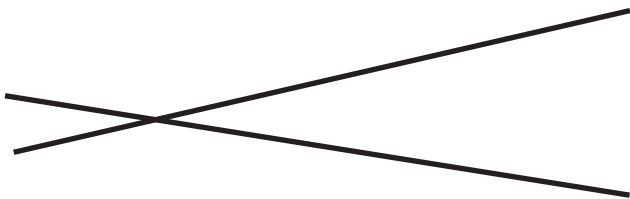# Sticks

Collect a number of sticks. The investigation is to find the maximum number of intersections as the sticks cross.

With one stick, no sticks cross.

With 2 sticks, there is one intersection.

With 3 sticks, how many intersections are there? _____

Record the maximum number of intersections for each number of sticks.

Number of sticks	Number of intersections
1	0
2	1
3	

Can you spot the pattern?

_____

_____

Can you explain the reason for the pattern?

_____

_____

Predict the next number of intersections and test your idea.

_____

_____

Answers

Number of sticks	Number of intersections
1	0
2	1
3	3
4	6
5	10
6	15
7	21
8	36

The number of intersections are triangular numbers. Each new stick intersects all the others. This means the 9th stick will intersect all the other 8, adding 8 intersections.