

# Squares and Triangles

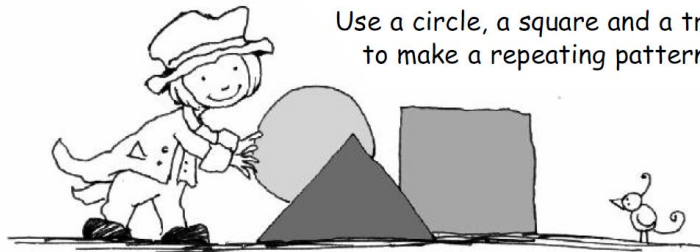
## Finding and continuing complex patterns in problem solving activities

There are multiple answers here.

### Problem 102

Shape & Space

Level C



Use a circle, a square and a triangle to make a repeating pattern.

Extension: Try using more than three shapes.

Clue:

Each number is the sum of each number that has come before.

### Problem 94

Numbers 123

Level B

A marine biologist is researching the structure of a nautilus. The shell's pattern follows a sequence discovered by the mathematician Fibonacci. Insert the next three numbers.

0 1 1 2 3 5 8 13 — — —



Clue:

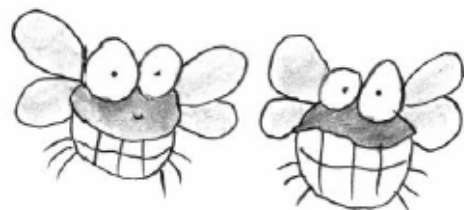
Sort this information into a table with 'Day' as one heading and number of flies as the other.

### Problem 95

Numbers 123

Level B

Flies are known to breed at an amazing rate. One day there are two flies; on the next day, five; on the third day, nine; and on the fourth day, 14. How many flies will there be on the eighth day?



## Squares and Triangles

Clue:

Use a table to work out this problem.

### Problem 91

Numbers 123

Level B

When Mrs Patel hangs one of the paintings on the string in the classroom she needs two clips to hold it securely. For two paintings she needs three clips, and for three paintings she needs four clips. How many clips will she need for 15 paintings? For 30 paintings?



### Problem 100

Numbers 123

Level C

Alana was travelling cross-country. The first day, she travelled 80 kilometres; the second day, 100 kilometres; the third day, 70 kilometres; the fourth day, 90 kilometres; and on the fifth day she travelled 60 kilometres. How many kilometres did she travel on the 13th day?



Clue:

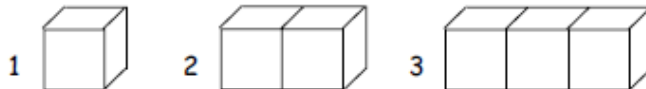
This problem involves more than one operation.

### Problem 101

Numbers 123

Level C

A class has made some wooden cubes. They have decided to paint the faces of the cubes. They are going to group their cubes starting with one cube in one group, two cubes stuck together in the next group, three stuck together in the next and so on. The cubes are always stuck together to form a line. How many faces will they have to paint when four cubes are stuck together? How many when eight are stuck together?



Clue: Be careful when counting the cube faces.

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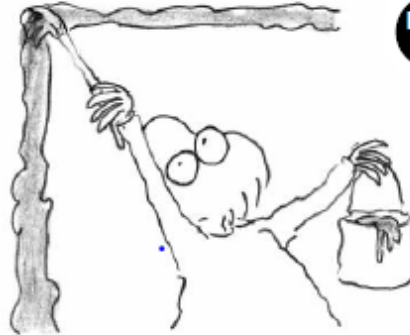
Fancy a challenge? Rectangles can have a go at these **optional** task cards - there are purposely no clues to really get your brain thinking.

### Problem 99

Numbers 123

Level C

Peter is painting frames of a mural. On the first day he paints three frames. On the second day he has painted five; on the third, eight; and on the fourth day his total is 12. On which day will he have painted 80 frames?



### Problem 93

Shape & Space

Level B

What are the next three pentagonal numbers?



### Problem 92

Numbers 123

Level B

The dog started out with two fleas. By the next week the dog had six fleas, and by the third week there were fourteen. The following week the dog was really scratching, because there were 26 fleas. If the fleas continue multiplying at the same rate, how many fleas will there be in the ninth week?

