

## 1 Test Area

There are  $4n$  pebbles of weights  $1, 2, 3, \dots, 4n$ . Each pebble is coloured in one of  $n$  colours and there are four pebbles of each colour. Show that we can arrange the pebbles into two piles so that the following two conditions are both satisfied:

- The total weights of both piles are the same.
- Each pile contains two pebbles of each colour.

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