

Y3/Y4 See if you can find four different patterns in this 25 number grid which don't increase by 1 each time.

| | | | | |
|----|----|----|----|----|
| 21 | 22 | 23 | 24 | 25 |
| 16 | 17 | 18 | 19 | 20 |
| 11 | 12 | 13 | 14 | 15 |
| 6 | 7 | 8 | 9 | 10 |
| 1 | 2 | 3 | 4 | 5 |

| | | | | |
|----|----|----|----|----|
| 21 | 22 | 23 | 24 | 25 |
| 16 | 17 | 18 | 19 | 20 |
| 11 | 12 | 13 | 14 | 15 |
| 6 | 7 | 8 | 9 | 10 |
| 1 | 2 | 3 | 4 | 5 |

Pattern number 1

Pattern number 2

| | | | | |
|----|----|----|----|----|
| 21 | 22 | 23 | 24 | 25 |
| 16 | 17 | 18 | 19 | 20 |
| 11 | 12 | 13 | 14 | 15 |
| 6 | 7 | 8 | 9 | 10 |
| 1 | 2 | 3 | 4 | 5 |

| | | | | |
|----|----|----|----|----|
| 21 | 22 | 23 | 24 | 25 |
| 16 | 17 | 18 | 19 | 20 |
| 11 | 12 | 13 | 14 | 15 |
| 6 | 7 | 8 | 9 | 10 |
| 1 | 2 | 3 | 4 | 5 |

Pattern number 3

Pattern number 4

| | | | | |
|----|----|----|----|----|
| 21 | 22 | 23 | 24 | 25 |
| 16 | 17 | 18 | 19 | 20 |
| 11 | 12 | 13 | 14 | 15 |
| 6 | 7 | 8 | 9 | 10 |
| 1 | 2 | 3 | 4 | 5 |

1. Without adding together all the numbers $1+2+3+4+5$, see if you can find another, different way of working out the sum of the numbers on the bottom row.
2. Now see if you can find a quick way of working out the sum of all the numbers on the row from 6 to 10
3. What about the sum of all the numbers on the row from 11 to 15?
4. What about the sum of all the numbers in the column from 1 to 21?
5. What about the sum of all the numbers in the diagonal from 1 to 25?
6. What about the sum of all the numbers in the column from 5 to 25?
7. What about the sum of all the numbers in the diagonal from 5 to 21?
8. Can you find a quick way of finding the sum of all the 25 numbers in the whole grid?

Y5/Y6

On the 36 grid below explore how you could find the total of all the numbers from 1 to 36

| | | | | | |
|----|----|----|----|----|----|
| 37 | 38 | 39 | 40 | 41 | 42 |
| 31 | 32 | 33 | 34 | 35 | 36 |
| 25 | 26 | 27 | 28 | 29 | 30 |
| 19 | 20 | 21 | 22 | 23 | 24 |
| 13 | 14 | 15 | 16 | 17 | 18 |
| 7 | 8 | 9 | 10 | 11 | 12 |
| 1 | 2 | 3 | 4 | 5 | 6 |

Explore how you could add up all the numbers in this 7 by 3 rectangle, without adding together each number separately.

| | | | | | | |
|----|----|----|----|----|----|----|
| 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |