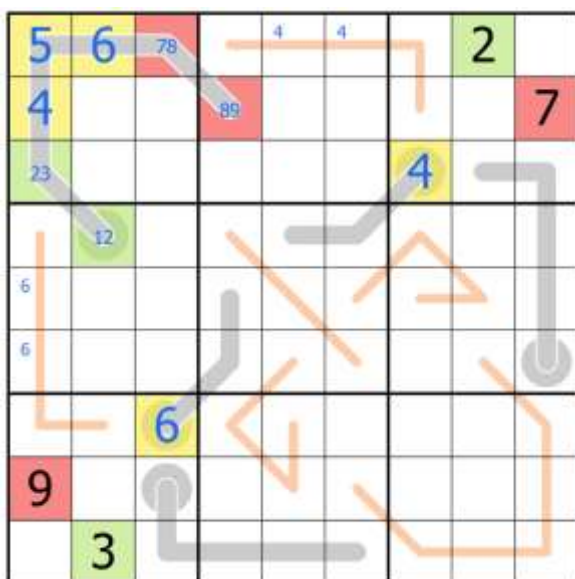
- Normal sudoku rules apply: Place the digits 1 to 9 once each in every row, column, and 3x3 box
- **Thermometers:** Digits along a grey thermometer must strictly increase from the bulb end
- **Entropic Lines:** Any run of three cells along a peach entropic line must contain one low digit (1, 2, 3), one medium digit (4, 5, 6), and one high digit (7, 8, 9)

Solve Path

- Using colours to represent low (green), medium (yellow) and high (red)
- 7 cell thermo in box 1 can be pencilmarked with three candidates per cell
- If R2C1 were 3, this would force 2 and 1 below it on the thermo and this would leave no low digit for the entropic line in C1
- Similarly, if R1C2 were 7 it would force 8 and 9 above it on the thermo and leave no high digit for the entropic line in row 1
- Hence 456 are forced onto the thermo



- Column 1 entropic line contains a medium digit, which must be a 6
- R4C1 can't be medium as R7C1 would also be medium and force too many medium digits in C1
- So R56C1 is a medium digit which must be 6
- And 6 is forced in to R789C3
- R8C3 is too low on the thermo, however R9C3 is also invalid as this would force 789 above it on the thermo and break the entropic line in R9
- So R7C3 is 6
- By similar logic 4 is forced into R1C56 and R3C7



- By thermo logic R5C4 are high
- Box 5 has all the high digits, two on the thermo and one on the entropic line
- Hence R4C56 are 5 and 6
- 4 in box 5 is on the entropic line, so R5C6 and R6C5 are low
- R5C7 and R7C5 are also low by entropic line
- R4C7 sees all mediums so this is high, and similarly R7C4 sees all highs so is medium



- C4 has all its highs, so R1C4 and R1C7 are low
- Leaves only high for R1C9



- R4C9 is at least 3 by thermo. If it were 3 it would force 1 and 2 below it, and break the entropic line in C9
- Hence this is at least 4, and only 4 is available



- Pencilmarking the R9 thermo, R9C5 is at least 5. It can't be 5 as that would force 4 below it on the thermo and break R7C4
- Hence this is at least 7, and forces 9 in R9C6

5	6	78	13	4	4	13	2	89
4			89					7
23						4		56
	12		123	6	5	789	789	4
6			89		12	3 123	56	3 23
6			7	123				12
		6	45	123				
9		124		78				
	3	245	456	78	9			

- R9 has all its high digits, leaving only low for R9C1
- R4C1 and R7C1 can now only be high
- Creates triples in R4

5	6	78	13	4	4	13	2	89
4			89					7
23						4		56
78	12	123	123	6	5	789	789	4
6			89		12	3 123	56	3 23
6			7	123				12
78		6	45	123				
9		124		78				
12	3	45	56	78	9			

- R6C8, R8C6 and R9C9 are all the same entropy. By box 6 this can't be low and by box 8 this can't be high so these are medium
- Places 4 in row 9

5	6	78	13	4	4	13	2	89
4			89					7
23						4		56
8	12	123	123	6	5	7 79	7 79	4
6			89		12	3 123	56	3 23
6			7	123		8	56	12
7		6	45	123				
9		12		78	46			
12	3	4	56	78	9			56

- Triple of lows in box 7, hence R8C2 is medium
- Means R5C1 is medium and is 6

5	6	78	13	4	4	13	2	89
4			89					7
23						4		5
8	12	123	123	6	5	7 79	7 79	4
6			89		12	3 123	5	3 23
123			7	123		8	6	12
7	5	6	4	123	123			
9	8	12	123	7	6			
12	3	4	5	8	9			6

- Triple of highs in row 8 means R8C9 is low, colouring the whole entropy line

5	6	78	13	4	78	13	2	9
4			9					7
23						4	8	5
8	12	123	123	6	5	7	9	4
6			8	9	12	³ 123	5	³ 23
123			7	123	4	8	6	12
7	5	6	4	123	123			8
9	8	12	123	7	6			
12	3	4	5	8	9		7	6

- By sudoku remaining high and medium digits can be placed mostly as hidden singles in rows or boxes

5	6	8	13	4	7	13	2	9
4	12	123	9	5	8	6	13	7
23	7	9	6	123	123	4	8	5
8	12	123	123	6	5	7	9	4
6	4	7	8	9	12	³ 123	5	³ 23
123	9	5	7	123	4	8	6	12
7	5	6	4	123	123	9	13	8
9	8	12	123	7	6	5	4	123
12	3	4	5	8	9	12	7	6

- Low digits can be resolved via, e.g., the 1 in box 1 is in row 2, so R2C8 can't be 1 and is 3

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