We can use The Principle of Mathematical Induction theorem to prove a Blockus board with northwest corner removed can be covered with V3 pieces (3 blocks).

Logically, by removing 1 block out of Blockus board we can have:

Moreover, to make sure that all V3 pieces can cover the whole board, we need the board is not a straight line of block(s) so that it can fit at least 1 V3 piece ( is always a square so that not necessary) and the number of remaining blocks is divisible by 3:

Let

Where base case is:

Induction Hypothesis:

Assuming that in and showing is a consequence of :

Starting with the left-hand side of the expression:

(1)

Using the induction hypothesis, we already know that is divisible by 3. Therefore, the expression can be written as:

, where m is an arbitrary integer.

Substituting (2) into the equation (1) gives:

Thus, is equal to an integer m multiply by 3 which also divisible by 3.

For instance,

|  |  |
| --- | --- |
| Icon  Description automatically generated with medium confidence  From n = 1 | Chart, bar chart  Description automatically generated  To n +1, which n = 2 |

By the principle of mathematical induction, we have proved that is divisible by 3 for all positive integers n. Finally, there is always true that there is exist at least one order of V3 piece(s) that the square Blockus board with northwest corner removed can be covered with it.

