### Pascal's triangle

From <u>https://www.mathsisfun.com/pascals-triangle.html</u>

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 <u>Counting Numbers</u> (1,2,3, etc).

The third diagonal has the triangular numbers

(The fourth diagonal, not highlighted, has the <u>tetrahedral numbers</u>.)

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 <u>symmetrical</u>. 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.