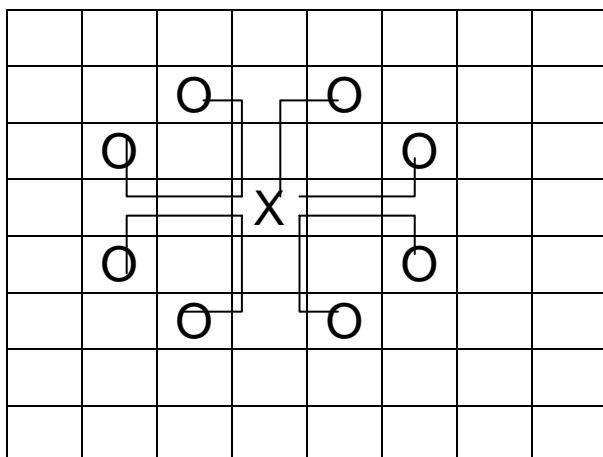
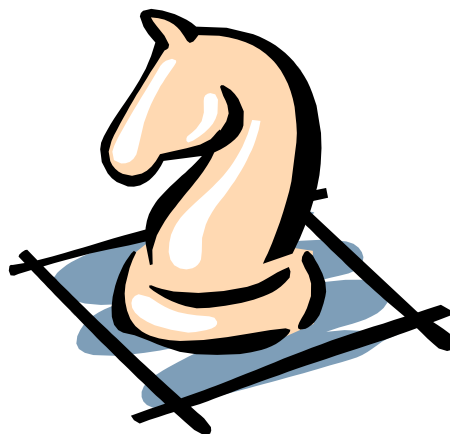


# KNIGHT MOVES

In chess, a knight moves 2 spaces in one direction (up, down, left, right) then turns a corner and moves one more space. (See the examples below.)



Using a 10 x 10 number grid, start at any point (not too near the edge of the board). Mark your start position. Mark all 8 positions that the knight can move to. Record these on the table below.

Choose a new starting position and repeat the process. Choose a third – and a fourth, if you wish.

Start position	The 8 finishing positions. (Start at top left and move clockwise)								Total of all 8 positions

What do you notice about your results?

Here's a clue: compare start position with total.

Now work out the following table – using algebra (if you can).

Start position	The 8 finishing positions. (Start at top left and move clockwise)								Total of all 8 positions
x									

Does this help to explain what you noticed earlier?

Does this work on an 8 x 8 number grid?

Can you predict – will it work with a 12 x 12 grid?

## 10 x 10 number grid

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

## 8 x 8 number grid

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56
57	58	59	60	61	62	63	64



Just for fun!

Starting at any square on the grid, can you make “knight moves” so that you visit every square on the board once and only once?

You will need plenty of copies of the 8 x 8 number grid!

## KNIGHT MOVES SOLUTION

Here is one solution to the challenge – to cover every square on the chessboard using only “knight moves”.

28 – 18 – 1 – 11 – 17 – 2 – 12 – 22 – 7 – 24 – 39 – 45 – 60 – 50 – 33 – 27 –  
37 – 47 – 64 – 54 – 48 – 63 – 53 – 43 – 58 – 41 – 26 – 20 – 5 – 15 – 32 – 38  
– 44 – 61 – 55 – 40 – 30 – 13 – 3 – 9 – 19 – 34 – 49 – 59 – 42 – 57 – 51 – 36  
– 21 – 4 – 10 – 25 – 35 – 52 – 62 – 56 – 46 – 31 – 16 – 6 – 23 – 8 – 14 – 29