## Pascal's triangle

From https://www.mathsisfun.com/pascals-triangle.html
One of the most interesting Number Patterns is Pascal's Triangle (named after Blaise Pascal, a famous French Mathematician and Philosopher).

To build the triangle, start with " 1 " at the top, then continue placing numbers below it in a triangular pattern.

Each number is the numbers directly above it added together.
(Here I have highlighted that $1+3=4$ )


## Patterns Within the Triangle



## Diagonals (look at the diagram on the previous page)

The first diagonal is, of course, just "1"s
The next diagonal has the Counting Numbers (1,2,3, etc).
The third diagonal has the triangular numbers
(The fourth diagonal, not highlighted, has the tetrahedral numbers.)
For an extra challenge, or if you're interested, find out about tetrahedral numbers and come and tell me about it.

## Symmetrical

The triangle is also symmetrical. The numbers on the left side have identical matching numbers on the right side, like a mirror image.


## Horizontal Sums

What do you notice about the horizontal sums? Is there a pattern?
They double each time (powers of 2).
Information about Blaise Pascal.

- He was born in Clermont-Ferrand, France in 1623, and was interested in mathematics and science from an early age. By age 16 he was presenting mathematical theories that he had devised.
- In 1642, Pascal invented a calculator with movable dials, to help his father calculate taxes. He devised and built 20 calculating machines, making him one of the first people to construct a mechanical calculator.

