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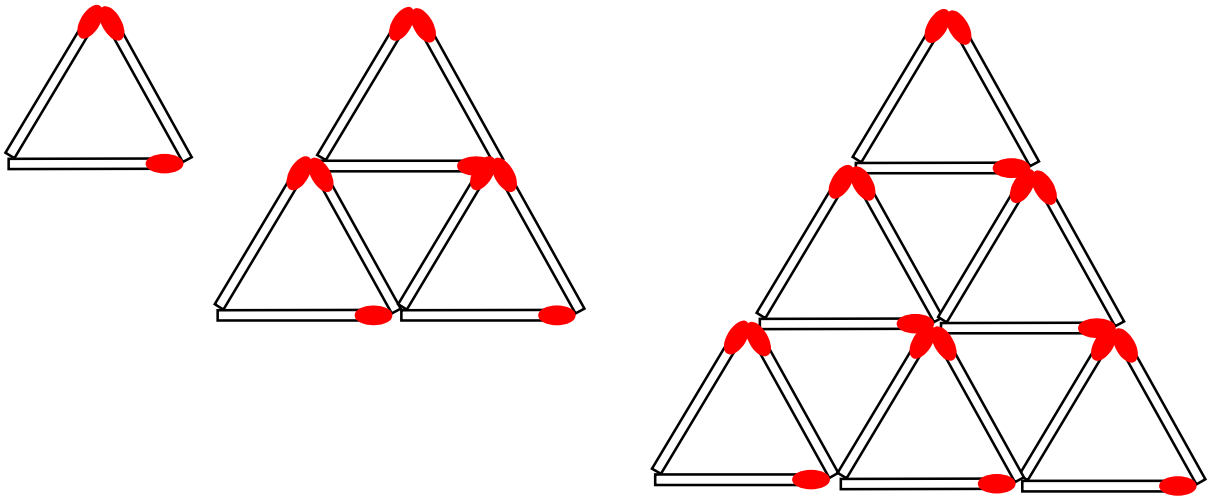
INVESTIGATION

Equi-Matches

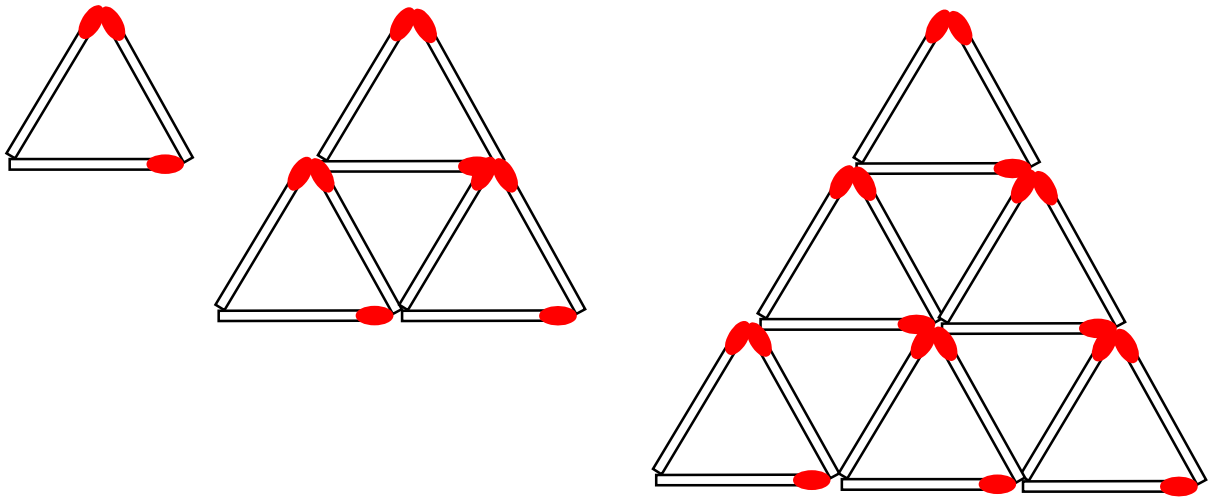


MathSphere

Equi-Matches

In this investigation we are going to see how many triangles there are in different patterns.

Look at the patterns below. You may like to make them yourself from matchsticks or draw them on paper. Do not use live matches!



Things to try:

1. How many equilateral triangles that have just one matchstick on each side are there in each pattern ? Count those with the point at the top separately from those with the point at the bottom.

2. Continue the pattern to larger shapes and see how many small triangles there are in each. Still count those with the point at the top separately from those with the point at the bottom.
   What do you notice about these numbers? Do they make a pattern?
   Can you predict what the next numbers will be?

3. Count how many triangles there are with two matchsticks on each side (some may be upside down again!).
   Do they make a pattern?
   Can you predict what the next numbers will be?

4. What about triangles with three or four or five matchsticks on each side? How brave are you?

Equi-Matches

Good Advice:

Work in a logical way.

Try some ideas of your own.

Compare what you have done with your friends.

Enjoy your work and record your results properly.

Try writing your answers in tables, like this:

Number of matches on a side of the whole shape	Number of small triangles with one match on each side and the point at the top.
1	1
2	3
3	6
4	?
5	?

Have Fun, Fun, Fun!

Answer Guide

This is quite an easy investigation if children can count the triangles properly. They have to be very careful, especially as the triangles become larger. Using headless matches is a very good idea for this activity.

The patterns that emerge are the triangle numbers 1, 3, 6, 10, 15 ,21 etc and the square numbers 1, 4, 9, 16, 25, 36 etc.

Make sure they are recording their results properly, preferably in tables and drawing proper conclusions.