



# Finding the General Term of a Quadratic Pattern

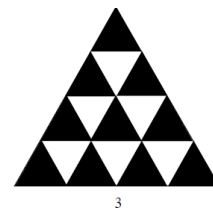
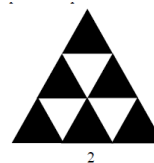
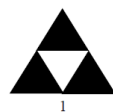
Topics: Patterns, Algebra and Functions

A Leaving Certificate Exam question is placed in structured problem setting, allowing students to develop their mathematical reasoning.

Year Group: 5<sup>th</sup> Year

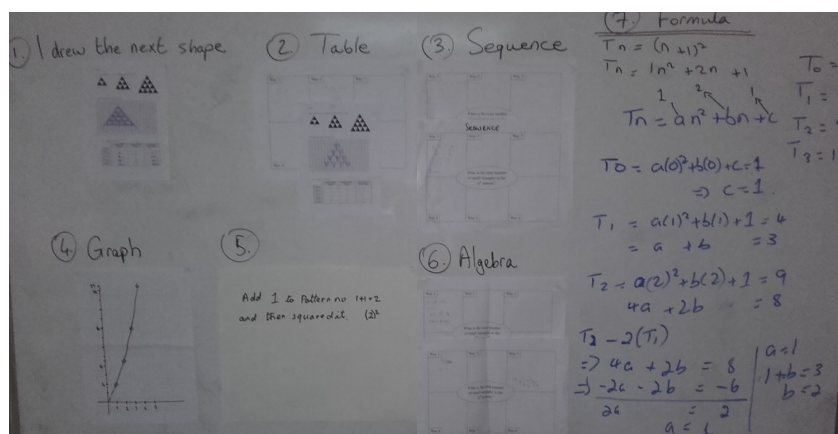
Level: Leaving Certificate Ordinary

## Posing the Problem



Find an expression for the total number of small triangles in the  $n^{\text{th}}$  pattern, in as many ways as you can.

## The Boardwork



Prior Knowledge & Posing the Task  
5 minutes



Students working on the problem  
10 minutes



Presentation of Solutions & Ceardaíocht  
20 minutes



Summing up & Reflection  
5 minutes

## Reflecting on the Lesson



The algebraic workings of finding  $T_n$  by solving 3 equations for variables  $a$ ,  $b$  and  $c$  can often cause problems for students at fifth year ordinary level and did so again in our research lesson. However by working through other ways of viewing and describing a quadratic pattern, the majority of students were able to show their understanding of the pattern in a variety of ways.

Teachers in the group have commented that they and their students are enjoying teaching and learning through Lesson Study and structured problem solving.



Developed by John Hartery, Geoff Kelly (Ardscoil na Mara) and Judy O'Gorman (St. Declan's CC) with thanks to Enda Donnelly MDT and the students of Ardscoil na Mara, Co. Waterford.

To download this lesson plan visit [www.projectmaths.ie/mc2017](http://www.projectmaths.ie/mc2017)

