



Age 11+ Level ★
Worksheet 1

1. Street Lamps

Walking up a steep hill, I pass 10 equally spaced street lamps. I take 5 seconds to walk from the first lamp to the second lamp, 6 seconds from the second lamp to the third, and so on, with each time increasing by 1 second as I slow down.

How long do I take to walk from the first lamp to the last?

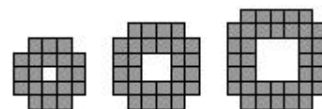
2. Printing Error

A book has 89 pages, but the page numbers are printed incorrectly. Every third page number has been omitted, so that the pages are numbered 1, 2, 4, 5, 7, 8, ... and so on.

What is the number on the last printed page?

3. Expanding Pattern

The diagram shows the first three patterns in a sequence in which each pattern has a square hole in the middle.



How many small shaded squares are needed to build the tenth pattern in the sequence?

4. Fruit Line-up

A grocer places some oranges, peaches, apples and bananas in a row so that, somewhere in the row, each type of fruit can be found next to each other type of fruit.

What is the smallest possible number of fruits in the row?

5. Many Matildas

The name Matilda is written repetitively like this:

MatildaMatildaMatilda.....

What is the 1000th letter?

These problems are adapted from UKMT (ukmt.org.uk) and SEAMC (seamc.asia) problems.