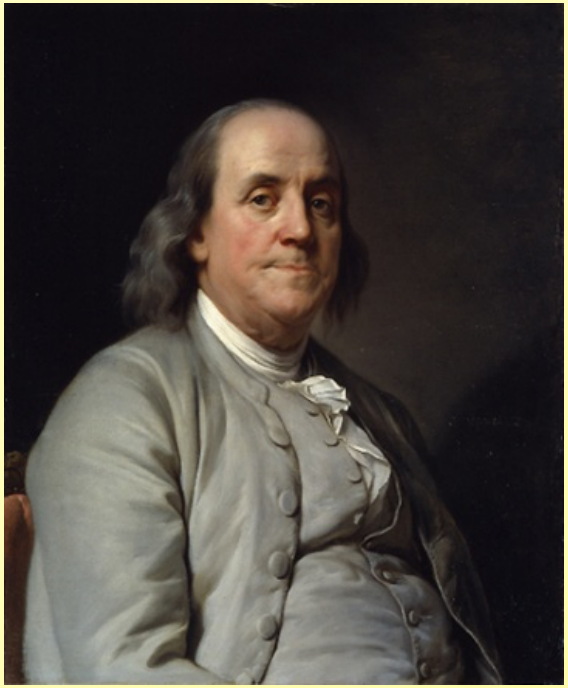
Making a Magic Square



Benjamin Franklin

Starter

- This is a 'Magic Square'

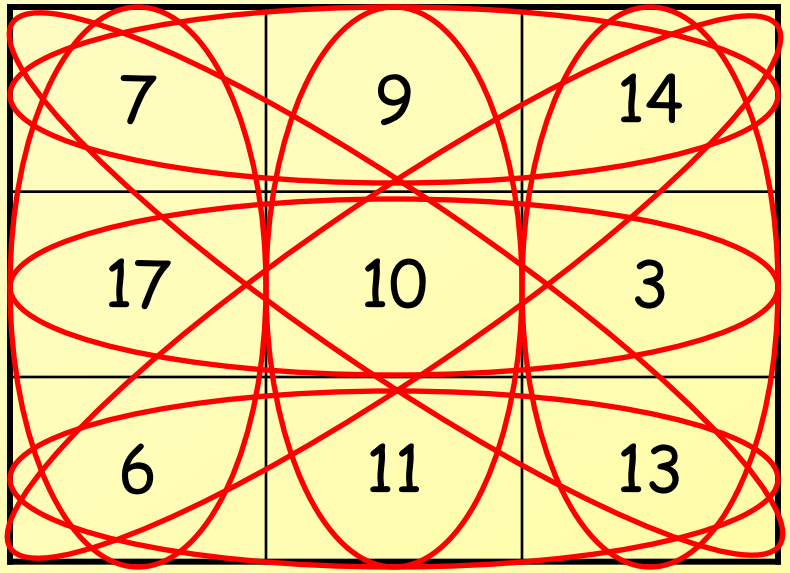
7	9	14
17	10	3
6	11	13

- Discuss with the person next to you – why do you think it is called a 'Magic' square?

Making a Magic Square

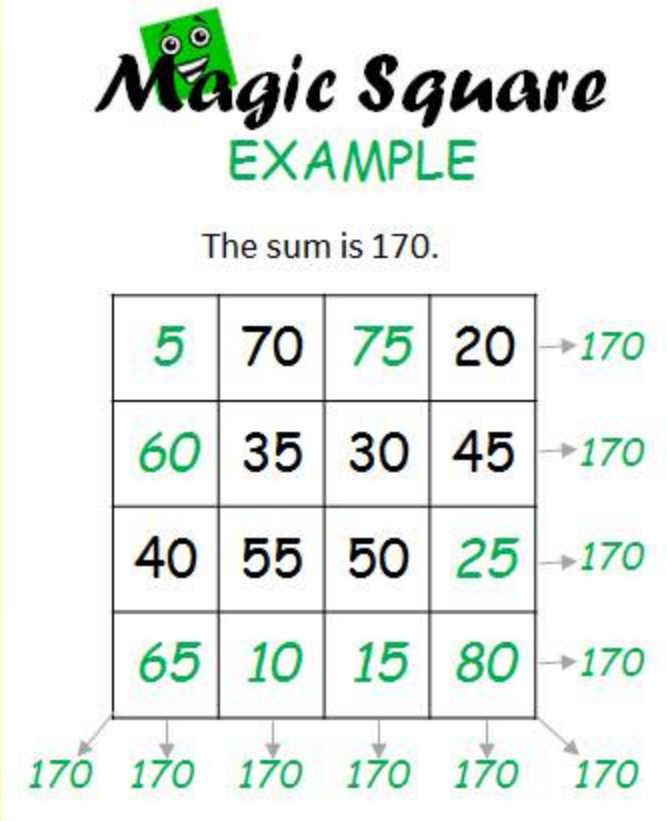
- A magic square is a grid in which all diagonals, rows and columns add up to the same number

- The 'magic number' is the number that each row, column and diagonal add up to...

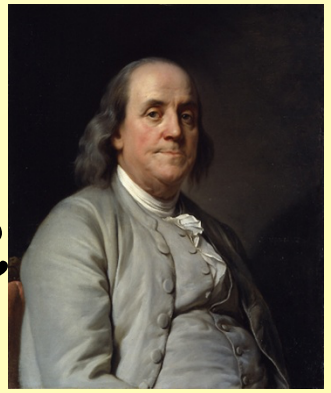


Magic number = 30

HAVE A GO


Magic Square
EXAMPLE
The sum is 170.
5 70 75 20 170
60 35 30 45 170
40 55 50 25 170
65 10 15 80 170
170 170 170 170 170 170

Plenary
Making a Magic Square



- Benjamin Franklin, a former president of the USA, discovered a way of creating a magic square for any chosen magic number

- He did this by using algebra, whereby you choose values for a, b and c, then substitute them into the formulas shown in the grid

a - c	a – b + c	a + b
a + b + c	a	a – b - c
a - b	a + b - c	a + c

Magic number = ?

Making a Magic Square

- Complete the Magic Square if; a = 12, b = 5 and c = 1

a - c	a - b + c	a + b
a + b + c	a	a - b - c
a - b	a + b - c	a + c

11	8	17
18	12	6
7	16	13

Magic number = 36

Making a Magic Square

- Complete the Magic Square if; a = 10, b = 7 and c = 4

a - c	a – b + c	a + b
a + b + c	a	a – b - c
a - b	a + b - c	a + c

6	7	17
21	10	-1
3	13	14

Magic number = 30