

BATTLE LINES

A fleet of ships, one aircraft carrier, two battleships, three cruisers and four destroyers, has been hidden in the grid. Each number tells you how many squares in the same row and column contain ship parts. No square with a number in it has a ship part as well.

Tips for Solving Battle Lines

The marked row and column have a total of four ship parts between them



As in standard battleships, no two vessels are next to each other horizontally, vertically or diagonally. Your task is to locate the position of each ship in the fleet.

Solving tips:

There are two main lines of attack and different puzzles may use one or the other or a combination of both. The first method is to work out possible places for the larger vessels, starting with the aircraft carrier, and logically determine their positions. The second method is to use the numbers to establish how many ship sections there are in each row and column individually and so reduce the puzzle to a standard battleships problem but one with lots of 'water' cells already marked – the cells which have numbers in.

	A	B	C	D	E	F	G	H	J	K
1			6			5				3
2				4					3	
3	3							4		
4		2			3				5	
5			7		6					
6										2
7							3		5	
8										2
9			7				6	6		
10	1		3		2					

Method One:

The aircraft carrier (four sections) cannot be in rows one, two, three, four, six, seven, eight and ten because the numbers in those lines indicate a maximum possible number of ship sections that is less than four. The carrier cannot be in row nine because that row does not have four adjacent cells available. The only possible row is row five.

Turning to the columns and looking for maximum numbers less than four eliminates columns A, B, D, E, F, G, H and K. Columns C and J do not have four adjacent cells. So the aircraft carrier is not in any column.

Therefore it must be in row five and looking at it, must occupy G5, H5 and J5. We can put X's in F4 to K4 and F6 to J6.

	A	B	C	D	E	F	G	H	J	K
1			6			5				3
2				4					3	
3	3							4		
4		2			3	X	X	X	5	X
5			7		6					
6						X	X	X	X	2
7							3		5	
8										2
9			7				6	6		
10	1		3		2					

Method Two:

We now search among the numbers and use them in combination to prove how many ship sections there must be in each row and column.

From K1 we know that row one has a maximum of three fills. From F10 we see that column F has a maximum of two fills. Therefore, from the five in F1 row one has a minimum of three fills. If the maximum and minimum for row one are both three – then row one has three fills and this number can be entered at the start of the line.

We can now cross-reference numbers in rows and columns to work out other values for single lines. Each one will depend on a value previously found. For example: knowing row one has three sections then from K1 (3) we now know column K has no ship sections. Because of this fact, K6 tells us that row six has two sections and ditto row eight.

When we have the value for each row and column we can apply the rules of standard battleships to complete the grid.