# A bit of Heinz magic …

Look at the number square below.

* Pick any number – circle it. Now cross out every other number in the same row and the same column.
* Pick any number that remains. Circle it, and as before, cross out every other number in the same row or column.
* Repeat this again.
* You will now have four numbers left that are neither circled nor crossed out. Again, choose one of them, circle it, and cross out the numbers in the same row or column.
* Circle the one number you are left with.
* Find the total of your five circled numbers. Share your result with a friend.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **19** | **8** | **11** | **25** | **7** |
| **12** | **1** | **4** | **18** | **0** |
| **16** | **5** | **8** | **22** | **4** |
| **21** | **10** | **13** | **27** | **9** |
| **14** | **3** | **6** | **20** | **2** |

# So, why does it work?

The number square is an addition grid. The 10 numbers that generate the grid have been chosen so that they have a total of 57. Once the grid has been completed, these numbers are removed. However you select your five numbers (on page 1), you are always adding together these 10 numbers.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 12 | 1 | 4 | 18 | 0 |
| 7 | **19** | **8** | **11** | **25** | **7** |
| 0 | **12** | **1** | **4** | **18** | **0** |
| 4 | **16** | **5** | **8** | **22** | **4** |
| 9 | **21** | **10** | **13** | **27** | **9** |
| 2 | **14** | **3** | **6** | **20** | **2** |

# Tasks

* Create your own 5 by 5 ‘magic matrix’ – but with a mystery total of 64
* Create your own ‘magic matrix’ with any number you want as the mystery total (you could create a unique birthday card!)
* Experiment: can you create a ‘magic matrix’ using fractions, decimals or negative numbers?

*Based on an idea in ‘Mathematical Puzzles and Diversions’ by Martin Gardner, 1959*