Staircase of Sticks

The picture shows a figure that can be expanded an infinite number of times.

Fig. 1   Fig. 2   Fig. 3   Fig. 4
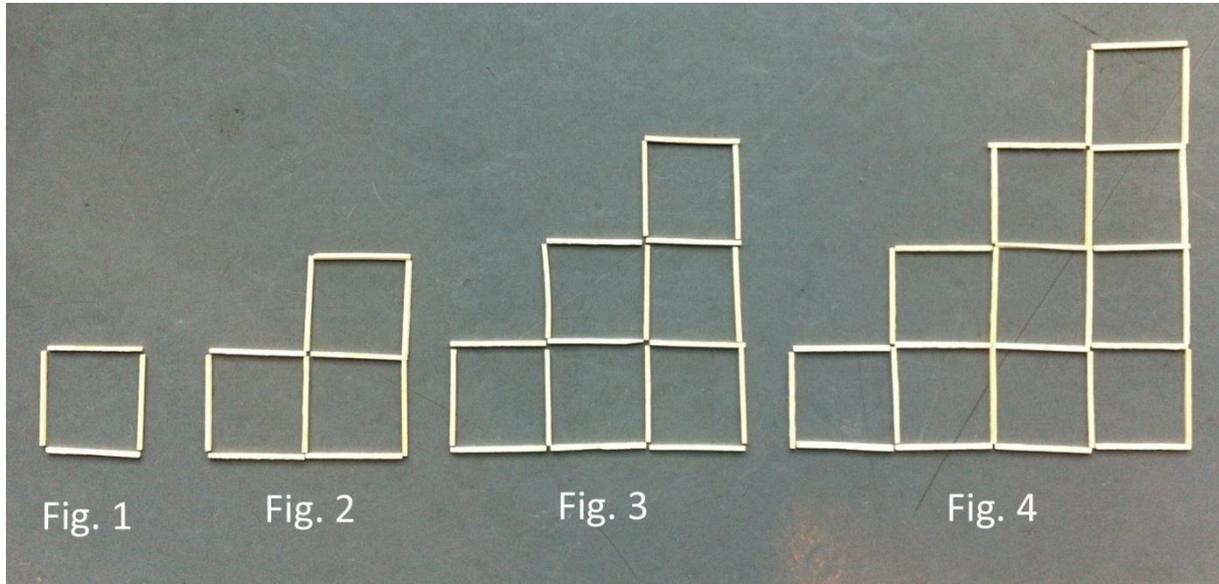
A   Subject Report

You should investigate

- a) the perimeter of the figures, measured in number of sticks
- b) the number of sticks required for each figure

Find a relation between the figure number and both the number of sticks needed for the

perimeter (a) and the number of sticks needed for the whole figure (b).

1. Solve the problem in as many ways as you can think of.
2. Make a joint subject report that carefully explains
   how you reached your various results.
3. Compare and contrast the different solutions. What is the same? What is different?
4. Which method do you think is the most efficient/effective?
   Give a reason for your answer.

B   Exhibition and presentation

- a) Make your own task using either two- or three-dimensional figures
     that grow according to a given pattern.

- b) Find a pattern in nature, art, clothing design, architecture or similar
     and explain how the pattern is constructed.

C   Progress log

The progress log should describe how the class has worked through tasks A and B.