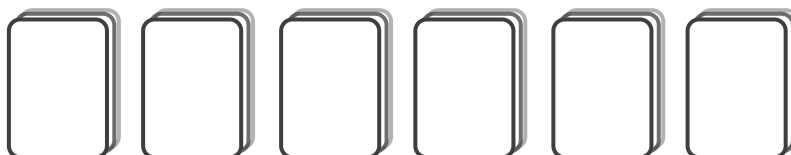


# The Six Pile Sum

There is a pack of cards numbered from 1 to 20.

Arrange the cards into six piles where the totals of each pile are the same.



How could the cards be arranged?

Try to find another arrangement.

*Note that the piles do not need to have the same number of cards.*



# The 1 to 15 Difference Triangle

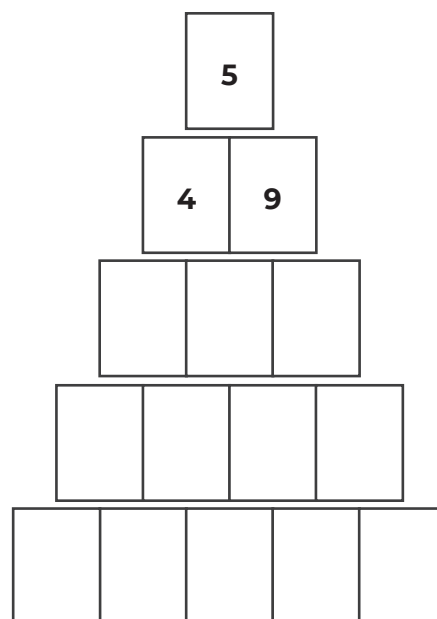
This triangle of cards is arranged using cards numbered from 1 to 15.

Each row is formed from the difference of the two numbers below it.

For example, the difference between 4 and 9 is 5.

Try to complete the missing three rows.

Hint: 14 and 15 appear in the bottom row.



## Teachers Notes:

Problem 9:

This task comes from NRICH. Readers are encouraged to explore the NRICH website.

The sum of the numbers 1 to 20 is 210.

$210 \div 6 = 35$ , so the total for each pile is 35.

Starting from the highest values is a systematic approach.

Pile 1: 20, 15

Pile 2: 19, 16

Pile 3: 18, 17

Pile 4: 14, 13, 8

Pile 5: 12, 11, 10, 2

Pile 6: 9, 7, 6, 5, 4, 3, 1 (the remaining numbers)

Piles can vary by being replaced with equivalents, e.g. 15 in pile 1 could be swapped with the 9 & 6 from pile 6.

Problem 10:

